

176968

# MINOR PERMIT MODIFICATION APPLICATION FOR A CLASS I LANDFILL

**Landfill Gas-to-Energy Facility**

## TRAIL RIDGE LANDFILL DUVAL COUNTY, FLORIDA

Submitted to:

**Florida Department of Environmental Protection  
Northeast District**  
7825 Baymeadows Way, Suite B200  
Jacksonville, Florida 32256

Applicant:

**Trail Ridge Landfill, Incorporated**  
5110 U.S. Highway 301  
Baldwin, Florida 32234  
904-289-9077

Prepared by:

|          |           |
|----------|-----------|
| MB       | OCULUS SW |
| Initials | SO        |
| Date     | 10-15-08  |

**S2Li**

**S2L, INCORPORATED**  
531 Versailles Drive, Suite 202  
Maitland, Florida 32751  
COA No. 7831  
407-475-9163 Fax 407-475-9169

and

**TRAIL RIDGE ENERGY, LLC**  
29261 Wall Street  
Wixom, Michigan 48393  
248-380-3920 Fax 248-408-9613

**RECEIVED**

September 24, 2008

**SEP 25 2008**

**NORTHEAST DISTRICT  
DEP JACKSONVILLE**



September 24, 2008

Mr. Emerson C. Raulerson, P.E.  
Solid Waste Section  
Florida Department of Environmental Protection  
Northeast District  
7825 Baymeadows Way, Suite B200  
Jacksonville, FL 32256

**RE: Operation Permit Minor Modification Application for a Landfill Gas-to-Energy Facility  
Duval County, Florida – Trail Ridge Landfill  
Existing FDEP Permit No. 0013493-010-SC**

Dear Mr. Raulerson:

On behalf of Trail Ridge Landfill, Incorporated (TRLI) and Trail Ridge Energy, LLC, S2L, Incorporated (S2Li) is pleased to enclose four (4) signed and sealed copies of an operation permit minor modification application for the Trail Ridge Landfill located in Duval County, Florida. The purpose of this request for modification is to provide for the installation of a Landfill Gas-to-Energy Facility and the Facility's connection to the existing landfill gas collection system at the Trail Ridge Landfill. TRLI is proposing the following:

- 1) The construction of a Landfill Gas-to-Energy Facility at the Trail Ridge Landfill. This facility will convert the landfill gas collected at the landfill into electricity;
- 2) Tie-in to the landfill gas collection system;
- 3) Discharge of collected condensate from the Energy Facility into the landfill leachate collection system; and
- 4) On-site storage of engine oil and waste oil.

This permit modification application also includes a completed FDEP Form 62-701.900(1) in accordance with Chapter 62-701.320(5)(a), Florida Administrative Code (FAC) which is found in Section 1. Also enclosed is a check in the amount of two-hundred fifty (\$250) dollars payable to the FDEP for the permit fee as specified in Chapter 62-4.050(4)(s), FAC for the Class I operation permit minor modification application.

S2Li appreciates the Department's assistance in reviewing this permit modification application. If you have any questions or comments regarding the enclosed document, please contact me at 770-517-9759 or e-mail me at [osmith@s2li.com](mailto:osmith@s2li.com).

Sincerely,

S2Li Incorporated

  
Omar E. Smith, P.E.

Florida Registration No. 38358

September 24, 2008

Enclosures

cc: Jim Getting, P.E. – Gas Operations Manager, North Florida, Waste Management w/enc.  
Scott P. Gauthier – Trail Ridge Energy, LLC. w/enc.

531 VERSAILLES DRIVE, SUITE 202 ■ MAITLAND, FL 32751-7301  
407-475-9163 Fax 407-475-9169 [www.s2li.com](http://www.s2li.com)

DEP003839

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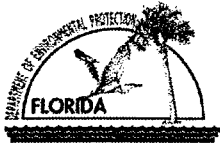
## **Section 1**

### **INTRODUCTION**

Trail Ridge Landfill, Inc. (TRLI) operates the Trail Ridge Landfill (TRL) located at 5110 U.S. Highway 301, Baldwin, Duval County, Florida. TRLI is applying for a minor modification to the TRL's Construction and Operation Permit No. 0013493-010-SC to allow for the construction of a Landfill Gas-to-Energy Facility (LFGTE) and its connection to the landfill gas/leachate collection systems within the Trail Ridge Landfill property boundaries.

This minor modification application has been prepared in accordance with the applicable sections of Chapter 62-701, Florida Administrative Code (FAC), effective 5-27-2001, and provides the required facility information for agency review and approval. Required information which has been previously submitted and is applicable to this permit modification has not been resubmitted. The portions of the application that have not been resubmitted have been marked "No Substantial Change" or "N/C" on the application form.

Four (4) copies of this permit application have been submitted to the FDEP Northeast District office along with a check for Two-Hundred and Fifty Dollars (\$250) to cover the Class I Operation Permit Minor Modification Application fee.



Florida Department of Environmental Protection  
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, FL 32399-2400

DEP Form # 62-701.900(1)  
Form Title Solid Waste Management Facility Permit  
Effective Date 05-27-01

DEP Application No. \_\_\_\_\_  
(Filed by DEP)

**STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

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

**APPLICATION INSTRUCTIONS AND FORMS**

**Northwest District**  
160 Governmental Center  
Pensacola, FL 32501-6794  
850-596-8360

**Northeast District**  
7825 Baymeadows Way, Ste. B200  
Jacksonville, FL 32256-7590  
904-448-4300

**Central District**  
3319 Maguire Blvd., Ste. 232  
Orlando, FL 32803-3767  
407-894-7555

**Southwest District**  
3804 Coconut Palm Dr.  
Tampa, FL 33619  
813-744-6100

**South District**  
2295 Victoria Ave., Ste. 364  
Fort Myers, FL 33901-3881  
941-332-6975

**Southeast District**  
400 North Congress Ave.  
West Palm Beach, FL 33401  
561-681-6600

DEP003843

## **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 minimum of four copies of the application shall be submitted to the Department's District 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,B, D through T
- B. Asbestos Monofills - Submit parts A,B,D,E,F,G,J,L,N, P through S, and T
- C. Industrial Solid Waste Facilities - Submit parts A,B, D through T
- D. Non-Disposal Facilities - Submit parts A,C,D,E,J,N,S and T

**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,C and D 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,M, O through T
- B. Asbestos Monofills - Submit parts A,B,N, P through T
- C. Industrial Solid Waste Facilities - Submit parts A,B, M through T
- D. Non-Disposal Facilities - Submit parts A,C,N,S and T

**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  |
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| PART K: | VERTICAL EXPANSION OF LANDFILLS                              |
| PART L: | LANDFILL OPERATION REQUIREMENTS                              |
| PART M: | WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS           |
| PART N: | SPECIAL WASTE HANDLING REQUIREMENTS                          |
| PART O: | GAS MANAGEMENT SYSTEM REQUIREMENTS                           |
| PART P: | LANDFILL CLOSURE REQUIREMENTS                                |
| PART Q: | CLOSURE PROCEDURES   |
| PART R: | LONG TERM CARE REQUIREMENTS                                  |
| PART S: | FINANCIAL RESPONSIBILITY REQUIREMENTS                        |
| PART T: | 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

**A. GENERAL INFORMATION**

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

☒ Disposal

|  |   |
|--|---|
| <input checked="" type="checkbox"/> Class I Landfill                             | <input type="checkbox"/> Ash Monofill           |
| <input type="checkbox"/> Class II Landfill                                       | <input type="checkbox"/> Asbestos Monofill      |
| <input type="checkbox"/> Class III Landfill                                      | <input type="checkbox"/> Industrial Solid Waste |
| <input checked="" type="checkbox"/> Other Describe: <u>Waste Tire Processing</u> |   |

☐ Non-Disposal

|  |
|--|
| <input type="checkbox"/> Incinerator For Non-biomedical Waste              |
| <input type="checkbox"/> Waste to Energy Without Power Plant Certification |
| <input type="checkbox"/> Other Describe: _____                             |

**NOTE:** Waste Processing Facilities should apply on Form 62-701.900(4), FAC;  
Land Clearing Disposal Facilities should notify on Form 62-701.900(3), FAC;  
Compost Facilities should apply on Form 62-701.900(10), FAC; and  
C&D Disposal Facilities should apply on Form 62-701.900(6), FAC

2. Type of application:

|  |
|--|
| <input type="checkbox"/> Construction                      |
| <input type="checkbox"/> Operation                         |
| <input checked="" type="checkbox"/> Construction/Operation |
| <input type="checkbox"/> Closure                           |

3. Classification of application:

|                                  |  |
|----------------------------------|--|
| <input type="checkbox"/> New     | <input type="checkbox"/> Substantial Modification      |
| <input type="checkbox"/> Renewal | <input type="checkbox"/> Intermediate Modification     |
|                                  | <input checked="" type="checkbox"/> Minor Modification |

4. Facility name: Trail Ridge Landfill

5. DEP ID number: NED/16/00033628 County: Duval

6. Facility location (main entrance): 5110 U.S. Highway 301, Baldwin, FL 32234

7. Location coordinates:

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

Latitude: 30° 14' 00" Longitude: 82° 02' 30"

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**SEP 25 2008**

**NORTHEAST DISTRICT  
DEP-JACKSONVILLE**

8. Applicant name (operating authority): Trail Ridge Landfill, Inc.  
Mailing address: 5110 U.S. Highway 301 South Baldwin, FL 32234  
Street or P.O. Box City State Zip  
Contact person: Greg Mathes Telephone: (904) 289-9100  
Title: Director of Landfill Operations  
E-Mail address (if available): gmathes@wm.com
9. Authorized agent/Consultant: S2L, Incorporated  
Mailing address: 531 Versailles Drive, Suite 202, Maitland, FL 32751-4589  
Street or P.O. Box City State Zip  
Contact person: Omar E. Smith Telephone: (770) 517-9759  
Title: Regional Manager  
E-Mail address (if available): osmith@s2li.com
10. Landowner(if different than applicant): City of Jacksonville  
Mailing address: 214 N. Hogan Street, Jacksonville, FL 32202  
Street or P.O. Box City State Zip  
Contact person: Chris Pearson Telephone: (904) 630-4593  
E-Mail address (if available): chrisp@coj.net
11. Cities, towns and areas to be served: City of Jacksonville (Duval County),  
St. Johns County and Northeast Florida
12. Population to be served:  
914,875 (2008 Duval) Five-Year 986,271 (2013 Duval)  
Current: 179,050 (2008 St. Johns) Projection: 212,823 (2013 St. Johns)
13. Date site will be ready to be inspected for completion: N/A
14. Expected life of the facility: Landfill: 8 ; LFG-to Energy Facility: 20+ years
15. Estimated costs:  
Total Construction: \$ N/A Closing Costs: \$ N/C
16. Anticipated construction starting and completion dates:  
From: Today To: October 2008
17. Expected volume or weight of waste to be received:  
5,000 (peak) tons/day gallons/day  
3,900 Tons/day (monthly average)

**B.****DISPOSAL FACILITY GENERAL INFORMATION**

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

This is a permit application for a minor modification of the operating permit to allow for the construction of a landfill gas-to-energy facility and tie in to the landfill gas / leachate collection systems.

2. Facility site supervisor: Greg Mathes

Title: Director of Landfill Operations Telephone: (904) 289-9100

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

3. Disposal area: Total 148 acres; Used 148 acres; Available 0 acres.

4. Weighing scales used: ☒ Yes ☐ No

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

6. Charge for waste received: \_\_\_\_\_ \$/yds<sup>3</sup> \$32.00 \$/ton

7. Surrounding land use, zoning:

|  |  |
|--|--|
| <input type="checkbox"/> Residential             | <input type="checkbox"/> Industrial                          |
| <input checked="" type="checkbox"/> Agricultural | <input type="checkbox"/> None                                |
| <input type="checkbox"/> Commercial              | <input type="checkbox"/> Other Describe: <u>Silviculture</u> |

8. Types of waste received:

|  |  |
|--|--|
| <input checked="" type="checkbox"/> Residential  | <input checked="" type="checkbox"/> C & D debris       |
| <input checked="" type="checkbox"/> Commercial   | <input checked="" type="checkbox"/> Shredded/cut tires |
| <input type="checkbox"/> Incinerator/WTE ash   | <input type="checkbox"/> Yard trash                    |
| <input checked="" type="checkbox"/> Treated biomedical                                 | <input type="checkbox"/> Septic tank                   |
| <input checked="" type="checkbox"/> Water treatment sludge                             | <input checked="" type="checkbox"/> Industrial         |
| <input type="checkbox"/> Air treatment sludge  | <input checked="" type="checkbox"/> Industrial sludge  |
| <input checked="" type="checkbox"/> Agricultural                                       | <input checked="" type="checkbox"/> Domestic sludge    |
| <input checked="" type="checkbox"/> Asbestos   |  |
| <input checked="" type="checkbox"/> Other Describe: <u>Non-hazardous special waste</u> |  |

9. Salvaging permitted: ☐ Yes ☒ No

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

11. Spotters: Yes ☒ No ☐ Number of spotters used: 1

12. Site located in: ☐ Floodplain ☐ Wetlands ☒ Other Uplands Pine Flatlands

13. Property recorded as a Disposal Site in County Land Records: ☐ Yes ☒ No
14. Days of operation: Monday - Saturday
15. Hours of operation: 5:00 AM - 10:00 PM \*
16. Days Working Face covered: Daily with cover dirt or tarpaulin
17. Elevation of water table: varies Ft. (NGVD 1929)
18. Number of monitoring wells: 50 (37 wells monitored)
19. Number of surface monitoring points: 2
20. Gas controls used: ☒ Yes ☐ No Type controls: ☒ Active ☐ Passive  
 Gas flaring: ☒ Yes ☐ No Gas recovery: ☒ Yes ☐ No
21. Landfill unit liner type:  
☐ Natural soils ☒ Double geomembrane  
☐ Single clay liner ☐ Geomembrane & composite  
☐ Single geomembrane ☐ Double composite  
☐ Single composite ☐ None  
☐ Slurry wall  
☐ Other Describe: With Bentonite Mat and 6" clay subgrade
22. Leachate collection method:  
☒ Collection pipes ☐ Sand layer  
☒ Geonets ☐ Gravel layer  
☐ Well points ☐ Interceptor trench  
☐ Perimeter ditch ☐ None  
☐ Other Describe: \_\_\_\_\_
23. Leachate storage method:  
☒ Tanks  
☐ Surface impoundments  
☐ Other Describe: \_\_\_\_\_
24. Leachate treatment method:  
☐ Oxidation ☐ Chemical treatment  
☐ Secondary ☒ Settling  
☐ Advanced  
☐ None  
☒ Other Offsite Treatment at a City Wastewater Treatment Facility

\* May vary dependent upon waste receipt.

25. Leachate disposal method:

|   |  |
|---|--|
| <input type="checkbox"/> Recirculated                   | <input type="checkbox"/> Pumped to WWTP              |
| <input checked="" type="checkbox"/> Transported to WWTP | <input type="checkbox"/> Discharged to surface water |
| <input type="checkbox"/> Injection well                 | <input type="checkbox"/> Percolation ponds           |
| <input type="checkbox"/> Evaporation                    |  |
| <input type="checkbox"/> Other _____                    |  |

26. For leachate discharged to surface waters:

Name and Class of receiving water: N/A

27. Storm Water:

Collected: ☒ Yes ☐ No

Type of treatment: Landfill: wet detention; Gas-to-Energy Facility: dry detention

Name and Class of receiving water: Headwaters of Deep Creek - Class III

28. Environmental Resources Permit (ERP) number or status: Landfill: Permitted as Solid

Waste Permit (DEP File Nos. 184444, 184445 and 184447). Pond was permitted,  
constructed and certified.

Gas-to-Energy Facility: Separate ERP, DEP No. 16-179996-001-SI.

C. NON-DISPOSAL FACILITY GENERAL INFORMATION (N/A)

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Facility site supervisor: \_\_\_\_\_

Title: \_\_\_\_\_ Telephone: (\_\_\_\_) \_\_\_\_\_

\_\_\_\_\_  
E-Mail address (if available)

3. Site area: Facility \_\_\_\_\_ acres; Property \_\_\_\_\_ acres

4. Security to prevent unauthorized use: ☐ Yes ☐ No

5. Site located in: ☐ Floodplain ☐ Wetlands ☐ Other \_\_\_\_\_

6. Days of operation: \_\_\_\_\_

7. Hours of operation: \_\_\_\_\_

8. Number of operating staff: \_\_\_\_\_

9. Expected useful life: \_\_\_\_\_ Years

10. Weighing scales used: ☐ Yes ☐ No

11. Normal processing rate: \_\_\_\_\_ yd<sup>3</sup>/day \_\_\_\_\_ tons/day \_\_\_\_\_ gal/day

12. Maximum processing rate: \_\_\_\_\_ yd<sup>3</sup>/day \_\_\_\_\_ tons/day \_\_\_\_\_ gal/day

13. Charge for waste received: \_\_\_\_\_

14. Storm Water Collected: ☐ Yes ☐ No

Type of treatment: \_\_\_\_\_

Name and Class of receiving water: \_\_\_\_\_

15. Environmental Resources Permit (ERP) number or status: \_\_\_\_\_

16. Final residue produced:

\_\_\_\_\_ % of normal processing rate \_\_\_\_\_ % of maximum processing rate  
\_\_\_\_\_ Tons/day \_\_\_\_\_ Tons/day

Disposed of at:

Facility name: \_\_\_\_\_ County: \_\_\_\_\_

17. Estimated operating costs: \$ \_\_\_\_\_

Total cost/ton: \$ \_\_\_\_\_ Net cost/ton: \$ \_\_\_\_\_

18. Provide a site plan, at a scale not greater than 200 feet to the inch, which shows the facility location and identifies the proposed waste and final residue storage areas, total acreage of the site, and any other features which are relevant to the prohibitions or location restrictions in Rule 62-701.300, FAC, such as water bodies or wetlands on or within 200 feet of the site, and potable water wells on or within 500 feet of the site.
19. Provide a description of how the waste and final residue will be managed to not be expected to cause violations of the Department's ground water, surface water or air standards or criteria
20. Provide an estimate of the maximum amount of waste and final residue that will be store on-site.
21. Provide a detailed description of the technology use at the facility and the functions of all processing equipment that will be utilized. The descriptions shall explain the flow of waste and residue through all the proposed unit operations and shall include: (1) regular facility operations as they are expected to occur; (2) procedures for start up operations, and scheduled and unscheduled shut down operations; (3) potential safety hazards and control methods, including fire detection and control; (4) a description of any expected air emissions and wastewater discharges from the facility which may be potential pollution sources; (5) a description and usage rate of any chemical or biological additives that will be used in the process; and (6) process flow diagrams for the facility operations.
22. Provide a description of the loading, unloading and processing areas.
23. Provide a description of the leachate control system that will be used to prevent discharge of leachate to the environment and mixing of leachate with stormwater. Note: Ground water monitoring may be required for the facility depending on the method of leachate control used.
24. Provide an operation plan for the facility which includes: (1) a description of general facility operations, the number of personnel responsible for the operations including their respective job descriptions, and the types of equipment that will be used at the facility; (2) procedures to ensure any unauthorized wastes received at the site will be properly managed; (3) a contingency plan to cover operation interruptions and emergencies such as fires, explosions, or natural disasters; (4) procedures to ensure operational records needed for the facility will be adequately prepared and maintained; and (5) procedures to ensure that the wastes and final residue will be managed to not be expected to cause pollution.
25. Provide a closure plan that describes the procedures that will be implemented when the facility closes including: (1) estimated time to complete closure; (2) procedures for removing and properly managing or disposing of all wastes and final residues; (3) notification of the Department upon ceasing operations and completion of final closure.

D. PROHIBITIONS (62-701.300, FAC)

| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |   |
|----------|-----------------|------------|------------|---|
| —        | —               | —          | <u>X</u>   | 1. Provide documentation that each of the siting criteria will be satisfied for the facility;<br>(62-701.300(2), FAC)                                     |
| —        | —               | —          | <u>X</u>   | 2. If the facility qualifies for any of the exemptions contained in Rules 62-701.300(12) through (16), FAC, then document this qualification(s).          |
| —        | —               | —          | <u>X</u>   | 3. Provide documentation that the facility will be in compliance with the burning restrictions;<br>(62-701.300(3), FAC)                                   |
| —        | —               | —          | <u>X</u>   | 4. Provide documentation that the facility will be in compliance with the hazardous waste restrictions;<br>(62-701.300(4), FAC)                           |
| —        | —               | —          | <u>X</u>   | 5. Provide documentation that the facility will be in compliance with the PCB disposal restrictions;<br>(62-701.300(5), FAC)                              |
| —        | —               | —          | <u>X</u>   | 6. Provide documentation that the facility will be in compliance with the biomedical waste restrictions;<br>(62-701.300(6), FAC)                          |
| —        | —               | —          | <u>X</u>   | 7. Provide documentation that the facility will be in compliance with the Class I surface water restrictions;<br>(62-701.300(7), FAC)                     |
| —        | —               | —          | <u>X</u>   | 8. Provide documentation that the facility will be in compliance with the special waste for landfills restrictions; (62-701.300(8), FAC)                  |
| —        | —               | <u>X</u>   | —          | 9. Provide documentation that the facility will be in compliance with the special waste for waste-to-energy facilities restrictions; (62-701.300(9), FAC) |
| —        | —               | —          | <u>X</u>   | 10. Provide documentation that the facility will be in compliance with the liquid restrictions;<br>(62-701.300(10), FAC)                                  |
| —        | —               | —          | <u>X</u>   | 11. Provide documentation that the facility will be in compliance with the used oil restrictions;<br>(62-701.300(11), FAC)                                |



**E. SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL (62-701.320, FAC)**

| <u>S</u>    | <u>LOCATION</u>   | <u>N/A</u>  | <u>N/C</u>  |   |
|-------------|-------------------|-------------|-------------|---|
| <u>X</u>    | <u>Attached</u>   | <u>    </u> | <u>    </u> | 1. Four copies, at minimum, of the completed application form, all supporting data and reports; (62-701.320(5)(a), FAC)   |
| <u>X</u>    | <u>Attached</u>   | <u>    </u> | <u>    </u> | 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)  |
| <u>X</u>    | <u>Attached</u>   | <u>    </u> | <u>    </u> | 3. A letter of transmittal to the Department; (62-701.320(7)(a), FAC)   |
| <u>X</u>    | <u>Attached</u>   | <u>    </u> | <u>    </u> | 4. A completed application form dated and signed by the applicant; (62-701.320(7)(b), FAC)  |
| <u>X</u>    | <u>Attached</u>   | <u>    </u> | <u>    </u> | 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)   |
| <u>X</u>    | <u>Attached</u>   | <u>    </u> | <u>    </u> | 6. An engineering report addressing the requirements of this rule and with the following format: a cover sheet, text printed on 8 1/2 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) |
| <u>    </u> | <u>    </u>       | <u>    </u> | <u>X</u>    | 7. Operation Plan and Closure Plan; (62-701.320(7)(e)1, FAC)  |
| <u>    </u> | <u>    </u>       | <u>    </u> | <u>X</u>    | 8. Contingency Plan; (62-701.320(7)(e)2, FAC)   |
| <u>X</u>    | <u>Appendix A</u> | <u>    </u> | <u>    </u> | 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; (62-702.320(7)(f), FAC)  |
| <u>    </u> | <u>    </u>       | <u>    </u> | <u>X</u>    | a. A regional map or plan with the project location;  |
| <u>    </u> | <u>    </u>       | <u>    </u> | <u>X</u>    | b. A vicinity map or aerial photograph no more than 1 year old;   |
| <u>    </u> | <u>    </u>       | <u>    </u> | <u>X</u>    | c. A site plan showing all property boundaries certified by a registered Florida land surveyor;   |

S      LOCATION      N/A    N/C

**PART E CONTINUED**

- |       |       |          |          |  |
|-------|-------|----------|----------|--|
| _____ | _____ | _____    | <u>X</u> | d. Other necessary details to support the engineering report.  |
| _____ | _____ | _____    | <u>X</u> | 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)  |
| _____ | _____ | _____    | <u>X</u> | 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)              |
| _____ | _____ | _____    | <u>X</u> | 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 this state; (62-701.320(7)(i), FAC) |
| _____ | _____ | <u>X</u> | _____    | 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; (62-702.320(8), FAC)  |
| _____ | _____ | _____    | <u>X</u> | 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)   |
| _____ | _____ | _____    | <u>X</u> | 15. Explain how the operator training requirements will be satisfied for the facility; (62-701.320(15), FAC)   |

**F. LANDFILL PERMIT REQUIREMENTS (62-701.330, FAC)**

| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |   |
|----------|-----------------|------------|------------|---|
| _____    | _____           | _____      | <u>X</u>   | 1. Vicinity map or aerial photograph no more than 1 year old and of appropriate scale showing land use and local zoning within one mile of the landfill and of sufficient scale to show all homes or other structures, water bodies, and roads other significant features of the vicinity. All significant features shall be labeled; (62-701.330(3)(a), FAC) |
| _____    | _____           | _____      | <u>X</u>   | 2. Vicinity map or aerial photograph no more than 1 year old showing all airports that are located within five miles of the proposed landfill; (62-701.330(3)(b), FAC)  |
| _____    | _____           | _____      | <u>X</u>   | 3. Plot plan with a scale not greater than 200 feet to the inch showing; (62-701.330(3)(c), FAC)  |
| _____    | _____           | _____      | <u>X</u>   | a. Dimensions;  |
| _____    | _____           | _____      | <u>X</u>   | b. Locations of proposed and existing water quality monitoring wells;   |
| _____    | _____           | _____      | <u>X</u>   | c. Locations of soil borings;   |
| _____    | _____           | _____      | <u>X</u>   | d. Proposed plan of trenching or disposal areas;  |
| _____    | _____           | _____      | <u>X</u>   | e. Cross sections showing original elevations and proposed final contours which shall be included either on the plot plan or on separate sheets;  |
| _____    | _____           | _____      | <u>X</u>   | f. Any previously filled waste disposal areas;  |
| _____    | _____           | _____      | <u>X</u>   | g. Fencing or other measures to restrict access.  |
| _____    | _____           | _____      |            | 4. Topographic maps with a scale not greater than 200 feet to the inch with 5-foot contour intervals showing; (62-701.330(3)(d), FAC):  |
| _____    | _____           | _____      | <u>X</u>   | a. Proposed fill areas;   |
| _____    | _____           | _____      | <u>X</u>   | b. Borrow areas;  |
| _____    | _____           | _____      | <u>X</u>   | c. Access roads;  |
| _____    | _____           | _____      | <u>X</u>   | d. Grades required for proper drainage;   |
| _____    | _____           | _____      | <u>X</u>   | e. Cross sections of lifts;   |

**S**      **LOCATION**      **N/A**      **N/C**

**PART F CONTINUED**

\_\_\_\_      \_\_\_\_\_      \_\_\_\_      X  
 \_\_\_\_      \_\_\_\_\_      \_\_\_\_      X  
 \_\_\_\_      \_\_\_\_\_      \_\_\_\_      X

- f. Special drainage devices if necessary;  
 g. Fencing;  
 h. Equipment facilities.

5. A report on the landfill describing the following;  
 (62-701.330 (3) (e), FAC)

X      Application form, Pg. 5/40

\_\_\_\_      \_\_\_\_\_      \_\_\_\_      X

X      Application form, Pg. 5/40

\_\_\_\_      \_\_\_\_\_      \_\_\_\_      X

- a. The current and projected population and area to be served by the proposed site;  
 b. The anticipated type, annual quantity, and source of solid waste, expressed in tons;  
 c. The anticipated facility life;  
 d. The source and type of cover material used for the landfill.

\_\_\_\_      \_\_\_\_\_      \_\_\_\_      X

6. 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) (h), FAC)

\_\_\_\_      \_\_\_\_\_      \_\_\_\_      X

7. 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) (i), FAC)

**G. GENERAL CRITERIA FOR LANDFILLS (62-701.340, FAC)**

\_\_\_\_      \_\_\_\_\_      \_\_\_\_      X

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 (4) (b), FAC)

\_\_\_\_      \_\_\_\_\_      \_\_\_\_      X

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 (4) (c), FAC)

\_\_\_\_      \_\_\_\_\_      \_\_\_\_      X

3. Describe what methods shall be taken to screen the landfill from public view where such screening can practically be provided; (62-701.340 (4) (d), FAC)

**H. LANDFILL CONSTRUCTION REQUIREMENTS (62-701.400, FAC)**

| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |  |
|----------|-----------------|------------|------------|--|
| _____    | _____           | <u>X</u>   | _____      | 1. Describe how the landfill shall be designed so that solid waste disposal units will be constructed and closed at planned intervals throughout the design period of the landfill; (62-701.400(2), FAC) |
| _____    | _____           | <u>X</u>   | _____      | 2. Landfill liner requirements; (62-701.400(3), FAC)   |
| _____    | _____           | <u>X</u>   | _____      | a. General construction requirements; (62-701.400(3)(a), FAC):   |
| _____    | _____           | <u>X</u>   | _____      | (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;              |
| _____    | _____           | <u>X</u>   | _____      | (2) Document foundation is adequate to prevent liner failure;  |
| _____    | _____           | <u>X</u>   | _____      | (3) Constructed so bottom liner will not be adversely impacted by fluctuations of the ground water;  |
| _____    | _____           | <u>X</u>   | _____      | (4) Designed to resist hydrostatic uplift if bottom liner located below seasonal high ground water table;  |
| _____    | _____           | <u>X</u>   | _____      | (5) Installed to cover all surrounding earth which could come into contact with the waste or leachate.   |
| _____    | _____           | <u>X</u>   | _____      | b. Composite liners; (62-701.400(3)(b), FAC)   |
| _____    | _____           | <u>X</u>   | _____      | (1) Upper geomembrane thickness and properties;  |
| _____    | _____           | <u>X</u>   | _____      | (2) Design leachate head for primary LCRS including leachate recirculation if appropriate;   |
| _____    | _____           | <u>X</u>   | _____      | (3) Design thickness in accordance with Table A and number of lifts planned for lower soil component.  |

| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |
|----------|-----------------|------------|------------|
|----------|-----------------|------------|------------|

**PART H CONTINUED**

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

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(1) Upper and lower geomembrane thicknesses and properties;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(2) Design leachate head for primary LCRS to limit the head to one foot above the liner;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(3) Lower geomembrane sub-base design;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(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);

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

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(1) Field seam test methods to ensure all field seams are at least 90 percent of the yield strength for the lining material;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(2) Geomembranes to be used shall pass a continuous spark test by the manufacturer;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(3) Design of 24-inch-thick protective layer above upper geomembrane liner;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(4) Describe operational plans to protect the liner and leachate collection system when placing the first layer of waste above 24-inch-thick protective layer.

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(5) HDPE geomembranes, if used, meet the specifications in GRI GM13;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(6) PVC geomembranes, if used, meet the specifications in PGI 1197;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(7) Interface shear strength testing results of the actual components which will be used in the liner system;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(8) Transmissivity testing results of geonets if they are used in the liner system;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(9) Hydraulic conductivity testing results of geosynthetic clay liners if they are used in the liner system;

S      LOCATION      N/A   N/C

PART H CONTINUED

e.      Geosynthetic specification requirements;  
         (62-701.400(3)(e),FAC)

\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_

(1)      Definition and qualifications of the designer, manufacturer, installer, QA consultant and laboratory, and QA program;

\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_

(2)      Material specifications for geomembranes, geocomposites, geotextiles, geogrids, and geonets;

\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_

(3)      Manufacturing and fabrication specifications including geomembrane raw material and roll QA, fabrication personnel qualifications, seaming equipment and procedures, overlaps, trial seams, destructive and nondestructive seam testing, seam testing location, frequency, procedure, sample size and geomembrane repairs;

\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_

(4)      Geomembrane installation specifications including earthwork, conformance testing, geomembrane placement, installation personnel qualifications, field seaming and testing, overlapping and repairs, materials in contact with geomembrane and procedures for lining system acceptance;

\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_

(5)      Geotextile and geogrid specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials and any overlying materials;

\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_

(6)      Geonet and geocomposite specifications including handling and placement, conformance testing, stacking and joining, repair, and placement of soil materials and any overlying materials;

\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_

(7)      Geosynthetic clay liner specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil material and any overlying materials;

f.      Standards for soil components  
         (62-710.400(3)(f),FAC):

\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_

(1)      Description of construction procedures including overexcavation and backfilling to preclude structural inconsistencies and procedures for placing and compacting soil component in layers;

S      LOCATION      N/A    N/C

PART H CONTINUED

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (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;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (3) Procedures for testing in-situ soils to demonstrate they meet the specifications for soil liners;  
(4) Specifications for soil component of liner including at a minimum:

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (a) Allowable particle size distribution, Atterberg limits, shrinkage limit;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (b) Placement moisture and dry density criteria;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (c) Maximum laboratory-determined saturated hydraulic conductivity using simulated leachate;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (d) Minimum thickness of soil liner;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (e) Lift thickness;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (f) Surface preparation (scarification);

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (g) Type and percentage of clay mineral within the soil component;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (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.

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

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (1) Constructed of materials chemically resistant to the waste and leachate;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (2) Have sufficient mechanical properties to prevent collapse under pressure;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (3) Have granular material or synthetic geotextile to prevent clogging;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- (4) Have method for testing and cleaning clogged pipes or contingent designs for rerouting leachate around failed areas;



| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |
|----------|-----------------|------------|------------|
|----------|-----------------|------------|------------|

**PART H CONTINUED**

b. Primary LCRS requirements;  
(62-701.400(4)(b), FAC)

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(1) Bottom 12 inches having hydraulic conductivity  $\geq 1 \times 10^{-3}$  cm/sec;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(2) Total thickness of 24 inches of material chemically resistant to the waste and leachate;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(3) Bottom slope design to accommodate for predicted settlement;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

(4) Demonstration that synthetic drainage material, if used, is equivalent or better than granular material in chemical compatibility, flow under load and protection of geomembrane liner.

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

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

a. Describe general procedures for recirculating leachate;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

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

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

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

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

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;

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

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

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

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      LOCATION      N/A    N/C

PART H CONTINUED

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

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

(3) General design requirements;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

(c) Lower geomembrane placed on subbase  $\geq 6$  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;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |
|----------|-----------------|------------|------------|
|----------|-----------------|------------|------------|

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

# **PART H CONTINUED**

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

- (1) Describe tank materials of construction and ensure foundation is sufficient to support tank;
- (2) Describe procedures for cathodic protection if needed for the tank;
- (3) Describe exterior painting and interior lining of the tank to protect it from the weather and the leachate stored;
- (4) Describe secondary containment design to ensure adequate capacity will be provided and compatibility of materials of construction;
- (5) Describe design to remove and dispose of stormwater from the secondary containment system;
- (6) Describe an overfill prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overfilling;
- (7) Inspections, corrective action and reporting requirements;
  - (a) Overfill prevention system weekly;
  - (b) Exposed tank exteriors weekly;
  - (c) Tank interiors when tank is drained or at least every three years;
  - (d) Procedures for immediate corrective action if failures detected;
  - (e) Inspection reports available for department review.

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

- (1) Describe materials of construction;
- (2) A double-walled tank design system to be used with the following requirements;

S      LOCATION      N/A    N/C

PART H CONTINUED

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

(a) Interstitial space monitoring at least weekly;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

(c) Interior tank coatings compatible with stored leachate;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

(4) Inspection reports available for department review.

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

d. Schedule provided for routine maintenance of LCRS; (62-701.400(6)(e), FAC)

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

a. Provide CQA Plan including:

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

(1) Specifications and construction requirements for liner system;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

(3) Identification of supervising professional engineer;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

(6) Description of CQA reporting forms and documents;

S      LOCATION      N/A    N/C

**PART H CONTINUED**

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

7. Soil Liner CQA (62-701.400(8)FAC)

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

- 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;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

8. Surface water management systems; (62-701.400(9), FAC)

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

- a. Provide a copy of a Department permit for stormwater control or documentation that no such permit is required;

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

- b. Design of surface water management system to isolate surface water from waste filled areas and to control stormwater run-off;

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

- c. Details of stormwater control design including retention ponds, detention ponds, and drainage ways;

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

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

- 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;

X

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)

**I. HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS (62-701.410(1), FAC)**

| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |   |
|----------|-----------------|------------|------------|---|
|          |                 |            |            | 1. Submit a hydrogeological investigation and site report including at least the following information:   |
| _____    | _____           | _____      | <u>X</u>   | a. Regional and site specific geology and hydrogeology;   |
| _____    | _____           | _____      | <u>X</u>   | b. Direction and rate of ground water and surface water flow including seasonal variations;   |
| _____    | _____           | _____      | <u>X</u>   | c. Background quality of ground water and surface water;  |
| _____    | _____           | _____      | <u>X</u>   | d. Any on-site hydraulic connections between aquifers;  |
| _____    | _____           | _____      | <u>X</u>   | e. Site stratigraphy and aquifer characteristics for confining layers, semi-confining layers, and all aquifers below the landfill site that may be affected by the landfill;  |
| _____    | _____           | _____      | <u>X</u>   | f. Description of topography, soil types and surface water drainage systems;  |
| _____    | _____           | _____      | <u>X</u>   | g. Inventory of all public and private water wells within a one-mile radius of the landfill 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; |
| _____    | _____           | _____      | <u>X</u>   | h. Identify and locate any existing contaminated areas on the site;   |
| _____    | _____           | _____      | <u>X</u>   | i. Include a map showing the locations of all potable wells within 500 feet, and all community water supply wells within 1000 feet, of the waste storage and disposal areas;  |
| _____    | _____           | _____      | <u>X</u>   | 2. Report signed, sealed and dated by PE or PG.   |

**J. GEOTECHNICAL INVESTIGATION REQUIREMENTS (62-701.410(2), FAC)**

| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |  |
|----------|-----------------|------------|------------|--|
|          |                 |            |            | 1. Submit a geotechnical site investigation report defining the engineering properties of the site including at least the following:   |
| _____    | _____           | _____      | <u>X</u>   | a. Description of subsurface conditions including soil stratigraphy and ground water table conditions;   |
| _____    | _____           | _____      | <u>X</u>   | b. Investigate for the presence of muck, previously filled areas, soft ground, lineaments and sinkholes;   |
| _____    | _____           | _____      | <u>X</u>   | c. Estimates of average and maximum high water table across the site;  |
|          |                 |            |            | d. Foundation analysis including:  |
| _____    | _____           | _____      | <u>X</u>   | (1) Foundation bearing capacity analysis;  |
| _____    | _____           | _____      | <u>X</u>   | (2) Total and differential subgrade settlement analysis;   |
| _____    | _____           | _____      | <u>X</u>   | (3) Slope stability analysis;  |
| _____    | _____           | _____      | <u>X</u>   | e. Description of methods used in the investigation and includes soil boring logs, laboratory results, analytical calculations, cross sections, interpretations and conclusions; |
| _____    | _____           | _____      | <u>X</u>   | f. An evaluation of fault areas, seismic impact zones, and unstable areas as described in 40 CFR 258.13, 40 CFR 258.14 and 40 CFR 258.15.  |
| _____    | _____           | _____      | <u>X</u>   | 2. Report signed, sealed and dated by PE or PG.  |

**K. VERTICAL EXPANSION OF LANDFILLS (62-701.430, FAC)**

| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |   |
|----------|-----------------|------------|------------|---|
| _____    | _____           | <u>X</u>   | _____      | 1. Describe how the vertical expansion shall not cause or contribute to leachate leakage from the existing landfill or adversely affect the closure design of the existing landfill;                |
| _____    | _____           | <u>X</u>   | _____      | 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;                                 |
| _____    | _____           | <u>X</u>   | _____      | 3. Provide foundation and settlement analysis for the vertical expansion;   |
| _____    | _____           | <u>X</u>   | _____      | 4. Provide total settlement calculations demonstrating that the final elevations of the lining system, that gravity drainage, and that no other component of the design will be adversely affected; |
| _____    | _____           | <u>X</u>   | _____      | 5. Minimum stability safety factor of 1.5 for the lining system component interface stability and deep stability;   |
| _____    | _____           | <u>X</u>   | _____      | 6. Provide documentation to show the surface water management system will not be adversely affected by the vertical expansion;  |
| _____    | _____           | <u>X</u>   | _____      | 7. Provide gas control designs to prevent accumulation of gas under the new liner for the vertical expansion.   |



**L. LANDFILL OPERATION REQUIREMENTS (62-701.500, FAC)**

- |       |       |       |          |   |
|-------|-------|-------|----------|---|
| _____ | _____ | _____ | <u>X</u> | 1. Provide documentation that 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)   |
| _____ | _____ | _____ |          | 2. Provide a landfill operation plan including procedures for: (62-701.500(2), FAC)   |
| _____ | _____ | _____ | <u>X</u> | a. Designating responsible operating and maintenance personnel;   |
| _____ | _____ | _____ | <u>X</u> | b. Contingency operations for emergencies;  |
| _____ | _____ | _____ | <u>X</u> | c. Controlling types of waste received at the landfill;   |
| _____ | _____ | _____ | <u>X</u> | d. Weighing incoming waste;   |
| _____ | _____ | _____ | <u>X</u> | e. Vehicle traffic control and unloading;   |
| _____ | _____ | _____ | <u>X</u> | f. Method and sequence of filling waste;  |
| _____ | _____ | _____ | <u>X</u> | g. Waste compaction and application of cover;   |
| _____ | _____ | _____ | <u>X</u> | h. Operations of gas, leachate, and stormwater controls;  |
| _____ | _____ | _____ | <u>X</u> | i. Water quality monitoring.  |
| _____ | _____ | _____ | <u>X</u> | j. Maintaining and cleaning the leachate collection system;   |
| _____ | _____ | _____ | <u>X</u> | 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. FDEP permit, engineering drawings, water quality records, etc.) (62-701.500(3), FAC) |
| _____ | _____ | _____ | <u>X</u> | 4. Describe the waste records that will be compiled monthly and provided to the Department quarterly; (62-701.500(4), FAC)  |
| _____ | _____ | _____ | <u>X</u> | 5. Describe methods of access control; (62-701.500(5), FAC)   |
| _____ | _____ | _____ | <u>X</u> | 6. Describe load checking program to be implemented at the landfill to discourage disposal of unauthorized wastes at the landfill; (62-701.500(6), FAC)   |
| _____ | _____ | _____ |          | 7. Describe procedures for spreading and compacting waste at the landfill that include: (62-701.500(7), FAC)  |
| _____ | _____ | _____ | <u>X</u> | a. Waste layer thickness and compaction frequencies;  |

S      LOCATION      N/A      N/C

PART L CONTINUED

- |  |       |       |          |  |
|--|-------|-------|----------|--|
| _____  | _____ | _____ | <u>X</u> | b. Special considerations for first layer of waste placed above liner and leachate collection system;    |
| _____  | _____ | _____ | <u>X</u> | c. Slopes of cell working face and side grades above land surface, planned lift depths during operation; |
| _____  | _____ | _____ | <u>X</u> | d. Maximum width of working face;  |
| _____  | _____ | _____ | <u>X</u> | e. Description of type of initial cover to be used at the facility that controls:                        |
| _____  | _____ | _____ | <u>X</u> | (1) Disease vector breeding/animal attraction  |
| _____  | _____ | _____ | <u>X</u> | (2) Fires  |
| _____  | _____ | _____ | <u>X</u> | (3) Odors  |
| _____  | _____ | _____ | <u>X</u> | (4) Blowing litter   |
| _____  | _____ | _____ | <u>X</u> | (5) Moisture infiltration  |
| _____  | _____ | _____ | <u>X</u> | f. Procedures for applying initial cover including minimum cover frequencies;                            |
| _____  | _____ | _____ | <u>X</u> | g. Procedures for applying intermediate cover;   |
| _____  | _____ | _____ | <u>X</u> | h. Time frames for applying final cover;   |
| _____  | _____ | _____ | <u>X</u> | i. Procedures for controlling scavenging and salvaging.  |
| _____  | _____ | _____ | <u>X</u> | j. Description of litter policing methods;   |
| _____  | _____ | _____ | <u>X</u> | k. Erosion control procedures.   |
| 8. Describe operational procedures for leachate management including; (62-701.500(8), FAC) |       |       |          |  |
| _____  | _____ | _____ | <u>X</u> | a. Leachate level monitoring, sampling, analysis and data results submitted to the Department;           |
| _____  | _____ | _____ | <u>X</u> | b. Operation and maintenance of leachate collection and removal system, and treatment as required;       |
| _____  | _____ | _____ | <u>X</u> | c. Procedures for managing leachate if it becomes regulated as a hazardous waste;                        |
| _____  | _____ | _____ | <u>X</u> | d. Agreements for off-site discharge and treatment of leachate;  |
| _____  | _____ | _____ | <u>X</u> | e. Contingency plan for managing leachate during emergencies or equipment problems;                      |

S      LOCATION      N/A    N/C

PART L CONTINUED

|       |       |       |          |   |
|-------|-------|-------|----------|---|
| _____ | _____ | _____ | <u>X</u> | f. Procedures for recording quantities of leachate generated in gal/day and including this in the operating record;   |
| _____ | _____ | _____ | <u>X</u> | g. Procedures for comparing precipitation experienced at the landfill with leachate generation rates and including this information in the operating record;                    |
| _____ | _____ | _____ | <u>X</u> | h. Procedures for water pressure cleaning or video inspecting leachate collection systems.  |
| _____ | _____ | _____ | <u>X</u> | 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)         |
| _____ | _____ | _____ | <u>X</u> | 10. Describe procedures for operating and maintaining the landfill stormwater management system to comply with the requirements of Rule 62-701.400(9); (62-701.500(10), FAC)    |
|       |       |       |          | 11. Equipment and operation feature requirements; (62-701.500(11), FAC)   |
| _____ | _____ | _____ | <u>X</u> | a. Sufficient equipment for excavating, spreading, compacting and covering waste;   |
| _____ | _____ | _____ | <u>X</u> | b. Reserve equipment or arrangements to obtain additional equipment within 24 hours of breakdown;   |
| _____ | _____ | _____ | <u>X</u> | c. Communications equipment;  |
| _____ | _____ | _____ | <u>X</u> | d. Dust control methods;  |
| _____ | _____ | _____ | <u>X</u> | e. Fire protection capabilities and procedures for notifying local fire department authorities in emergencies;  |
| _____ | _____ | _____ | <u>X</u> | f. Litter control devices;  |
| _____ | _____ | _____ | <u>X</u> | g. Signs indicating operating authority, traffic flow, hours of operation, disposal restrictions.   |
| _____ | _____ | _____ | <u>X</u> | 12. Provide a description of all-weather access road, inside perimeter road and other roads necessary for access which shall be provided at the landfill; (62-701.500(12), FAC) |
| _____ | _____ | _____ | <u>X</u> | 13. Additional record keeping and reporting requirements; (62-701.500(13), FAC)   |

| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |
|----------|-----------------|------------|------------|
| —        | —               | —          | <u>X</u>   |
| —        | —               | —          | <u>X</u>   |
| —        | —               | —          | <u>X</u>   |
| —        | —               | —          | <u>X</u>   |

**PART L CONTINUED**

- a. Records used for developing permit applications and supplemental information maintained for the design period of the landfill;
- b. Monitoring information, calibration and maintenance records, copies of reports required by permit maintained for at least 10 years;
- c. Maintain annual estimates of the remaining life of constructed landfills and of other permitted areas not yet constructed and submit this estimate annually to the Department;
- d. Procedures for archiving and retrieving records which are more than five year old.

**M. WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS (62-701.510, FAC)**

| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |  |
|----------|-----------------|------------|------------|--|
| _____    | _____           | _____      | <u>X</u>   | 1. Water quality and leachate monitoring plan shall be submitted describing the proposed ground water, surface water and leachate monitoring systems and shall meet at least the following requirements; |
| _____    | _____           | _____      | <u>X</u>   | a. Based on the information obtained in the hydrogeological investigation and signed, dated and sealed by the PG or PE who prepared it; (62-701.510(2)(a), FAC)  |
| _____    | _____           | _____      | <u>X</u>   | b. All sampling and analysis performed in accordance with Chapter 62-160, FAC; (62-701.510(2)(b), FAC)   |
| _____    | _____           | _____      |            | c. Ground water monitoring requirements; (62-701.510(3), FAC)  |
| _____    | _____           | _____      | <u>X</u>   | (1) Detection wells located downgradient from and within 50 feet of disposal units;  |
| _____    | _____           | _____      | <u>X</u>   | (2) Downgradient compliance wells as required;   |
| _____    | _____           | _____      | <u>X</u>   | (3) Background wells screened in all aquifers below the landfill that may be affected by the landfill;   |
| _____    | _____           | _____      | <u>X</u>   | (4) Location information for each monitoring well;   |
| _____    | _____           | _____      | <u>X</u>   | (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;         |
| _____    | _____           | _____      | <u>X</u>   | (6) Well screen locations properly selected;   |
| _____    | _____           | _____      | <u>X</u>   | (7) Procedures for properly abandoning monitoring wells;   |
| _____    | _____           | <u>X</u>   | _____      | (8) Detailed description of detection sensors if proposed.   |

| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |
|----------|-----------------|------------|------------|
|----------|-----------------|------------|------------|

**PART M CONTINUED**

- d. Surface water monitoring requirements; (62-701.510(4), FAC)
- (1) Location of and justification for all proposed surface water monitoring points;
  - (2) Each monitoring location to be marked and its position determined by a registered Florida land surveyor;
- e. Leachate sampling locations proposed; (62-701.510(5), FAC)
- f. Initial and routine sampling frequency and requirements; (62-701.510(6), FAC)
- (1) Initial background ground water and surface water sampling and analysis requirements;
  - (2) Routine leachate sampling and analysis requirements;
  - (3) Routine monitoring well sampling and analysis requirements;
  - (4) Routine surface water sampling and analysis requirements.
- g. Describe procedures for implementing evaluation monitoring, prevention measures and corrective action as required; (62-701.510(7), FAC)
- h. Water quality monitoring report requirements; (62-701.510(9), FAC)
- (1) Semi-annual report requirements;
  - (2) Bi-annual report requirements signed, dated and sealed by PG or PE.

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
| _____ | _____ | _____ | <u>X</u> |
| _____ | _____ | _____ | <u>X</u> |
| _____ | _____ | _____ | <u>X</u> |
| _____ | _____ | _____ | <u>X</u> |
| _____ | _____ | _____ | <u>X</u> |
| _____ | _____ | _____ | <u>X</u> |
| _____ | _____ | _____ | <u>X</u> |
| _____ | _____ | _____ | <u>X</u> |
| _____ | _____ | _____ | <u>X</u> |

**N. SPECIAL WASTE HANDLING REQUIREMENTS (62-701.520, FAC)**

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

**O. GAS MANAGEMENT SYSTEM REQUIREMENTS (62-701.530, FAC)**

|          |                                       |          |          |   |
|----------|---------------------------------------|----------|----------|---|
|          |                                       |          |          | 1. Provide the design for a gas management systems that will (62-701.530(1), FAC):  |
| —        | —                                     | —        | <u>X</u> | a. Be designed to prevent concentrations of combustible gases from exceeding 25% the LEL in structures and 100% the LEL at the property boundary;   |
| <u>X</u> | <u>Section 2</u>                      | —        | —        | b. Be designed for site-specific conditions;  |
| <u>X</u> | <u>Section 2</u>                      | —        | —        | c. Be designed to reduce gas pressure in the interior of the landfill;  |
| —        | —                                     | —        | <u>X</u> | d. Be designed to not interfere with the liner, leachate control system or final cover.   |
| —        | —                                     | —        | <u>X</u> | 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): |
| —        | —                                     | —        | <u>X</u> | 3. Provide documentation describing how the gas remediation plan and odor remediation plan will be implemented; (62-701.530(3), FAC):   |
|          |                                       |          |          | 4. Landfill gas recovery facilities; (62-701.530(5), FAC):  |
| <u>X</u> | <u>Appendix A<br/>Section 1&amp;2</u> | —        | —        | a. Information required in Rules 62-701.320(7) and 62-701.330(3), FAC supplied;   |
| —        | —                                     | <u>X</u> | —        | b. Information required in Rule 62-701.600(4), FAC supplied where relevant and practical;   |
| <u>X</u> | <u>Section 2</u>                      | —        | —        | c. Estimate of current and expected gas generation rates and description of condensate disposal methods provided;   |

S      LOCATION      N/A      N/C

**PART O CONTINUED**

- |       |       |          |          |   |
|-------|-------|----------|----------|---|
| _____ | _____ | _____    | <u>X</u> | d. Description of procedures for condensate sampling, analyzing and data reporting provided;  |
| _____ | _____ | _____    | <u>X</u> | e. Closure plan provided describing methods to control gas after recovery facility ceases operation and any other requirements contained in Rule 62-701.400(10), FAC; |
| _____ | _____ | <u>X</u> | _____    | f. Performance bond provided to cover closure costs if not already included in other landfill closure costs.  |

**P. LANDFILL FINAL CLOSURE REQUIREMENTS (62-701.600, FAC)**

- |       |       |       |          |  |
|-------|-------|-------|----------|--|
|       |       |       |          | 1. Closure schedule requirements; (62-701.600(2), FAC)   |
| _____ | _____ | _____ | <u>X</u> | a. Documentation that a written notice including a schedule for closure will be provided to the Department at least one year prior to final receipt of wastes; |
| _____ | _____ | _____ | <u>X</u> | b. Notice to user requirements within 120 days of final receipt of wastes;   |
| _____ | _____ | _____ | <u>X</u> | c. Notice to public requirements within 10 days of final receipt of wastes.  |
|       |       |       |          | 2. Closure permit general requirements; (62-701.600(3), FAC)   |
| _____ | _____ | _____ | <u>X</u> | a. Application submitted to Department at least 90 days prior to final receipt of wastes;  |
|       |       |       |          | b. Closure plan shall include the following:   |
| _____ | _____ | _____ | <u>X</u> | (1) Closure report;  |
| _____ | _____ | _____ | <u>X</u> | (2) Closure design plan;   |
| _____ | _____ | _____ | <u>X</u> | (3) Closure operation plan;  |
| _____ | _____ | _____ | <u>X</u> | (4) Closure procedures;  |
| _____ | _____ | _____ | <u>X</u> | (5) Plan for long term care;   |
| _____ | _____ | _____ | <u>X</u> | (6) A demonstration that proof of financial responsibility for long term care will be provided.  |
|       |       |       |          | 3. Closure report requirements; (62-701.600(4), FAC)   |
|       |       |       |          | a. General information requirements;   |
| _____ | _____ | _____ | <u>X</u> | (1) Identification of landfill;  |



| S | LOCATION | N/A | N/C |
|---|----------|-----|-----|
|---|----------|-----|-----|

PART P CONTINUED

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

(2) Location, description and vicinity map;

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

(3) Total acres of disposal areas and landfill property;

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

(4) Legal property description;

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

(5) History of landfill;

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

(6) Identification of types of waste disposed of at the landfill.

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

b. Geotechnical investigation report and water quality monitoring plan required by Rule 62-701.330(3), FAC;

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

c. Land use information report indicating: identification of adjacent landowners; zoning; present land uses; and roads, highways right-of-way, or easements.

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

d. Report on actual or potential gas migration at landfills containing degradable wastes which would allow migration of gas off the landfill property;

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

e. Report assessing the effectiveness of the landfill design and operation including results of geotechnical investigations, surface water and storm water management, gas migration and concentrations, condition of existing cover, and nature of waste disposed of at the landfill;

4. Closure design requirements to be included in the closure design plan: (62-701.600(5), FAC)

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

a. Plan sheet showing phases of site closing;

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

b. Drawings showing existing topography and proposed final grades;

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

c. Provisions to close units when they reach approved design dimensions;

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

d. Final elevations before settlement;

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

e. Side slope design including benches, terraces, down slope drainage ways, energy dissipators and discussion of expected precipitation effects;

|       |       |       |          |
|-------|-------|-------|----------|
| _____ | _____ | _____ | <u>X</u> |
|-------|-------|-------|----------|

f. Final cover installation plans including:

(1) CQA plan for installing and testing final cover;

S      LOCATION      N/A      N/C

**PART P CONTINUED**

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

(2)      Schedule for installing final cover after final receipt of waste;

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

(3)      Description of drought-resistant species to be used in the vegetative cover;

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

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

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

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

g.      Final cover design requirements:

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

(1)      Protective soil layer design;

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

(2)      Barrier soil layer design;

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

(3)      Erosion control vegetation;

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

(4)      Geomembrane barrier layer design;

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

(5)      Geosynthetic clay liner design if used;

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

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

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

h.      Proposed method of stormwater control;

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

i.      Proposed method of access control;

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

j.      Description of proposed final use of the closed landfill, if any;

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      X

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

5.      Closure operation plan shall include:  
(62-701.600(6), FAC)

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

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

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

c.      Describe proposed method for demonstrating financial responsibility;

\_\_\_\_\_      \_\_\_\_\_      X      \_\_\_\_\_

d.      Indicate any additional equipment and personnel needed to complete closure.

| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |
|----------|-----------------|------------|------------|
|----------|-----------------|------------|------------|

**PART P CONTINUED**

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

e. Development and implementation of the water quality monitoring plan required in Rule 62-701.510, FAC.

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

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

|       |       |          |       |
|-------|-------|----------|-------|
| _____ | _____ | <u>X</u> | _____ |
|-------|-------|----------|-------|

6. Justification for and detailed description of procedures to be followed for temporary closure of the landfill, if desired; (62-701.600(7),FAC)

**Q. CLOSURE PROCEDURES (62-701.610, FAC)**

| <u>S</u> | <u>LOCATION</u> | <u>N/A</u> | <u>N/C</u> |   |
|----------|-----------------|------------|------------|---|
| _____    | _____           | _____      | <u>X</u>   | 1. Survey monuments; (62-701.610(2), FAC)                                 |
| _____    | _____           | _____      | <u>X</u>   | 2. Final survey report; (62-701.610(3), FAC)                              |
| _____    | _____           | _____      | <u>X</u>   | 3. Certification of closure construction completion; (62-701.610(4), FAC) |
| _____    | _____           | _____      | <u>X</u>   | 4. Declaration to the public; (62-701.610(5), FAC)                        |
| _____    | _____           | _____      | <u>X</u>   | 5. Official date of closing; (62-701.610(6), FAC)                         |
| _____    | _____           | _____      | <u>X</u>   | 6. Use of closed landfill areas; (62-701.610(7), FAC)                     |
| _____    | _____           | _____      | <u>X</u>   | 7. Relocation of wastes; (62-701.610(8), FAC)                             |

**R. LONG TERM CARE REQUIREMENTS (62-701.620, FAC)**

|       |       |       |          |   |
|-------|-------|-------|----------|---|
| _____ | _____ | _____ | <u>X</u> | 1. Maintaining the gas collection and monitoring system; (62-701.620(5), FAC)                     |
| _____ | _____ | _____ | <u>X</u> | 2. Right of property access requirements; (62-701.620(6), FAC)                                    |
| _____ | _____ | _____ | <u>X</u> | 3. Successors of interest requirements; (62-701.620(7), FAC)                                      |
| _____ | _____ | _____ | <u>X</u> | 4. Requirements for replacement of monitoring devices; (62-701.620(9), FAC)                       |
| _____ | _____ | _____ | <u>X</u> | 5. Completion of long term care signed and sealed by professional engineer (62-701.620(10), FAC). |

**S. FINANCIAL RESPONSIBILITY REQUIREMENTS (62-701.630, FAC)**

|       |       |       |          |  |
|-------|-------|-------|----------|--|
| _____ | _____ | _____ | <u>X</u> | 1. Provide cost estimates for closing, long term care, and corrective action costs estimated by a PE for a third party performing the work, on a per unit basis, with the source of estimates indicated; (62-701.630(3)&(7), FAC). |
| _____ | _____ | _____ | <u>X</u> | 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).                               |
| _____ | _____ | _____ | <u>X</u> | 3. Describe funding mechanisms for providing proof of financial assurance and include appropriate financial assurance forms; (62-701.630(5), (6), &(9), FAC).  |

**T. CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER**

**1. Applicant:**

The undersigned applicant or authorized representative of Trail Ridge Landfill, Inc. is aware that statements made in this form and attached information are an application for a Minor Modification to the Operations 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

6501 Greenland Road  
Mailing Address

David McConnell, Area Vice President - FL  
Name and Title (please type)

Jacksonville, FL 32258  
City, State, Zip Code

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

(904) 370-1945  
Telephone Number

Date: September 21<sup>st</sup> 2008

Attach letter of authorization if agent is not a governmental 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

Omar E. Smith, P.E., VP  
Name and Title (please type)

531 Versailles Drive, Suite 202  
Mailing Address

Maitland, Florida, 32751  
City, State, Zip Code

osmith@s2li.com  
E-Mail address (if available)

(407) 475-9163

Telephone Number

Date: 9-23-08

38358

Florida Registration Number  
(Please affix seal)



## Section 2

### LANDFILL GAS-TO-ENERGY FACILITY

#### 2.1 BACKGROUND

Trail Ridge Landfill, Inc. (TRLI) has entered into an agreement between the City of Jacksonville, located in Duval County Florida (City), and Trail Ridge Energy, LLC, a subsidiary of Landfill Energy Systems (LES) to recover landfill gas from the Trail Ridge Landfill (TRL) and convert the collected gas into electricity. The location of the proposed new facility that is to accomplish this conversion is depicted on Drawing C-0.

This LFG-to-Energy Facility (Facility) will connect to the TRL's existing landfill gas collection system near the landfill's flare station area which is located outside of the landfill liner system. No additional collection wells or headers within the landfill footprint are being proposed. The only modification to the LFG collection system is the proposed 24-inch connection header from the Facility tying into the LFG collection system at a location between the Facility and the existing Flare Station as shown on Drawing C-1a. Condensate generated by the Facility will be collected and drained to a pump station adjacent to the Facility. The condensate from the Facility will combine with the condensate collected from within the landfill footprint. Both will discharge into the landfill leachate collection system. The leachate combined with the condensate from the landfill discharges into on-site storage tanks, with the contents of the storage tanks transported off site to a City of Jacksonville wastewater treatment facility. Since the Facility will be utilizing gas engines to generate power, the engines will consume oil and generate waste oil as a by-product of the operations. This oil storage facility will be located next to the Facility. The Facility has already obtained applicable air and stormwater management permits (separate from the landfill permits) from the Department. Local development permits have been applied for and have been obtained.

This Facility is being constructed to enable the TRL to beneficially recover energy from landfill gas. The Facility will destruct a majority of the landfill gas in lieu of the landfill gas flares presently in use at the landfill. Any landfill gas not utilized at the Facility, or if the Facility is down for scheduled or unscheduled maintenance or any other circumstance, then the existing utility flare(s) will be utilized to destruct the landfill gas. Operation of the LFG collection system and compliance with the requirements under Title V and NSPS are not dependent on the operation of this LFG-to-Energy facility. TRL will continue to expand the collection system and flaring capability in order to meet regulatory requirements

without the need of the Facility. Since this Facility is not being installed to meet any regulatory requirements under Title V, NSPS, and closure regulations, the approval of this application will not impact TRL's present closure plan or financial assurance requirements as stipulated by Chapter 62-701.530(5), FAC.

## 2.2 LANDFILL GAS-TO-ENERGY FACILITY DESCRIPTION

The Trail Ridge Landfill Gas-to-Energy Facility is designed to convert landfill gas to electricity. The Facility will utilize six (6) caterpillar engine generator sets designed to operate on landfill gas. Each engine is rated 1,600 kW. The Facility will be capable of producing approximately 9,200 kW net to the electrical grid through a 12MVA, 4160V to 23 kV transformer/interconnect scheme. The Facility will be equipped with all ancillary and pollution control equipment necessary to support the operation of the Facility including gas filtration, engine cooling, condensate collection, lube oil supply/disposal and makeup, gas analyzer, gas flow meter, plant controls, generator paralleling switchgear, and utility transformer. A majority of the equipment will be housed within a block building that includes a segregated engine room and sound attenuated control/switchgear room. Equipment located outside the building includes gas filters, gas cooler, gas blowers, bulk oil storage (new and used), engine radiators, engine exhaust silencers, building vent fans, a station service transformer, and a utility transformer.

## 2.3 CONNECTION AND TIE-IN TO THE EXISTING LFG COLLECTION SYSTEM

The Facility will be connected with a new 24-inch line to the existing landfill gas collection system at a 24-inch header outside the lined landfill and between the existing perimeter road and the flare station by means of a "Tee" connection as shown on Drawing C-1a. No penetration of the liner system or any portion of the disposal area will be required for the addition of this pipe. After installation of the header pipe and connection, at least 18 inches of cover will be placed into the trench, and any disturbed landfill surface and surface water ditch area will be sodded. This Facility is not expected to impact the collection efficiency and thus should not impact the quantity of landfill gas collected per operating day.

## 2.4 CONDENSATE QUANTITY CALCULATIONS

### 2.4.1 Existing Condensate Quantity Estimates

This section addresses the current quantity of condensate flow from the Trail Ridge Landfill Gas Collection System. It is noted that much of the collection system utilizes gravity drained condensate knockouts; therefore a direct measure of the condensate flow is not possible without system modification.



However, the U.S. Army Corps of Engineers' (Corps) Technical Letter No. 1110-1-160, *Landfill Off-Gas Collection and Treatment Systems*, provides methods of estimating condensate generation rates.

A conservative Corps method equation is as follows:

$$q_{\text{cond}} = (Q_{\text{TOT}} / \rho_{\text{H}_2\text{O}})[(H_{\text{AIR}} * \rho_{\text{AIR}})_{\text{HOT}} - (H_{\text{AIR}} * \rho_{\text{AIR}})_{\text{COLD}}]$$

Where:  $q_{\text{cond}}$  = flow rate of condensate

$Q_{\text{TOT}}$  = total gas collection rate ( $\text{ft}^3/\text{min}$ ) = 4,000 cfm

$\rho_{\text{H}_2\text{O}}$  = density of water (lb/gal)

$H_{\text{AIR}}$  = humidity of air (lb  $\text{H}_2\text{O}$  / lb dry air)

$\rho_{\text{AIR}}$  = density of air (lb air /  $\text{ft}^3$ )

$$= (4,000 \text{ ft}^3/\text{min})(\text{gal}_{80\text{F}}/8.32 \text{ lbH}_2\text{O}) *$$

$$[(0.11 \text{ lbH}_2\text{O}/\text{lb dry air} * 0.0673 \text{ lb dry air}/\text{ft}^3)_{130\text{F}} - (0.025 \text{ lbH}_2\text{O}/\text{lb dry air} * 0.0734 \text{ lb dry air}/\text{ft}^3)_{80\text{F}}]$$

$$= 2.677 \text{ gpm} = \underline{3,900 \text{ gpd}} \leftarrow \text{Existing Discharge of Condensate (Estimated)}$$

Essentially, the procedure quantifies the mass flow rate of water vapor in the LFG as it is being extracted and as it reaches the flare. The difference is the flow rate of condensate collected. An estimated 4,000 cfm of gas collected is used as the higher end of recent gas collection data.

The above procedure assumes that LFG is 100% saturated at both the hot and cold temperatures, and that the density of condensate is equal to the density of water. Further, it is assumed that the temperature of the extracted LFG is 130°F at an extraction well and 80°F at the flare station. The temperature specific values for the density and humidity of air were obtained from *Air Pollution Control – A Design Approach* (Cooper and Alley, 1986). It is also noted that the density of water is temperature specific. However, the variance is low over the range of temperatures in question; therefore, the density at 80°F was used. Finally, the Corps acknowledges in the Technical Letter that this method is conservative (overestimates).

#### 2.4.2 Additional Condensate Discharge into the Landfill Leachate Collection System

The condensate from the Facility's gas system, primary and final gas filters, and main gas header drain will be collected and piped via a double contained HDPE (SDR-17) line into an existing header as shown on Drawing C-1a. The additional condensate will then drain to a knock-out drum and will eventually make its way into the leachate collection system. It is expected that the amount of condensate being generated will not drastically change as a result of Facility operation. Additional cooling and pressure increases in the gas as a result of Facility operations could result in an increase in condensate quantity up

to 300 gallons per operating day. Therefore, the quantity of condensate collected by this system in conjunction with any extra produced at the Facility should have an estimated flow of 4,200 gallons per day (3,900 gpd + 300 gpd).

## 2.5 STORAGE OF ENGINE OIL AND WASTE OIL

The “clean oil supply system” consists of a concrete-contained 4,500 gallon storage tank, an air-operated lube oil transfer pump, piping (double-contained) from the lube oil tank to the engine and to the new oil make-up tank. The make-up oil tank will be inside the building on a support structure. The engines are to be provided with an automatic lube oil makeup system.

The waste oil collection system consists of a concrete-contained 2,000 gallon waste oil tank, air-operated waste oil transfer pump, piping (double-contained) from the engine to the waste oil storage tank. Waste oil from the engine oil changes will be transferred to the 2,000 gallon oil storage tank via the waste oil transfer pump and storage until removed.

Both of the tanks are contained in a concrete containment area that has a capacity of 7,380 gallons.

The locations of these tanks are shown on Drawings C-1a and M-8.

# DRAWINGS

## Appendix A

APPROVAL NOTES:

NOTICE

All work performed within a City of Jacksonville Right-of-Way or easement shall be subject to the City's Right-of-Way rules and regulations. A separate permit issued by the Department of Public Works, Development Management Group, for information call 630-1063.

State Health Department permit approval must be obtained for any newly constructed Water and Sewer Systems.

City approval is contingent upon any required State or Federal permit approval such as those of the Department of Environmental Protection and St. John's Water Management District.

All construction will be performed in accordance with the applicable codes and comply with all standard City policies and procedures.

All work performed within State road Right-of-Way requires a separate permit issued by the Florida D.O.T.

It is the permit holder's responsibility to obtain the necessary approvals from the utility providers for the project prior to obtaining Right-of-Way permits.

Annual reports in compliance with the SPMAD stormwater permits, are required from the maintenance entity of all stormwater treatment facilities. Send reports to the office of the City Engineer, Department of Public Works, Room 801, 280 East Bay St., Jacksonville, Florida 32202.

The owner of any project one (1) acre or larger is required to provide a notice of intent in accordance with criteria set forth in the NPDES permit 48 hours to beginning construction.

NOTICE TO: Atlantic Federal Center  
Section Water Permits & Facilities Branch  
100 Jackson Street, Suite 3104  
Jacksonville, Florida 32202-3104

Plan review and approval does not relieve the contractor of complying with all applicable State Fire Codes.

| SUBMISSION SIGN REQUIREMENTS |                     |
|------------------------------|---------------------|
| Letter Name                  | _____ \$8100.00 ea. |
| Standard Sign                | _____ \$8100.00 ea. |
| Sign/Field Sign              | _____ \$875.00 ea.  |
| Sign Design                  | _____ \$845.00      |
| Sign Installation            | _____ \$845.00/hr.  |
| Amount Paid to Tax Collector | \$_____             |

Send the following information to the Traffic Engineering Division 1007 Superior St., Jacksonville FL 32225, fax requests, 454 pmt mgr, Sdtd, model plan (show roads, v/h, & utilities), and a contact person with their phone & fax numbers.

|                        |                              |                             |
|------------------------|------------------------------|-----------------------------|
| STREETLIGHTS REQUIRED. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------|------------------------------|-----------------------------|

|   |                              |                             |
|---|------------------------------|-----------------------------|
| NO LANE CLOSURES: 7 A.M. - 8 A.M. and 4 P.M. - 6 P.M. | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|---|------------------------------|-----------------------------|

|                               |                              |                             |
|-------------------------------|------------------------------|-----------------------------|
| SITE CLEARING PERMIT REQUIRED | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|-------------------------------|------------------------------|-----------------------------|

|   |                              |                             |
|---|------------------------------|-----------------------------|
| REVOCABLE PERMIT AND<br>INDEMNIFICATION AGREEMENT | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|---|------------------------------|-----------------------------|

|  |               |
|--|---------------|
| PLAN APPROVAL IS SUBJECT TO<br>THE FOLLOWING CONDITIONS:<br>NO OBJECTION AS NOTED BY (INDICATE DISCREPANCY): |               |
| LANDSCAPE  | PLANNING      |
| TRAFFIC  | DWG           |
| DRAINAGE   | FIRE MARSHALL |
| 1.   |               |
| 2.   |               |
| 3.   |               |
| 4.   |               |
| 5.   |               |
| 6.   |               |
| 7.   |               |
| 8.   |               |
| 9.   |               |
| 10.  |               |

# TRAIL RIDGE LANDFILL GAS TO ENERGY PROJECT

## BALDWIN, FLORIDA

### TRAIL RIDGE ENERGY, LLC

#### DRAWING INDEX

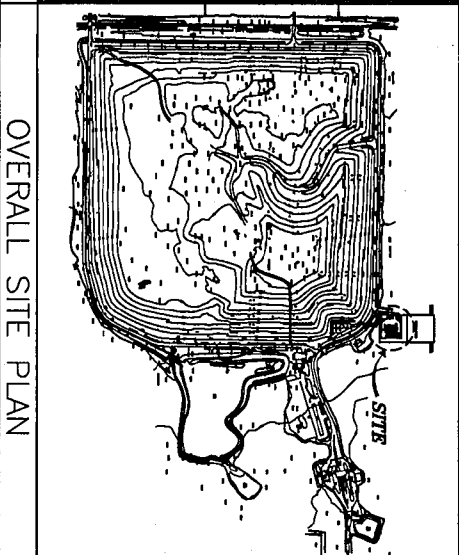
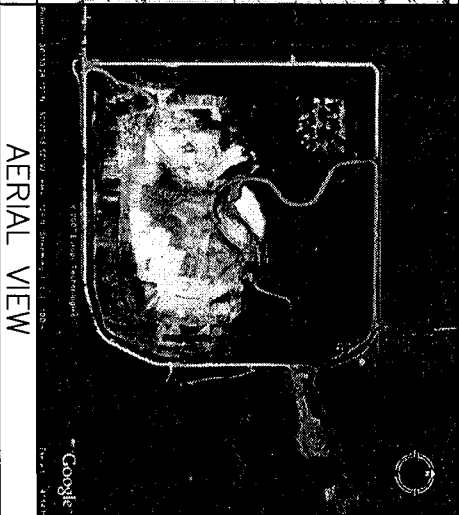
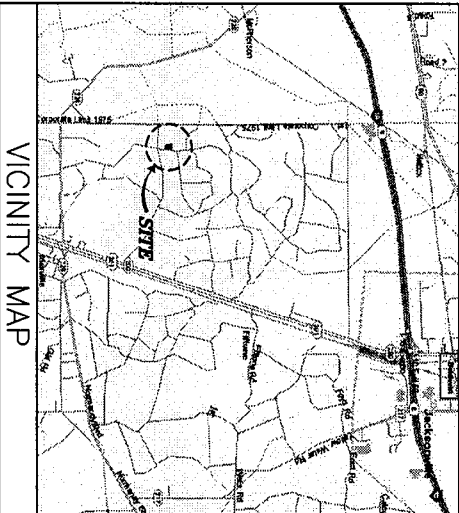
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| M-1  | LANDFILL GAS FLOW DIAGRAM               |      |  |
| M-2  | COOLING WATER SYSTEMS                   |      |  |
| M-3  | LUBE & WASTE OIL SYSTEMS                |      |  |
| M-4  | ENGINE EXHAUST & COMBUSTION AIR SYSTEMS |      |  |
| M-5  | COMPRESSED AIR SYSTEM                   |      |  |
| M-6  | DOMESTIC & SERVICE WATER SYSTEMS        |      |  |
| M-7  | INSTRUMENTATION DETAIL                  |      |  |
| M-8  | BELOW GRADE PIPING                      |      |  |
| M-9  | HVAC PLAN                               |      |  |
| M-10 | COMPRESSOR AREA PLAN & ELEVATION        |      |  |
| M-11 | LUBE & WASTE OIL TANK DETAIL            |      |  |
| M-12 | MECHANICAL PLAN & ELEVATION DETAILS     |      |  |
| M-13 | MECHANICAL DETAILS                      |      |  |

**PROPERTY OWNER:**  
CITY OF JACKSONVILLE  
SOLID WASTE DIVISION  
1031 SUPERIOR STREET  
JACKSONVILLE, FL 32254  
PH: \_\_\_\_\_

**FACILITY OWNER:**  
TRAIL RIDGE ENERGY, LLC  
29261 WALL STREET  
WIXOM, MI 48393  
PH: (248) 380-3920

**CIVIL ENGINEER:**  
MERIT CIVIL ENGINEERING, INC.  
2100 ORANGEWOOD AVENUE,  
SUITE 110  
ORANGE, CA 92668  
PH: (714) 935-0238

**LOCAL CONSULTANT:**  
J. LUCAS & ASSOCIATES, INC.  
1305 CEDAR STREET  
JACKSONVILLE, FL 32207  
PH: (904) 396-3060



THIS PROJECT SHALL CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES:

|                  |   |
|------------------|---|
| BUILDING CODE:   | 2004 FLORIDA BUILDING CODE W/ 2006 REVISIONS      |
| ELECTRICAL CODE: | 2004 FLORIDA BUILDING CODE NEC 2005 AND NFPA 70   |
| MECHANICAL CODE: | 2004 FLORIDA BUILDING CODE, MECHANICAL & FUEL GAS |
| PLUMBING CODE:   | 2004 FLORIDA BUILDING CODE, PLUMBING              |
| FIRE CODE:       | 2004 FLORIDA FIRE PREVENTION CODE                 |

**ZONING:**  
OCCUPANCY: \_\_\_\_\_  
CONSTRUCTION: \_\_\_\_\_  
EXTERIOR WALLS: \_\_\_\_\_  
INTERIOR WALLS: \_\_\_\_\_  
STRUCTURAL FRAME: \_\_\_\_\_  
ROOF SYSTEM: \_\_\_\_\_  
FLOOR: \_\_\_\_\_

THE BUILDING HAS NO FIRE SPRINKLERS

BUILDING AREA: 6,099 SQ. FT.  
SITE AREA: .76 ACRES (33,000 SQ. FT.)  
BUILDING/SITE AREA: 0.185  
NUMBER OF STORIES: ONE (1)  
HEIGHT OF BUILDING: 1.18'-8"

THERE ARE SIX (6) ENGINE MUFFLERS WHICH PROJECT ±10'-0" ABOVE ROOF.  
AND THEIR EXHAUST PIPE, ANOTHER ±3'-0".

**CODE ALLOWANCES:**  
ALLOWABLE AREA: 21,000 SQ. FT.  
ALLOWABLE HEIGHT: 55'-0" / 2 STORES  
MAXIMUM NUMBER OF OCCUPANTS AT ANY TIME: 2

#### PROJECT DATA

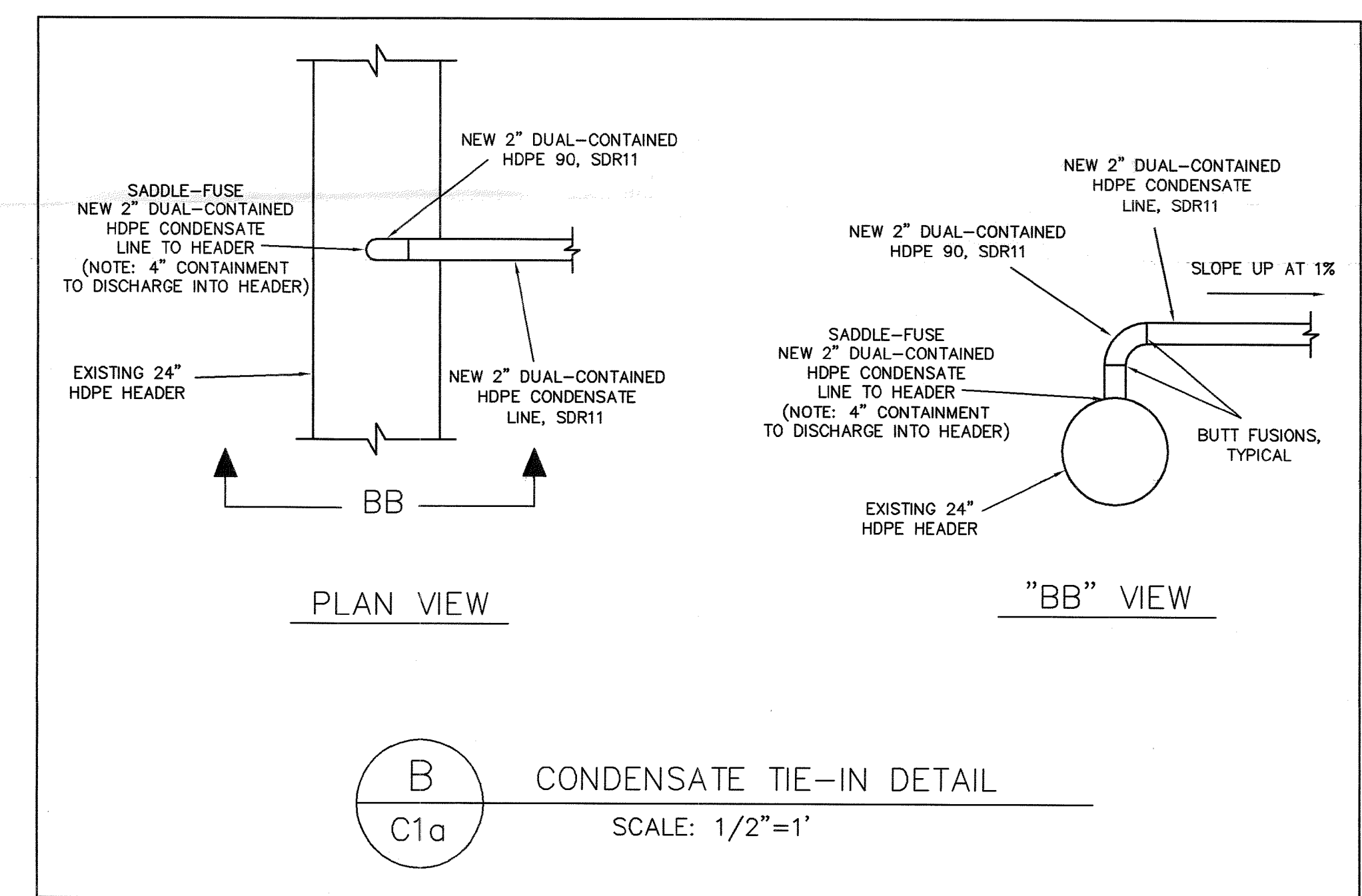
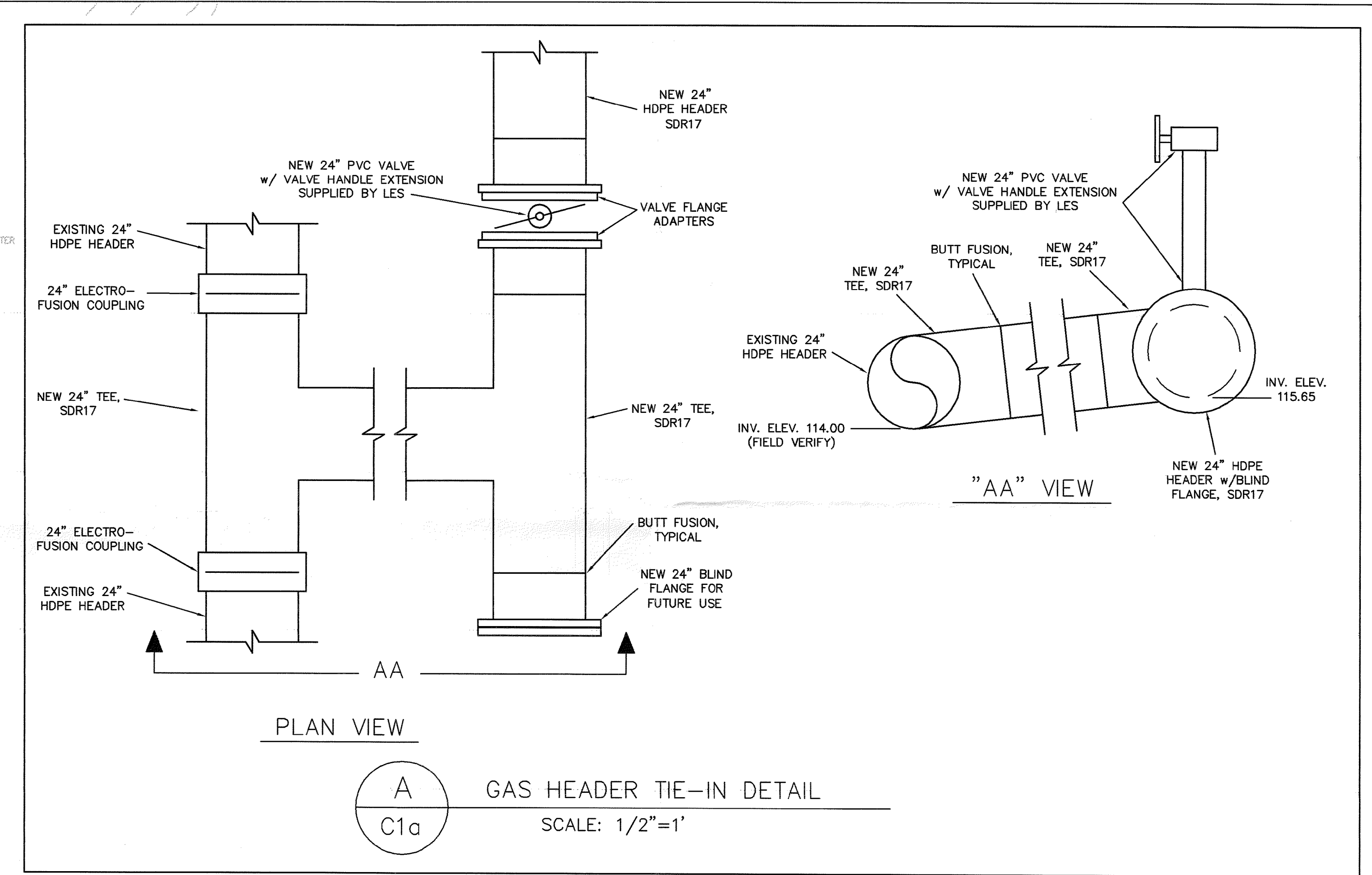
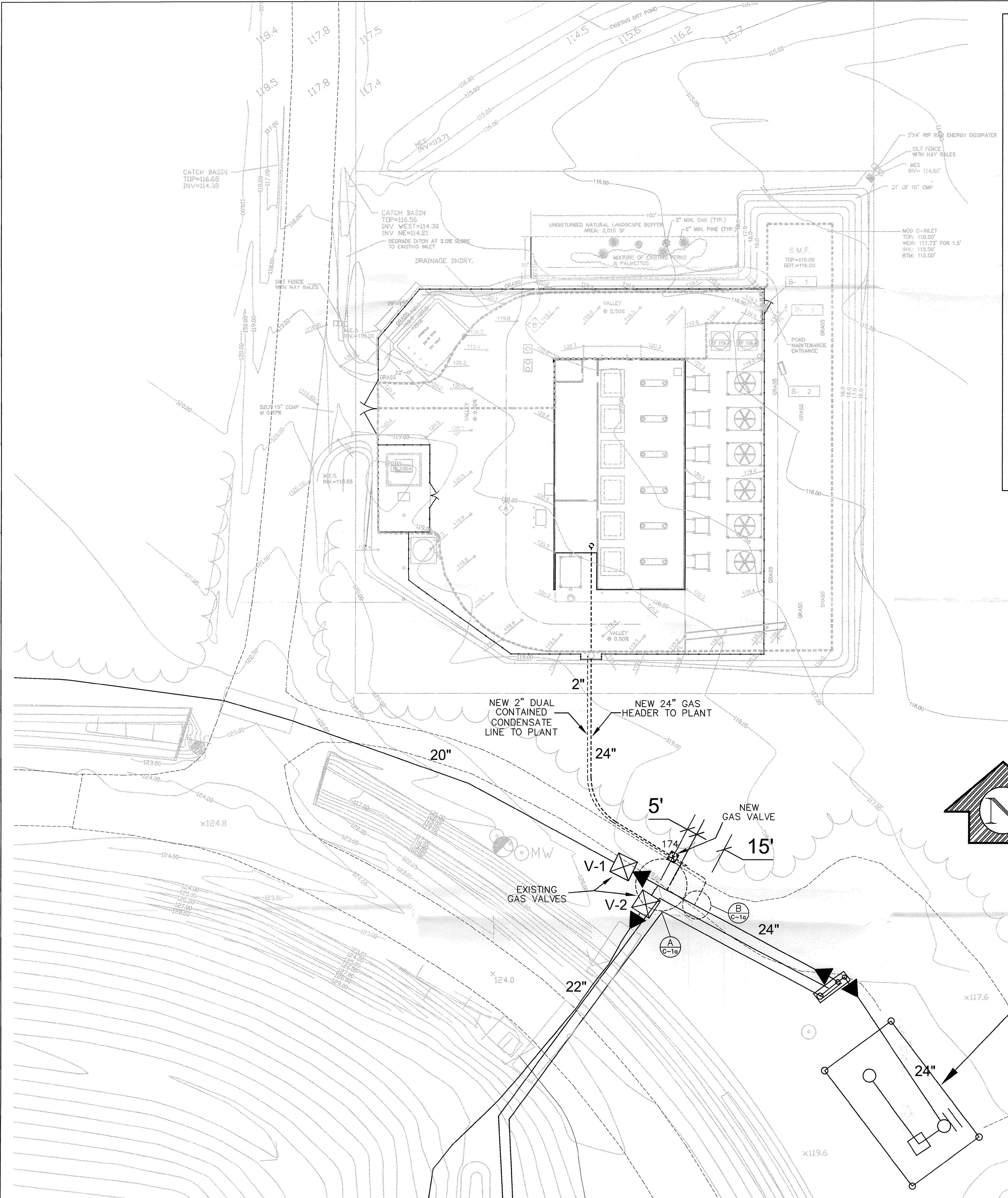
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|---|---------------------------------------|-------------------|--|
| DEVELOPMENT MANAGEMENT GROUP                                      |                                       | OVERALL SITE PLAN |  |
| NO OBJECTION  |                                       |                   |  |
| Date:   | MANAGER, DEVELOPMENT MANAGEMENT GROUP |                   |  |
| Date:   | DEVELOPMENT MANAGEMENT GROUP REVIEWER |                   |  |
| Approval of Plans Valid After Two Years, Plans Must Be Reapproved |                                       |                   |  |
| PUD Ordinance Number _____  |                                       |                   |  |
| Zoning Designation _____  |                                       |                   |  |
| CCAS Number _____   |                                       |                   |  |
| Development Number _____  |                                       |                   |  |
| PSD- Estate Approver No. _____                                    |                                       |                   |  |
| Real Estate Agent Name & Title _____                              |                                       |                   |  |
| Flood Zone & BFE _____  |                                       |                   |  |
| Total Impervious Area _____                                       |                                       |                   |  |
| Standard Industrial Code _____                                    |                                       |                   |  |
| Subdivision Inspection By: _____                                  |                                       |                   |  |

|  |  |           |  |
|--|--|-----------|--|
| TRAIL RIDGE LANDFILL GAS TO ENERGY PROJECT<br>5110 US HIGHWAY 301 S.<br>BALDWIN, FL. 32234 |  | REMARKS   |  |
| PROJECT  |  |           |  |
| SHEET TITLE SHEET & DRAWING INDEX  |  |           |  |
| DRAWING STATUS   |  |           |  |
| FOR CONSTRUCTION   |  |           |  |
| SCALE: NONE  |  |           |  |
| TAG #: T-4862  |  |           |  |
| DRAWN BY: BM   |  |           |  |
| CHECKED BY: SPG  |  |           |  |
| DATE ISSUED: 01/30/08  |  | SHEET C-0 |  |

29261 WALL ST.  
WIXOM, MI 48393  
248 380-3920

**Systems**

LANDFILL  
ENERGY



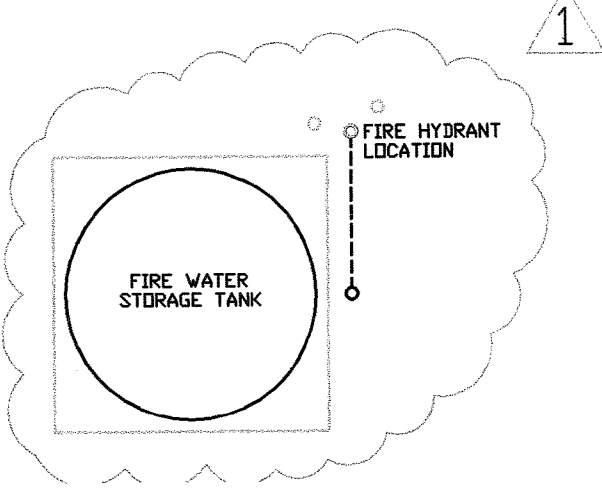
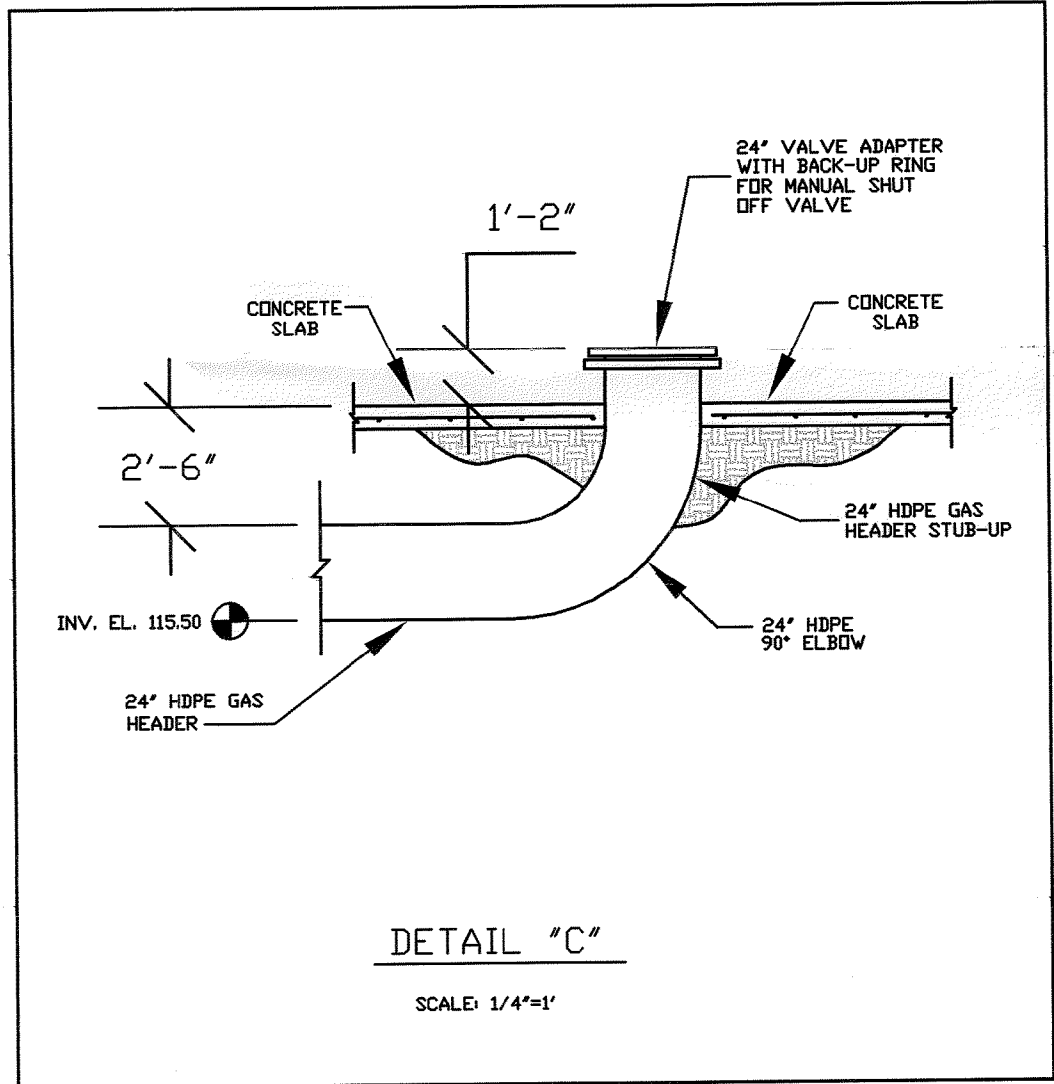
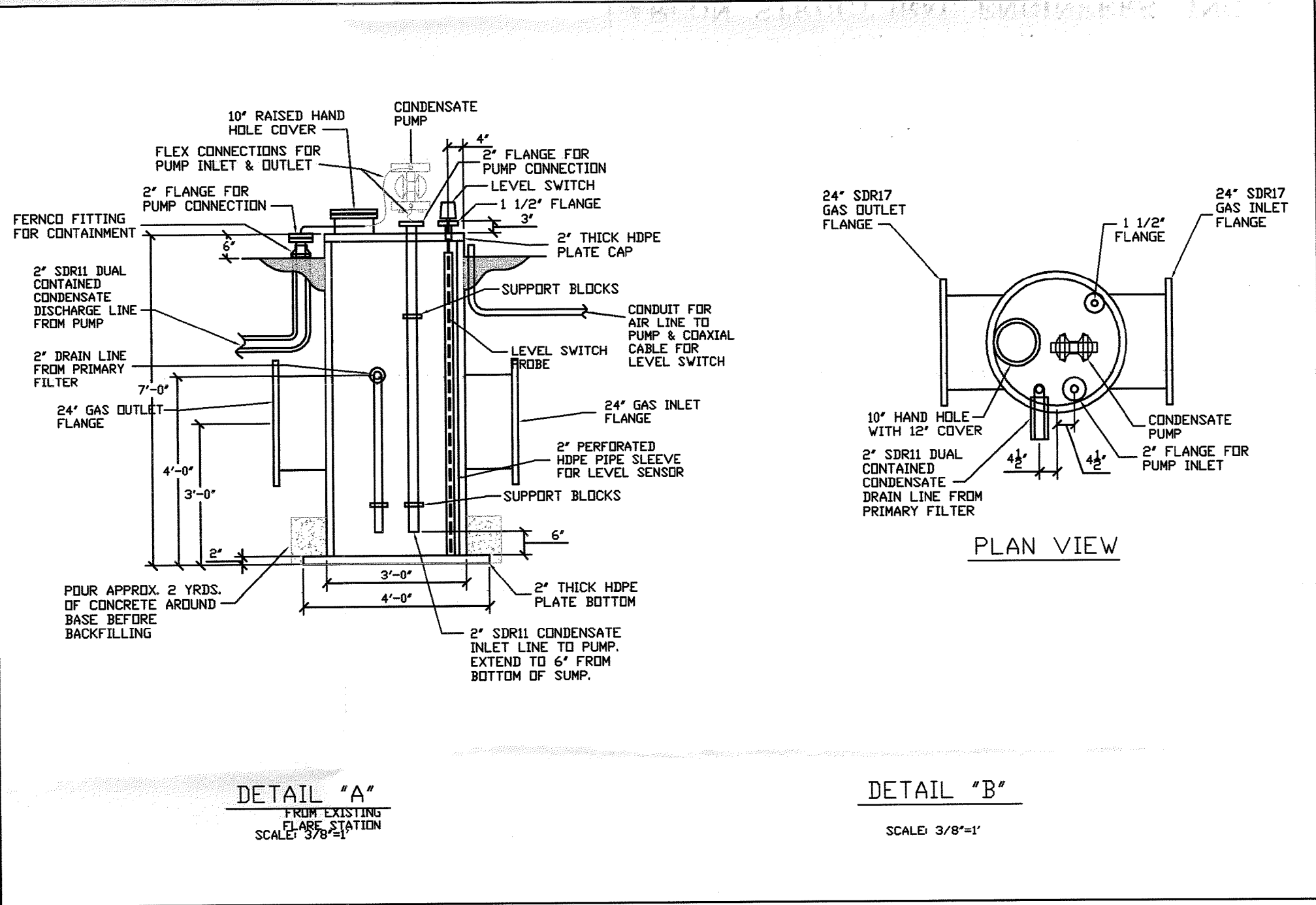
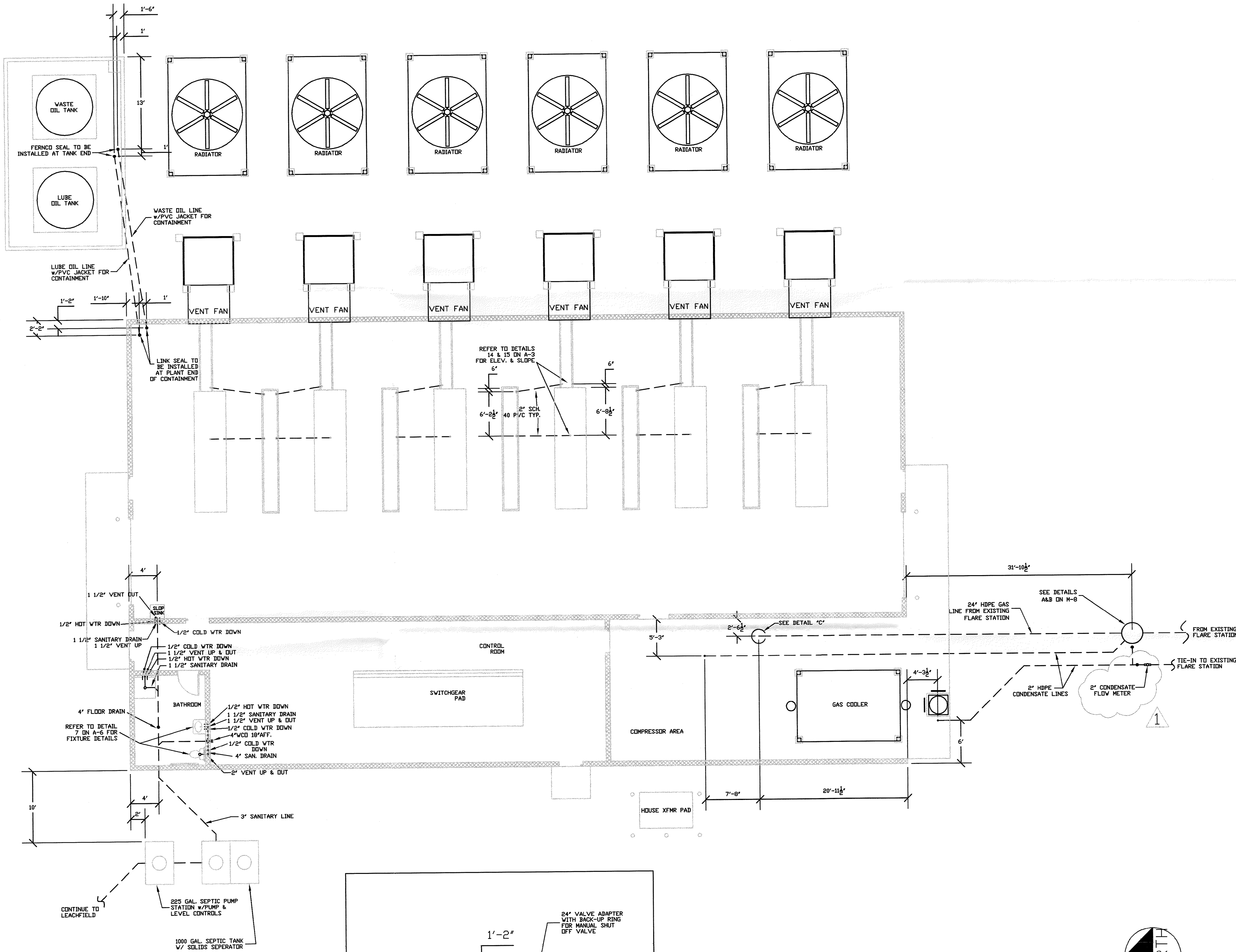
Imanted  
OCULUS  
Initials SC-  
Date 10-15-08

|  |                     |   |         |
|--|---------------------|---|---------|
| ARCON STRUCTURAL ENGINEERS, INC.<br>22391 GILBERTO, SUITE E<br>RANCHO SANTA MARGARITA, CA. 92688   |                     |   |         |
| TRAIL RIDGE LANDFILL GAS<br>TO ENERGY PROJECT<br>5110 US HIGHWAY 301 S.<br>BALDWIN, FL. 32234<br>PROJECT   |                     | REMARKS                                   |         |
| SHEET<br>TITLE   | SITE PLAN           | REV                                       | DATE    |
|  |                     | 1   | 9/11/08 |
| DRAWING<br>STATUS  | FOR CONSTRUCTION    | COMMENTS                                  |         |
|  |                     | RELOCATED TIE-IN'S,<br>REVISED DETAIL "A" |         |
| <br>Landfill<br>Energy<br>Systems<br>29261 WALL ST.<br>WIXOM, MI. 48393<br>248 380-3920 | SCALE: 1"=25'       |   |         |
|  | TAG #: T-4862       |   |         |
|  | DRAWN BY: SPG       | SHEET                                     |         |
|  | CHECKED BY: SPG     |   |         |
|  | DATE ISSUED: 8/1/08 | C-1a                                      |         |



NOTES

1. UNDERGROUND 24" GAS LINE TO BE INSTALLED BY LES TO STUB-UP LOCATION.
2. ALL UNDERGROUND CONDENSATE LINE SUPPLIED AND INSTALLED BY CONTRACTOR.
3. REFER TO M-10 FOR PIPE ELEVATIONS.



ARCON STRUCTURAL ENGINEERS, INC.  
22391 GILBERTO, SUITE E  
RANCHO SANTA MARGARITA, CA. 92688

Trail Ridge Landfill Gas to Energy Project  
5110 US Highway 301 S.  
Baldwin, FL. 32234

PROJECT

| REMARKS |  |
|---------|--|
| REV     | DATE COMMENTS  |
| 1       | 7/15/08 ADDED COND. FLOW METER, MOVED FV TANK DELETED GAS WATER LINE & METER |

SHEET TITLE  
BELOW GRADE PIPING

DRAWING STATUS  
FOR CONSTRUCTION

SCALE: 1/8"=1'

TAG #: T-4862

DRAWN BY: RWC

CHECKED BY: SPG

DATE ISSUED: 1/21/08

29281 WALL ST.  
WIXOM, MI 48393  
248 380-3920

Landfill Energy Systems

SHEET  
M-8

2 OVER SIZED

MAP SCANNED

SEPARATELY

**ID:****176968**This ID is read by a scanner.  
Do not mark.**DWM Preindex Coversheet**

ATTACH TO DOCUMENT AND SEND TO THE APPROPRIATE DOCUMENT MANAGEMENT CENTER

**Submittal Data**Catalog **Solid Waste**Profile **Permitting\_Authorization**County **DUVAL**Facility-Site ID **33628 - TRAIL RIDGE LANDFILL LF1**Document Date **09-24-2008**Received Date **09-25-2008**Document\_Type **PERMIT APPLICATION RELATED**

Contractor ID

Facility Type **CLASS I LANDFILL (100)**Document Subject **Minor Permit Modification Application for Landfill Gas-to-Energy Facility****RECEIVED****OCT 15 2008**STATE OF FLORIDA  
DEPT. OF ENV. PROTECTION  
NORTHEAST DISTRICT-JAX☒ Double Sided☒ Oversized Pages

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bogin\_m



Date 10/9/08

DEP003893