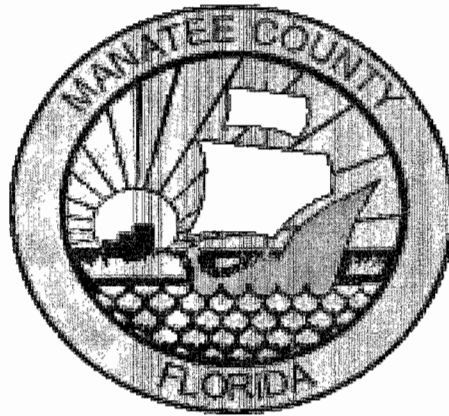


**Manatee County Solid Waste Management Facility
Lena Road Class I Landfill
3333 Lena Road, Bradenton, Florida 34211**

**APPLICATION AND ENGINEERING REPORT FOR
RENEWAL OF THE CLASS I LANDFILL
OPERATION PERMIT**



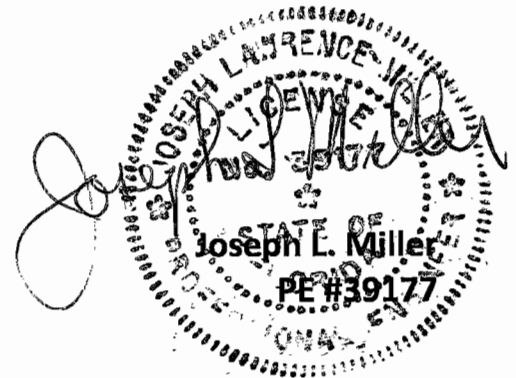
FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 18 2010
SOUTHWEST DISTRICT
TAMPA

**Submitted by:
Manatee County Government
Utilities Department
Solid Waste Division
3333 Lena Road
Bradenton, Florida 34211**

Prepared by:



**482 South Keller Road
Orlando, Florida 32810
~~November 11, 2009~~
Revised May 11, 2010**





An employee-owned company

May 17, 2010

Mr. Steven G. Morgan
Solid Waste Section
Southwest District
Florida Department of Environmental Protection
13051 North Telecom Parkway
Temple Terrace, Florida 33637-0926

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 18 2010
SOUTHWEST DISTRICT
TAMPA

RE: Lena Road Class I Landfill Operation Permit Renewal
Pending Permit No.: 39884-018-SO/01, Manatee County
WACS ID No.: SWD-41-44795

Dear Mr. Morgan:

This is in response to your December 10, 2009 letter requesting additional information for the above referenced permit application. Below are your comments from that letter followed by our responses.

1. Rule 62-701.320(5)(b), F.A.C. Please address the comments in John Morris' December 9, 2009 memorandum (attached) regarding this application. You may call Mr. Morris at (813) 632-7600, extension 336, to discuss the items in his memorandum.

Response: The comments from John Morris' memorandum are addressed in this response. The Water Quality Monitoring Plan Evaluation was revised, reprinted and is included with this response in a separately bound document.

Rule 62-701.320(7)(b), F.A.C. Application Form #62-701.900(1): Please address the following comments regarding the permit application form and/or supporting information and provide a revised application form with revised information, where applicable:

2. Rule 62-701.320(10)(c), F.A.C.: The N/C column is marked for several parts of the application form and references to information provided in previous applications are made. In accordance with Rule 62-701.320(10)(c), F.A.C., the applicant must also reaffirm that the information previously provided is still valid. For such referenced parts of the application, please verify that the applicant has reviewed the information referenced and reaffirm that the information provided is still valid for current operation of the facility. Please be advised that if the referenced information is not currently located in the Department's files, copies of these documents may be required to verify that the information referenced is still valid. Therefore please verify that the information is currently available in the Southwest District's files.

Response: The application was revised using the new form dated January 6, 2010. The applicant affirms that any item marked as "no change" on the application is still valid for this application.

3. **Section B.1.:** Part of the proposed operation fill sequence appears to also include filling on parts of the west & north slopes of Stage I. Please revise the narrative in this part accordingly.

Response: This application is for the renewal of the Operation Permit for the Lena Road Class I Landfill which includes all three stages. Section B.1. was revised to clarify that the application includes the Stage I Landfill.

4. **Section C.1.:** Please revise this section to provide a brief description of the yard trash processing facility, household hazardous waste facility, and citizen drop-off facility operated at the facility.

Response: The referenced Section C.1 was deleted in the new application form issued by the Department and dated January 6, 2010. So the requested information is no longer required by the Department to be submitted with an application.

a. **Parts D.1. & D.7.:** Please provide updated supporting documentation that demonstrates that the statements regarding the siting prohibitions are still valid for Stage II and revise Parts D.1 and D.7., as appropriate.

Response: Parts D.1 & D.7 in the previous application are in Part C of the revised application. The responses were revised and updated to clearly state that the Lena Road Class I Landfill, which includes Stages I, II and III, meets the Prohibitions in 62-701.300, FAC.

5. **Sections E.9.a. & b.:** These sections referenced Figures E-1 and E-2. However, two Figure E-1s were provided and no Figure E-2 was provided. Please verify and revise the figure titles, as appropriate.

Response: Figure E-1 is a regional map with the project location. Figure E-2 is a vicinity map or aerial photograph no more than 1 year old. Figure E-1 was deleted from this response. The regional map required is shown on the cover sheet of the Fill Sequence Plan and was referenced as such in the revised application. The required aerial photograph was submitted in Section E of the revised application.

6. **Section E.13.:** In accordance with Rule 62-110.106(6), F.A.C., publication of a notice of application shall be required for those projects that, because of their size and potential effect on the environment or natural resources, are reasonably expected by the Department to result in a heightened public concern. The Department considers a Class I landfill operation permit as a project of potential heightened concern and therefore publication of a notice of application is applicable. Please publish the attached Notice of Application, provide proof of publication to the Department, and revise Section E.13. of the application form to reference the submittal of this information, accordingly.

Response: Manatee County published the Notice on January 13, 2010. The original is included with this response. The application was revised to reference the notice, and a copy placed in Part D for reference.

Mr. Steven Morgan, FDEP

May 17, 2010

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7. **Section F-1 and Figure E-1 (aerial photograph):** As a result of the recent eastern expansion of Stage 3 and the relocation of the administrative offices, HHW facility, and citizen drop-off area, the aerial photograph provided, although less than 1 year old, appears to no longer be representative of the current conditions at the facility. Please verify and provide a more current aerial photograph of the facility.

Response: The annual aerial photograph was taken on January 25, 2010. The Fill Sequence Plan drawings were updated to include this aerial photograph and the updated topographic map. The January 25, 2010 aerial photograph which includes the vicinity around the landfill up to one mile was included Part D of this revised application.

8. **Section F-2 and Part F-2:** Please provide supporting information that verifies that no new airports within 5 miles have been located since 1997 and that the airports setback statements are valid for the operation of Stage II.

Response: The 2009 Florida Aeronautical Chart is included in Part E. We added the location of the Lena Road Landfill and a 5-mile radius line. There are no airports within 5 miles of the Lena Road Class I Landfill. The Lena road Class I Landfill includes the Stage I, II and III. All three stages meet the criteria.

9. **Section F-3:** As a result of the changes to the facility since 1997, it is unlikely that plot plan information and drawings from 1997 and 1999 are representative of current site conditions. Please verify and provide updated plot plan information, as appropriate.

Response: The application was revised. The current plot plan information is included on the Fill Sequence Plan.

10. **Section F-4:** Although this section is marked N/C and refers to 1997 and 1999 information, a more current topographic survey and operation drawings appears to be provided with this application. Please verify and revise Part F.4, as appropriate.

Response: The application was revised to include this information on the Fill Sequence Plan.

11. **Section H-1:** The statement that "Part H is not applicable since this is renewal... which does not involve any new construction" appears incorrect. At a minimum, this application indicates that the excavation of Stage II to design bottom grades has not been completed to date and must be constructed and certified prior to operation in Stage II.

Since only part of the Stage II landfill system was originally constructed in the mid-late 1980's and the Department has found no records in its current files regarding either the design details and/or design calculations for Stage II, or a certification of construction completion of Stage II that approves construction or authorizes operation in Stage II, the applicable landfill construction design requirements in Part H for Stage II must be re-evaluated by the applicant and re-submitted as part of this application.

In addition, since the constructed parts of Stage II were constructed many years ago, the proposed operation of Stage II appears to have been modified from the operation originally proposed, and the function and adequacy of the construction landfill systems has not been monitored or re-evaluated for updated operation plans. Therefore the function and adequacy of these systems, based on the currently proposed operation of Stage II must be re-evaluated and recertified as complying with the applicable requirements of Department rules, prior to operation in Stage II.

It is strongly recommended that the information regarding Stage II design and permitting currently available in the Department files be verified, and that the applicant, their consultants, and Department discuss the information that will be required to be submitted in support of Stage II construction completion and operation at the meeting referenced at the end of this letter.

Response: Manatee County met with the Department on February 1, 2010 to discuss this comment. The Stage II Landfill construction was completed in 1991 and the Department issued an operation permit for the Stage II Landfill. A copy of the slurry wall construction drawings, record construction drawings for the leachate collection system and the certification documents for the slurry wall are included with this response. The Department has reviewed and renewed the operation permit for the Lena Road Landfill, which includes Stage I, II and III, every five years since 1991. The most recent permit the Department issued to Manatee County was Operation Permit No. 39884-010-SO/01 dated June 13, 2005 with an expiration date of June 13, 2010. This Landfill Operation Permit on Page 1 of 39 for "Project" gives the project description as "Lena Road Class I Landfill". Under Item 1 in the Table on Page 1 of 39 under "General Information", the following information for the permit is given: "Disposal acres - 316 acres". The 316 disposal acres for which the Department has issued a Landfill Operation Permit is divided into three stages - Stage I - 132 acres, Stage II - 118 acres and Stage III - 66 acres. The total of which equals 316 acres. The fact that the Florida Department of Environmental Protection issued an operation permit for the 316 acres, and reviewed and renewed the operation permit every five years since 1991, is proof that the construction was completed. Also, Manatee County has submitted every year for almost 20 years, and the Department has reviewed, accepted and approved, a Financial Assurance Cost Estimate for a 316 acre landfill. The 316 acres includes Stage I, II and III of the Lena Road Class I landfill.

Further Chapter 62-701 specifically addresses this issue. We quote from Chapter 62-701: "Chapter 62-701.220 General Applicability. (6). There are several references in this chapter to

facilities which are constructed or existing. Unless otherwise specified, these terms mean that the facility has received a permit or is exempt from permitting, and has actually been built or is being built in accordance with that permit or exemption. The terms do not include parts of a facility which, although noted in a long-term design plan, were not authorized to be constructed within the five-year term of the facility's permit(s). **A landfill with a slurry wall liner system is deemed to have been constructed when the slurry wall was constructed.**" We added the bold to the last sentence for emphases.

12. **Section J.:** The proposed operation of Stage II appears to be revised from that originally proposed. Therefore please provide updated geotechnical information based on the revised operational design. It is strongly recommended that the applicant, their consultants, and Department discuss the revised geotechnical information that will be required to be submitted at the meeting referenced at the end of this letter prior to submittal of additional information.

Response: The original proposed operation was to fill from the west to the east. The revised operation plan is to fill from east to west. We do not believe further geotechnical information would have any bearing on the direction of filling.

13. **Part J:**

a. **Slope Stability Analysis:** Please provide the input/outputs printouts from the Slope/W program slope stability analysis discussed in this section.

Response: The requested information is included with this response in Part I Geotechnical Investigation Requirements.

b. Please provide an updated sinkhole potential evaluation for the facility that includes the following:

a) An evaluation that identifies areas of loose sands and other anomalies, if any, that could indicate potentially unstable areas beneath or within the immediate vicinity of the Stage II footprint and adequately explains or addresses this potential, and/or identifies sufficient geotechnical measures necessary to modify the foundation to provide adequate structural support for the landfill.

Response: We compiled the geotechnical reports for this site to submit with this response. Manatee County requests that the Department review these reports and identify the deficiencies before initiating additional geotechnical investigations. Manatee County has operated a landfill at this site for almost 30 years without signs of sinkholes. The operation permit is for a 316 acre landfill. The Stage I landfill covered 132 acres and was filled to El. 136 with approximately 107 feet of solid waste. There have been no signs of loose sands and other anomalies that could indicate potentially unstable areas beneath the site.

b) An evaluation of the data generated as part of the compilation of hydrogeological and groundwater information provided in Part J of this application and any subsequent sinkhole evaluation information provided as part of permitting Stage II construction.

Response: We compiled the geotechnical reports for this site to submit with this response. Manatee County requests that the Department review these reports and identify the deficiencies before initiating additional geotechnical investigations.

c) An evaluation of the sinkhole occurrences both on-site and in the vicinity of the site (within a 5 mile radius).

Response: An evaluation of the sinkhole occurrences on-site was address in the geotechnical reports to the satisfaction of the Department prior to constructing the Lena Road Landfill. Included with this response is a drawing entitled "Manatee County Sinkholes – Sinkholes of Manatee County, Florida, 2008", prepared by the Florida Center for Instructional Technologies, Sinkholes (Tampa, FL: University of South Florida, 2008). We added the location of the Lena Road Class I Landfill to the drawing and a circle with a 5 mile radius around the site. No sinkholes were found or activity reported within five miles of the landfill. This drawing is included in Part I Geotechnical Investigation Requirements.

d) An evaluation of the additional subsurface investigation conducted as part of this application or since the reports provided in Part J.

Response: We compiled the geotechnical reports for this site to submit with this response. Manatee County requests that the Department review these reports and identify the deficiencies before initiating additional geotechnical investigations.

e) An evaluation of any additional site investigation conducted, as deemed necessary; and

Response: An evaluation of any additional site investigation conducted, as deemed necessary, will be submitted as appropriate.

f) An evaluation of the proposed construction details for Stage II that address the findings in Comments (a) through (e) above.

Response: The Stage II Landfill construction was completed when the slurry wall construction was completed. The record drawings for the leachate collection system and the Ardaman reports on the installation of the Stage II Landfill slurry wall are included with this response.

PART L - OPERATIONS PLAN (RULE 62-701.730(9), F.A.C.)

Please provide the following additional information and revisions to the facility Operations Plan. Please provide replacement pages with revisions noted (deletions may be struckthrough [struckthrough] and additions may be underlined [underlined] or a similar method may be used) and each page numbered with the document title and date of revision.

14. Please provide a copy of the current HHW collection and storage facility operation plan as part of this application, updated as applicable.

Response: A copy of the current HHW collection and storage facility operation plan is included with this response in Part K Operation Plan for the Department's information. The HHW is not a waste disposal facility. The HHW is a waste processing facility and is exempt from permitting per 62-701.710 (1) Applicability (e):

"(e) The following types of facilities are not subject to the requirements of this section; however, these facilities shall be operated to minimize the discharge of leachate to the environment and to control objectionable odors, litter, dust, and other fugitive particulates:

1. Facilities comprised solely of green boxes, compactor units, permanent dumpsters, and other containers from which wastes are transported to a landfill or other solid waste management facility, which do not accept waste from commercial waste haulers that accept waste from multiple generators;
2. Facilities owned or operated by local governments which serve as drop-off points for household waste, provided:
 - a. The facility accepts only household waste, which may include yard trash;
 - b. All putrescible waste, household garbage, yard trash, or other waste which may produce leachate is containerized; and
 - c. The facility does not accept waste from commercial waste haulers that collect municipal solid waste from multiple generators;
3. Household hazardous waste collection centers operated by or exclusively on behalf of a local government;

15. Section 2.0:

a. Contingency Operations for Emergencies: This section discusses the equipment required for "the excess volume of waste generated in an emergency" and then later states, "Refuse is not normally delivered to the site during an emergency." Please revise this section, as applicable to resolve these apparent contradictory statements.

Response: The different types of emergencies and responses were clarified.

b. White Goods: Please revise this section to specifically identify where the white goods staging area is located.

Response: A reference was added that the location is shown on the Sheet C-2 of the Fill Sequence Plan.

- c. Waste Compaction and Application of Cover: Please revise this section to specifically identify where the designated stockpile area is located.

Response: A reference was added that the location is shown on the site plan.

16. **Section 4.0:**

- a. Please explain the difference between "Yard Waste" and "Agricultural Waste", and confirm that these two waste streams are recorded separately.

Response: "Agricultural Waste" is defined in Chapter 62-701.200 Definitions (2) "Agricultural wastes". "Yard trash" is defined in Chapter 62-701.200 Definitions (135) "yard trash". The text in Section 4.0 was changed from "yard waste" to "yard trash" to be consistent with the standard definitions. Figure K-2 correctly identifies it as "yard trash", and reports agricultural waste separately from yard trash.

- b. Please explain what "Debris" is and confirm that this waste stream is recorded separately.

Response: The Section 4 text was revised from debris to construction and demolition debris. Figure K-2 correctly shows it as construction and demolition debris. Construction and Demolition debris is as defined in Chapter 62-701.200 Definitions (24) "Construction and demolition debris".

- c. Please confirm whether "Illegal Dumping" is the same as unacceptable waste.

Response: Illegal dumping is not the same as unacceptable waste. Illegal dumping refers to illegally dumped waste on County roadways, parks and other property that is cleaned up by County crews and brought to the Lena Road Landfill for disposal.

- d. Figure L-2: The waste types on Figure L-2 appear inconsistent with those listed in Section 4.0. Please verify and explain and revise Section 4.0 and/or Figure L-2, as appropriate.

Response: The text in Section 4 was deleted and Figure K-2 was referenced. Figure K-2 was revised to make the "Types of waste received" consistent with permit application Part B. 8. "Types of waste received."

17. **Section 7.0:**

- a. Slope and Lift Depths & Working Face: Based on a review of the Typical Working Face Detail on Sheet C-13, the interior 3H:1V active face appears to refer to the excavated interior slopes and the slope of the perimeter berm around the working face. Please verify this understanding and revise this section to clarify what parts of the operation will have 3H:1V and 5H:1V slopes, consistent with the typical working face detail.

Response: The text was amended to clarify the slopes. The working face of the solid waste fill is 5H:1V. The temporary berms to control storm water run-off are constructed from soil and are 3H:1V.

b. Initial Cover Controls:

1) Please revise this section to verify whether asphalt roofing shingles are the only type of ground-up C&D debris that will be utilized for initial cover or to identify the other types and sources of ground-up C&D debris that will be utilized and revise this section and Section 3.0 of the Operations Plan to indicate that records of the referenced weekly testing of ground-up C&D debris will be maintained on-site for inspection by the Department, upon request.

Response: The section was revised to eliminate the references to asphalt roofing shingles, C&D debris, etc. The only alternative cover used is RSM from a permitted facility. The references were included in the text.

2) Please provide a copy of the referenced August 27, 2002 letter.

Response: The FDEP letter dated August 27, 2002 and a related letter dated February 14, 2002 was added to Part K Operation Plan in Attachment K-1.

c. Final Cover Timing: Please revise this section to describe what part of the facility will be closed in 2011 and if that closure construction has already been permitted.

Response: The text was amended to delete the reference to closure.

18. Section 8.0:

a. Please revise Section 8.0 to provide specific operation and maintenance procedures for the Stage II leachate collection system during the operation of Stage II.

Response: The section was revised to include this information.

b. Stage II: Because the facility has not operated Stage II to remove leachate or maintain an inward gradient to date, the applicant must evaluate the effectiveness of the constructed system prior to operation of Stage II, including a video inspection of the system and a report on the condition and effectiveness of the system. Please revise this section to discuss the system evaluation to be conducted prior to operation of Stage II.

Response: Manatee County inspected portions of the Stage II Landfill leachate collection system to evaluate the condition of the pipe. No damage was found in the pipe. The report is included in Appendix A of the revised application. One copy of the inspection on eight DVDs is included with this response. In order to insert the camera in the manholes, Manatee County pumped the water down in the Stage II Landfill. Five sets of piezometers were installed at the locations shown on Figure 1 in Appendix B of this revised application. The piezometers were

used to monitor the inward gradient across the slurry wall. The inward gradient was measured at between 8 and 13 feet. This demonstrated Manatee County's ability to dewater the Stage II Landfill prior to placing solid waste, maintain an inward gradient and the integrity of the slurry wall and bottom clay liner containment system for the landfill containment system.

c. The "Leachate Collection System Plan" figure in this section is illegible. Please provide an appropriately sized figure that can be read and reviewed.

Response: The drawing was reprinted at a larger scale.

d. Figure L-4-A: Please provide a revised figure(s) that identifies each of the numbered components on this figure, including the leachate meters.

Response: A photograph of the meter installation was added to Figure K-4. The photograph shows each meter with the pump station identified for each specific meter.

e. Operational Performance Objectives: Please revise this or an appropriate section of Section 8.0 to specifically describe the procedures for monitoring and maintenance of the gradient across the Stage II slurry wall during operation of Stage II.

Response: Procedures for monitoring and maintenance were added to the section.

f. Compliance Monitoring and Evaluation: Please revise the narrative in this section to include Stage II.

Response: This section was revised to include the references to Stage II.

g. Figures L-5 through L-7: Please revise these spreadsheets and figures to include monitoring of Stage II.

Response: Figures K-5A, K-6A and K-7A were added. These spreadsheets will be used when operation in Stage II begins.

h. Operation and Maintenance of Leachate Collection System: Please revise this section to specifically discuss the operation and maintenance of the Stage II leachate collection system.

Response: Stage II was added to this section.

i. Leachate Management Contingency Plan:

a. This section states, "The County intends to maintain a one-foot inward gradient across the slurry wall." Please provide the gradient monitoring reports for the Stages I & III slurry wall for the last five years that demonstrate whether the facility is complying with this requirement. A review of the Department's files appears to indicate that gradient information has not consistently been provided over the last five years.

Response: Included with this response in Appendix B are the reports for the last five years with a summary sheet indicating when the groundwater/leachate level for a groundwater/piezometer pair was less than one foot. There has always been an inward gradient. There were periods when the difference was less than one foot especially at GW-1/PZ-1 and GW-2/PZ-2. GW-1 and GW-2 are installed in the Stage II Landfill within the slurry wall. Manatee County attempts to maintain at least a one foot inward gradient so that in the event of a storm there is some storage before the facility is out of compliance. The permit requires the County to maintain an inward gradient and report outward gradients.

In order to insert the camera in the manholes inspection, Manatee County pumped the water down in the Stage II Landfill. Five sets of piezometers were installed at the locations shown on Figure 1 in Appendix B of this revised application. The piezometers were used to monitor the inward gradient across the slurry wall. The inward gradient was measured at between 8 and 13 feet. This demonstrated Manatee County's ability to dewater the Stage II Landfill prior to placing solid waste, maintain an inward gradient and the integrity of the slurry wall and bottom clay liner containment system for the landfill.

b. Please provide the supporting information and calculations for the statement, "Based on average flow rates, each inch of storage in the landfill will provide over two weeks of storage volume" and revise this section, as applicable.

Response: The statement is no longer relevant and was deleted from the revised plan.

19. **Section 9.0:**

a. Gas Well and Point Monitoring:

1) Several previously permitted gas wells and ambient gas monitoring locations appear to have been eliminated as part of the Stage III eastern expansion. Please revise this section to provide the replacement ambient and/or well monitoring locations associated with the relocated buildings and structures and revise Figures L-8 and L-9 accordingly.

Response: The new buildings were added to Figures K-8 and K-9.

2) Please explain why gas monitoring well locations GMW-11B and GMW-11C were eliminated from the gas monitoring plan and revise this section and Figures L-8 and L-9 accordingly.

Response: GMW-11B and GMW-11C were added when GMW-11A detected methane. At the time the scale house was in construction and the contractor had stockpiled organic soil removed from the construction area near the monitoring probe. Since neither GMW-11A, GMW-11B nor GMW-11C had detected methane and the Stage III Landfill gas collection system was installed, we proposed deleting 11B and 11C. GMW-11B and GMW-11C were added back into the plan.

- b. Figure L-8: Figure L-8 is illegible. Please provide an appropriately sized figure that can be read and reviewed.

Response: A revised Figure K-8 is included with this response.

- c. Surface Emission Monitoring: Please revise this section to discuss surface emission monitoring in Stage II. Please verify whether the proposed operation of Stage II is part of the facility's current Title V permit.

Response: This section was revised to add surface monitoring for the Stage II landfill when it is required. Landfill gas collection and surface emission monitoring must begin five years after filling starts in the Stage II landfill in the year 2019 if filling is started in 2014. The Title V Air Permit is for the Lena Road Landfill with a 3000 SCFM flare. The landfill as permitted has 316 acres divided into Stage I, II and III. The flare in 2010 is burning around 2,000 SCFM from the Stage I and III Landfills. In addition, Manatee County has a Title V permit to burn up to 450 SCFM of landfill gas in the sludge drier. Manatee County also has a Title V construction permit for a landfill gas to energy plant that will require around 1800 SCFM of landfill gas.

20. **Section 10.0:**

- a. Figure L-11: This figure appears inconsistent with the operation drawings provided with this application. Please verify and revise Figure L-11 accordingly.

Response: Revised Figure K-11 shows only the storm water management system with the retention areas and outfall structures. The landfill drainage system is shown on the Fill Sequence Plan.

- b. Stage II System: Please revise this section to specifically describe the procedures for stormwater management in Stage II as part of the operation of Stage II.

Response: The section was revised.

- c. Maintenance Plan: The descriptions in this section do not appear applicable to Stage II operation. Please verify and revise this section accordingly.

Response: The section was revised.

21. **Section 13.0:**

- a. Groundwater: Please update the narrative in this section, as applicable to include groundwater monitoring for Stage II operation.

Response: The narrative was revised.

22. Section 13.0:

- a. Asbestos: Please revise this section to specify how thick a non-asbestos containing waste or soil cover layer will be applied before the area is compacted.

Response: The narrative was revised to add the thickness as 1-foot.

ATTACHMENT L-1 LANDFILL FILL SEQUENCE DRAWINGS TITLED - MANATEE COUNTY LENA ROAD CLASS I LANDFILL FILL SEQUENCE PLAN FROM 2009 TO 2015 - NOVEMBER 2009 (RULE 62-701.320(7)(f), F.A.C.)

Please provide the following additional information and revisions to the facility fill sequence plan drawings.

23. **Sheet C-2:** Please provide a more current aerial of the facility that shows the current conditions at the facility (See Comment #7, above).

Response: Sheet C-2 was revised to include the 2010 aerial photograph.

24. **Sheet C-3:** Please provide a copy of the topographic survey of the facility signed and certified by the professional surveyor that prepared the survey.

Response: Sheet C-3 was revised to include the topography from the 2010 aerial photograph. A copy of the topography signed and sealed was included with this response.

25. **Sheet C-4:** A review of the currently permitted fill sequence drawings (Sheet C-7A dated 4/15/08) appears to indicate that Stage III was to be filled to a maximum elevation of 94 ft. NGVD prior to beginning filling in the excavated eastern expansion of Stage III. The topographic survey on this sheet appears to indicate that Stage III was filled to an elevation of 104 ft NGVD prior to excavation and filling in the eastern expansion. Please explain this apparent operational inconsistency and provide documentation that demonstrates that the Department approved this change in height.

Response: Manatee County filled according to the approved sequence to the best of their ability. The photograph and topographic drawing submitted showed that the excavation for this eastern expansion, Sequence 5, was completed and ready for filling. Manatee County completed Sequence 4A, but FDEP had not approved Sequence 5 which included filling the excavation. Since Sequence 5 was not yet FDEP approved, Manatee County proceeded to the next FDEP approved sequence in the filling plan which was Sequence 6. When FDEP gave approval for Sequence 5, Manatee County proceeded with filling in the excavation.

The landfill operation permit limits the filling to El. 136 NGVD. The Stage III landfill is no higher than El. 104 ft. NGVD which is less than the elevation permitted. So the Stage III Landfill is still within the height approved by the Department.

26. **Sheets C-5 through C-8:**

- a. Sheet C-7 provides a detail reference (Section D) for the stormwater downcomer pipes and stormwater swale on the north side of Stage III. Please verify whether this configuration is the same for the west and south slopes of Stage III.

Response: Section D configuration is typical for the west and south slopes of the Stage III Landfill. Sheet C-7 was revised to add Section D to the west and south slopes.

b. Sheet C-8 shows no stormwater downcomer pipes on the lower level of the western half of Stage III. Please verify whether a stormwater conveyances system has already been installed in this area and revise these drawings, as applicable to show this system.

Response: The storm water pipes were installed during previous sequence plans. On this sheet we are showing in dark lines the storm water pipes installed during this sequence. We revised the drawing to show using "screened back lines" the storm water pipes installed in previous sequences for reference.

c. The side stormwater conveyance system for Stage III appears to route stormwater collected from several upper level stormwater conveyances pipes to a lesser number of lower level pipes that appear to be sized the same. Please provide supporting calculations for the side slope stormwater conveyance system for Stage III that demonstrates that the system will function as designed.

Response: Sheet C-8 was revised to show the locations of the missing storm water pipes on lower levels and discharge structures.

d. It is unclear from these drawings where stormwater conveyed to the toe of slope in Stage III discharges. Please explain and revise these sheets to show the toe of slope stormwater conveyance system in Stage III, including discharge locations and structures, as applicable.

Response: Sheet C-8 was revised to show the storm water pipes and discharge structures.

e. The continued reference to Section E-13 on Sheets C-6 through C-8 appears to indicate that the temporary berm shown on Section E-13 will remain in place during Fill Sequences 3 and 4. Please verify and revise these sheets as applicable.

Response: The berm in Section E-13 remains as a terrace berm. Section E-13 was relocated to the top of Sequence 3 on Sheet C-7 and Sequence 4 on Sheet C-8. Section E-13 was revised to delete the word "temporary".

27. Sheets C-7 and C-8:

a. Sections A and B on Sheet C-11 shows 5H:1V side slopes between the terraces. However the contours on the upper three lifts of Stage III on these sheets appear to show a 4H:1V slope between the terraces. Please verify and revise these sheets accordingly.

Response: Sections A and B on Sheet C-11 shows 5H:1V side slopes between terraces as the final side slope after landfill settlement. Manatee County constructs 4H:1V side slopes because over time the landfill settles, and the final side slope is 5H:1V. With the three 20-foot wide terraces, the overall side slope as measured from the toe of the landfill to the top of the landfill is approximately 6H:1V. The regulations permit landfill side slopes of 3H:1V. The 6H:1V side slopes are conservative and well within the regulations.

28. **Sheets C-9 and C-10:** The initial excavation and fill sequence presented on these sheets differs significantly from the fill sequence included in the compilation of hydrogeological information for Stage II provided in Part J of this application and as indicated in Comment #11 above. Records are not currently available in the Department files to evaluate whether the proposed initial excavation and fill sequence in Stage II is consistent with the design of Stage II. The proposed excavation and fill sequence will be re-evaluated by the Department upon receipt of the design information for Stage II. **This comment is for informational purposes only and does not necessarily require a response.**

Response: No response required.

29. **Sheet C-9:**

a. This sheet appears to indicate that the Stage II will be excavated to a flat elevation of 29 ft NGVD. Please explain why the excavation is not sloped to convey leachate to the lateral leachate conveyance pipes.

Response: Sheet C- 9 was revised to slope the landfill invert towards the pump station.

b. Please revise this sheet to show the slope and elevations of the lateral and perimeter leachate pipes.

Response: Sheet C- 9 was revised to show the requested elevations. Also included with this response are the Stage II landfill record construction drawings for reference.

c. Please provide details (including elevations) of the lateral and perimeter leachate conveyance pipe system, the perimeter manholes, and Lift Station #4 and revise either this sheet or Sheet C-10 to provide cross-references to these details.

Response: Sheet C- 9 was revised to show the requested elevations. Also included with this response are the Stage II landfill record construction drawings for reference.

30. **Sheet C-10:**

a. It is unclear from this drawing where stormwater conveyed to the toe of slope discharges. Please explain and revise these sheets to show the toe of slope stormwater conveyance system for Sequence 5 in Stage II, including discharge locations and structures, as applicable.

Response: Flow arrows and ditches were added to clarify the storm water drainage.

b. Sections A and B on Sheet C-12 shows 5H:1V side slopes. However the side slope contours on this sheet show a 4H:1V side slope. Please verify and revise these sheets accordingly.

Response: Sections A and B on Sheet C-12 shows 5H:1V side slopes between terraces as the final side slope after landfill settlement. Manatee County constructs 4H:1V side slopes because over time the landfill settles, and the final side slope is 5H:1V. With the three 20-foot wide terraces, the overall side slope as measured from the toe of the landfill to the top of the landfill is approximately 6H:1V. The regulations permit landfill side slopes of 3H:1V. The 6H:1V side slopes are conservative and well within the regulations.

31. **Sheet C-11:**

- a. Please revise these sections to show the location of the interior perimeter toe of slope stormwater conveyance system, as applicable.

Response: Sheet C-11 was revised to show the locations.

- b. Section A: Please verify the location of the slurry wall and Stage III leachate collection system shown on this section, and revise this section accordingly.

Response: Section A was revised to correctly show the leachate collection system.

- c. Section B: Please verify that there is a Stage III leachate collection system interior of the east and west slurry wall and revise this section to show its location.

Response: Section B on C-11 was corrected to show the leachate collection system.

32. **Sheets C-13:**

- a. Section I: Please provide a detail of the stormwater inlet.

Response: Manatee County has found that an 18" diameter pipe with an open inlet and concrete rubble for dissipation of energy works. The storm water inlet was deleted.

PART 5 - FINANCIAL RESPONSIBILITY REQUIREMENTS (RULE 62-701.630, F.A.C.)

33. Cost estimates provided as part of permit renewal shall be revised cost estimates, and cannot be based on previously approved cost estimates. These revised estimates must be on DEP Form #62-701.900(28), signed by the applicant and signed and sealed by the professional engineer preparing the cost estimates, and shall include information and calculations to support quantities provided and current third-party quotes to support unit costs provided. Revised cost estimates, supporting information and calculations, and copies of the supporting third-party quotes were not provided with the November 11, 2009 submittal. Please provide this information.

Response: This was submitted to the Department with a letter dated February 10, 2010.

The following comments are from John Morris' December 9, 2009 memorandum.

GENERAL COMMENTS

1. Rule 62-701.320(10)(c), F.A.C., indicates the following: "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. The permit renewal application shall list and reaffirm that the information is still valid." Please submit a list of all documents regarding the hydrogeologic investigation and the environmental monitoring aspects of the Lena Road landfill [ground water, surface water, and leachate monitoring for Stages I, II and III] that are being referenced in the renewal application, including title, date, revision, preparer, etc. Please verify that each of the referenced documents is available in the Department's files and is currently still valid. The Department will re-evaluate these documents to confirm their validity after the response to this comment is received. Please note that if the referenced documents are no longer valid or have changed since the previous permit, additional information may be requested.

Response: The reference was corrected in the revised plan.

SECTION I – HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS

(Rule 62-701.410(1), F.A.C.)

2. **I.g.: Inventory of all public and private water wells within a one-mile radius of the landfill including , . . .**

I.i.: Include a map showing locations of all potable wells . . . [Rules 62-701.410(1)(b) and 62-701.410(1)(d), F.A.C., respectively] These items of the application form referenced Chapter 3.6 ["Well Inventory"] of the document entitled "Geotechnical and Hydrogeological Investigation, Lena Road Landfill," prepared by Ardaman & Associates, Inc., dated March 3, 1983. Please submit a revised Engineering Report that provides a current well inventory for the Lena Road landfill footprint [Stages I, II and III]. Please submit revisions to these items of the application form that reference the requested information.

Response: An inventory is included with this response in Part H Hydrogeological Investigation Requirements.

SECTION M – WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS

(Rule 62-701.510, F.A.C.)

3. **M.1b.: All sampling and analysis performed . . .** [Rule 62-701.510(2)(a), F.A.C.] This item of the application form referenced Section M.1.b., of the Engineering Report. Please submit revisions to Section M.1.b.(1) of the Engineering Report to reference the Department's updated SOPs described in the document entitled "Department of Environmental Protection, Standard Operating Procedures for Field Activities, DEP-SOP-001-01," dated March 31, 2008.

Response: The reference was corrected in Part L Water Quality and Leachate Monitoring Requirement, 1.0 b. 1)

4. **M.1.c.(1): Detection wells located downgradient from and within 50 feet of disposal units**

[Rule 62-701.510(3)(a), F.A.C.] This item of the application form referenced Section M.1.c., of the Engineering Report, however it does not appear that this section addressed the lateral distance between the slurry wall (considered to be the edge of the disposal unit for the Lena Road landfill) and the proposed detection wells. Please submit revisions to this section of the Engineering Report to address this item.

Response: The lateral distance is shown on Figure L-2.

5. **M.1.c.(2): Downgradient compliance wells as required** [Rule 62-701.510(3)(b), F.A.C.] This item of the application form referenced Section M.1.c., of the Engineering Report, however it does not appear that this section addressed the criteria for requiring the installation of compliance wells. Please submit revisions to this section of the Engineering Report to address this item.

Response: The section was revised to add the criteria for requiring compliance wells.

6. **M.1.c.(4): Location information for each monitoring well** [Rule 62-701.510(3)(d)1, F.A.C.] This item of the application form referenced Section M.1.c., of the Engineering Report. Please submit revisions to Note #3.A. on Figure M-2 and Section M.1.g.(1)(a) of the Engineering Report to reference revised DEP Form #62-520.900(3).

Response: The reference was corrected.

7. **M.1.c.(6): Well screen locations properly selected** [Rule 62-701.510(3)(d)4, F.A.C.] This item of the application form referenced Section M.1.c., of the Engineering Report. Inset Table 1 on Figure M-2 provided the range of screen elevations for proposed wells GW-18 through GW-28 [each well screened at 25 to 40 feet NGVD]. This proposed well screen elevation range is qualified by a note that indicated the elevations may change depending on water table elevation at the time of well installation. This note does not demonstrate that sufficient information has been collected to characterize seasonal variations in ground water elevations in the vicinity of Stage II [refer to Rule 62-701.410(1)(a)1, F.A.C.] to meet the technical justification of construction details for proposed monitor well to meet the requirements of this item. Please submit revisions to this section of the Engineering Report and to Figure M-2 as needed to support the construction details of the proposed monitor wells.

Response: Figure L-2 was revised to show the location for the groundwater monitoring wells. The wells will be placed on the top of the perimeter stormwater dike. The top of screen will be set at El. 36.5 which is approximately 1.5 feet above the invert of the stormwater swale. So the top of screen should be above the groundwater level. The invert of the screen is set at El. 26.5 which should be low enough such that the ground water level will not drop below the invert of the screen.

8. **M.1.d.: Surface water monitoring requirements** [Rule 62-701.510(4), F.A.C.] Items M.1.d.(1) and M.1.d.(2) of the application form referenced Section M.1.d., of the Engineering Report. Please submit revisions to these items of the application form that reference Section M.1.c., of the Engineering Report.

Response: The reference was corrected.

9. **M.1.e.: Leachate sampling locations proposed** [Rule 62-701.510(5), F.A.C.] This item of the application form referenced Section M.1.e., of the Engineering Report. Please submit revisions to this item of the application form that references Section M.1.f., of the Engineering Report. Please submit revisions to Section M.1.f., of the Engineering Report to indicate the leachate sampling location that will be included in the routine monitoring following the initiation of waste disposal in Stage II.

Response: The reference was corrected.

10. **M.1.f.: Initial and routine sampling frequency and requirements** [Rule 62-701.510(6), F.A.C.]
a. Items M.1.f.(1) through M.1.f.(4) of the application form referenced Section M.1.f., of the Engineering Report. Please submit revisions to these items of the application form that reference Section M.1.g., of the Engineering Report.

Response: The reference was corrected.

b. Section M.1.g.(3) of the Engineering Report (on page M-6) indicated that the monitor wells shall be sampled in accordance with Rule 62-701.510(6)(c), F.A.C. Please submit revisions to this section of the Engineering Report to provide a reference to Rule 62-701.510(6)(d), F.A.C.

Response: The reference was corrected.

11. **M.1.g.: Describe procedures for implementing evaluation monitoring, prevention measures and corrective action as required** [Rule 62-701.510(7), F.A.C.] This item of the application form referenced Section M.1.g., of the Engineering Report. Please submit revisions to this item of the application form that references Section M.1.h., of the Engineering Report.

Response: The reference was corrected.

Mr. Steven Morgan, FDEP

May 17, 2010

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12. **M.1.h.(1): Semi-annual report requirements** [Rule 62-701.510(9)(a), F.A.C.] This item of the application form referenced Section M.1.h., of the Engineering Report. Please submit revisions to this item of the application form that references Section M.1.i., of the Engineering Report.

Response: The reference was corrected.

13. **M.1.h.(2): Bi-annual report requirements signed, dated and sealed by PG or PE** [Rule 62-701.510(9)(b), F.A.C.] This item of the application form referenced the BWQMPE document that was submitted separately. Please submit revision to the BWQMPE documents to address the following:

Section 1.1.1 – Water Quality Monitoring Network and Program

a. This section referenced Specific Condition #31, 32 and 35 of the facility's permit that stipulated water quality and leachate monitoring requirements. Please submit revisions to this section to reference the appropriate Specific Conditions in current permit #39884-010-SO/01. Please note that Specific Condition #E.1.a., of the referenced permit requires field work to be conducted in accordance with the Department's SOPs. As the "Ground Water Sampling Log" forms submitted for the semi-annual sampling events conducted during the period of review have not specified the equipment used for ground water sample collection, insufficient information has been provided to demonstrate compliance with SOP FS 2200. Please submit revisions to this section to describe the equipment used for ground water sample collection. In the event that a peristaltic pump has been used for ground water sample collection, please submit additional revisions to this section to demonstrate that the samples collected for analysis of volatile organic compounds have met the requirements of Section FS 2221 [i.e., using the straw method or reverse flow method].

Response: In the revised version of the referenced section of the permit application, it will be noted that in the event that a peristaltic pump is used for the groundwater sample collection, that the samples to be collected for analysis of volatile organic compounds must meet the requirements of Section FS 2221 of the Department's SOP. This issue is also addressed in the revised BWQMPE.

Section 1.2 – Objectives

b. This section indicated that the BWQMPE document was prepared in accordance with Rule 62-701.510(9)(b), F.A.C. Please submit revisions to the appropriate section of the BWQMPE document to include hydrographs for all wells using water levels measured during the period of review [please refer to Rule 62-701.510(9)(b)1, F.A.C.].

Response: The requested hydrographs are included in revised BWQMPE.

Section 2.1.2 – Ground Water Data Summary

c. ¶1 in this section referenced the summaries of ground water analytical results for the five sampling events conducted during the period of review provided in Tables 2-4 through 2-8. Table 2-7 reported an iron concentration at well GW-10 of 0.097 mg/L, however the report submitted to the Department for the August 2008 sampling event included a result of 0.997 mg/L. Please review this apparent inconsistency and submit revisions to the BWQMPE, as appropriate.

Response: The 0.997 mg/L concentration is correct. A copy of the revised Table 2-7 is included in revised BWQMPE.

d. ¶3 in this section indicated the concentrations of parameters reported for the sampling events were compared to the Maximum Contaminant Levels or Secondary Drinking Water Standards promulgated in Chapter 62-550, F.A.C. [i.e., the primary and secondary ground water standards referenced in Rule 62-520.420(1), F.A.C.]. Please submit revisions to this section to indicate if concentrations of parameters have been reported for the sampling events during the period of review meet the ground water minimum criteria referenced in Rule 62-520.400(1), F.A.C. Please specifically evaluate the concentrations of ammonia reported for samples collected from wells GW-2 and GW-13.

Response: Tables 2-4 through 2-8 have been revised to include the standard for ammonia (2.8 mg/L), and the exceedances are highlighted. The ammonia concentration at GW-2 exceeded the standard during four of the five sampling events of the review period, and the concentration at GW-13 exceeded the standard during all five sampling events of the period. The ammonia concentration at GW-2 was very consistent throughout the period and measured approximately 4 mg/L. The ammonia concentration at GW-13 was also relatively consistent and ranged between approximately 5 and 8 mg/L. Copies of the revised tables are included in revised BWQMPE.

e. ¶4 of this section listed the parameters detected at concentrations in excess of the regulatory criteria. Please submit revisions to this section to indicate the MCL for arsenic is 0.01 mg/L.

Response: Paragraph 4 of the referenced section does indicate that the MCL for arsenic is 0.01 mg/L.

Section 3.1.3 – Related Parameter Correlation

f. ¶2 of this section referred to Appendix C for the concentration graphs prepared for specific parameter correlations. It appears that some of the graphs prepared to evaluate the correlation between arsenic and turbidity that were provided in Appendix C-3 provide arsenic concentrations that are inconsistent with the results provided in Tables 2-4 through 2-8. Please review the arsenic results reported for the following events and submit revisions to Appendix C-3 as appropriate:

- March 2007 – GW-6 and GW-11
- August 2007 – GW-11, GW-13 and GW-16
- March 2008 – GW-5, GW-8, GW-11, GW-15 and GW-16
- August 2008 – GW-9 and GW-11
- March 2009 – GW-12

Response: The referenced graphs have been revised and are included in the revised BWQMPE.

g. Please submit revisions to the discussion of turbidity vs. arsenic in this section to be consistent with the responses provided to comment #13.f., above, as appropriate.

Response: The referenced discussion has been addressed in the revised BWQMPE.

Section 3.1.4 – Upgradient vs. Downgradient Correlation

- h. ¶1 of this section referred to Appendix D for the concentration graphs prepared to compare ground water quality at upgradient and downgradient sides to the facility. Please submit revisions to the arsenic graph that change the scale of the y-axis to provide a more clear presentation of the change in concentrations over time for each well location [i.e., to provide a better “spread” of the results across the graph].

Response: The referenced graph has been revised and is included in the revised BWQMPE.

- i. The discussions provided in this section regarding iron and TDS indicated that elevated concentrations were reported at selected wells on the "upgradient side" of the facility. Please submit revisions to these discussions to compare the concentrations of iron and TDS reported for background well BGW-1 with the concentrations of iron and TDS reported for wells on the upgradient side of the facility, and indicate the source(s) of the elevated concentrations for iron and TDS.

Response: The referenced discussion has been addressed in the revised BWQMPE in Section 5.0.

- j. The discussion provided in this section regarding arsenic indicated "there is some suggestion in the data that the arsenic concentrations increased in the areas around the landfill." Please submit revisions to this discussion to indicate the source(s) of these elevated concentrations.

Response: The referenced discussion has been addressed in the revised BWQMPE in Section 5.0.

Section 4.1 – Ground Water Flow Patterns

- k. ¶1 of this section referred to the ground water elevations measured during the five sampling events conducted during the period of review presented in Table 4-2. Please submit revisions to Table 4-2 to include the top of screen elevation at each well [as provided in Table 1-2].

Response: Changes to the referenced table have been made and a copy is included in the revised BWQMPE.

- l. ¶2 of this section referred to the ground water surface contour maps prepared for the five sampling events conducted during the period of review and indicated that ground water flow in the surficial aquifer was to the north-northwest. It is noted that the inferred directions of ground water flow depicted on Figures 2 through 6 indicate a general northwest ground water flow direction across Stage I and a general west-southwest ground water flow direction across Stage III. Please review this apparent inconsistency and submit revisions, as appropriate.

Response: PBS&J agrees with the Department's interpreted groundwater flow directions, and has changed Section 4 of the report in the revised BWQMPE.

- m. ¶3 of this section provided a calculation of average ground water velocity in the surficial aquifer using an average horizontal hydraulic gradient [0.001 ft/ft] for the five sampling events conducted during the period of review, and an average horizontal hydraulic conductivity [8.2 ft/day] obtained by Ardaman & Associates, Inc. It is noted that Figures 2 through 6 depict a range of horizontal hydraulic gradients over time and at different locations around the facility. It is also noted that the tests conducted on piezometers completed in the surficial aquifer at the facility resulted in horizontal hydraulic conductivity values that ranged from 0.1 to 13.3 ft/day. Please submit revisions to this section to calculate the range of ground water velocity values that reflect the range of horizontal hydraulic gradient values, the range of horizontal hydraulic conductivity values obtained for the surficial aquifer, and a representative effective porosity value.

Response: PBS&J revised Section 4 of the report to include the requested information. The revised BWQMPE.

Section 5.0 – Summary, Conclusions and Recommendations

n. The indication in the second bullet item in ¶1 of this section that there were “no organic detections” in ground water samples is inconsistent with ¶2 in Section 2.1.2 [“Ground Water Analytical Data Summary”] that indicated “there were several scattered organic parameters detected in the monitoring network during the review period.” Please submit revisions to this section to clarify that there were no exceedances of ground water standards reported for volatile organic compounds.

Response: PBS&J revised Section 5 of the report to include the requested information. The revised BWQMPE.

o. Please submit revisions to the second bullet item in ¶1 of this section to be consistent with the response to comment #13.a., above, regarding compliance with the Department’s SOPs for collection of ground water samples for analysis of volatile organic compounds.

Response: PBS&J revised Section 5 of the report to include the requested information in paragraph 1 on page 5-2 of the revised BWQMPE

p. Please submit revision to ¶2 of this section to be consistent with the response to comment #13.l., above, regarding the direction of ground water flow across the facility.

Response: PBS&J revised Section 5 of the report to include the requested information. The revised BWQMPE.

q. Please submit revisions to the first sentence in ¶3 of this section to address the adequacy of well GW-11 to meet the requirements of Rule 62-701.510(3)(d)4, F.A.C. [“Wells monitoring the unconfined water table shall be screened so that the water table can be sampled at all times.”], and be consistent with the response to comment #13.k., above, regarding the submerged well screen during the period of review. In the event that a replacement for well GW-11 is proposed, please submit revisions to Part M of the Engineering Report to provide the justification of construction details to meet the requirements of the above-cited rule.

Response: PBS&J revised Section 5 of the report to include the requested information in paragraph 1 on page 5-2.

r. Please note that the discussion in ¶3 of this section regarding the occurrence and source(s) of elevated arsenic concentrations during the period of review and the recommended actions described in ¶4 of this section to reduce sample turbidity are inconclusive. Please submit revisions to this section that recommend supplemental activities to more fully characterize arsenic at the facility. These additional recommendations may include but not be limited to the collection of supplemental ground water samples at locations on both sides of the slurry wall [e.g., sample collection at piezometer P-1 to characterize the concentrations reported at well GW-1], the redevelopment of the monitor wells to remove fine-grained sediments from the well and sand pack, and the utilization of different equipment/methods to purge/sample the wells. Please indicate the time required to implement these supplemental activities, conduct data evaluation, and prepare revisions to this section of the BWQMPE document to characterize the occurrence and source(s) of arsenic in ground water.

Response: PBS&J revised Section 5 of the report to include the requested information.

s. In the event that responses to comment #13.a., through #13.r., above, require changes to the existing monitoring plan for Stages I and III, please submit revisions to ¶5 of this section and to Part M of the Engineering Report, as appropriate.

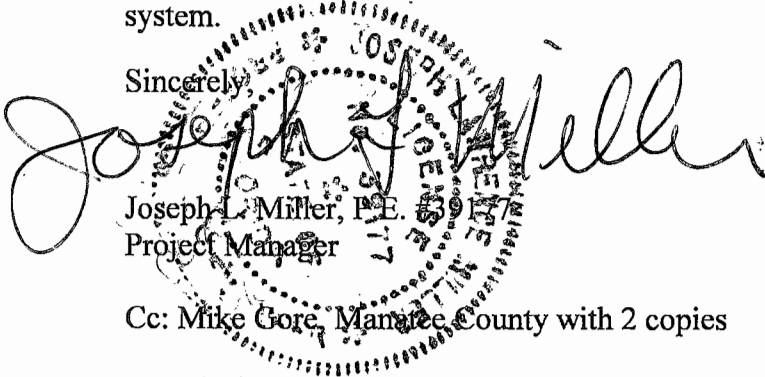
Mr. Steven Morgan, FDEP

May 17, 2010

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Response: The Water Quality and Leachate Monitoring Requirements submitted as part M of the application were revised as appropriate based on Comments #13.a. through 13.r. and resubmitted as Part L in the revised application per the FDEP revised permit application lettering system.

Sincerely,



Joseph L. Miller, P.E.
Project Manager

Cc: Mike Gore, Manatee County with 2 copies

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List of Attachments – See Table of Contents in revised application.

**Table of Contents for
Lena Road Class I Landfill Operation Permit Renewal
Pending Permit No.: 39884-018-SO/01, Manatee County
WACS I.D. No.: SWD-41-44795
May 11, 2010**

LISTING OF APPLICATION PARTS

- PART A: APPLICATION AND GENERAL INFORMATION
- PART B: DISPOSAL FACILITY GENERAL INFORMATION – SEE PART B OF APPLICATION IN PART A – NO ADDITIONAL INFORMATION.
- PART C: PROHIBITIONS
- PART D: SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL
- Property Boundary Survey
 - JANUARY 25, 2010 - AERIAL PHOTOGRAPH WITH VICINITY WITHIN ONE MILE RADIUS
 - JANUARY 25, 2010 - LANDFILL TOPOGRAPHIC MAP SIGNED AND SEALED BY SURVEYOR
- PART E: LANDFILL PERMIT REQUIREMENTS
- 2009 FLORIDA AERONAUTICAL CHART WITH LOCATION OF LENA ROAD LANDFILL AND AIRPORTS
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- FLOOD PLAINS MAP
- PART G: LANDFILL CONSTRUCTION REQUIREMENTS – NOT APPLICABLE
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- PART J: VERTICAL EXPANSION OF LANDFILLS – NOT APPLICABLE
- PART K: LANDFILL OPERATION REQUIREMENTS
- SEE TABLE OF CONTENTS IN PART K
- PART L: WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS
- WATER QUALITY AND ELEVATION NETWORK
 - MONITORING WELL AND PIEZOMETER INSTALLATION DETAILS

- PART M: SPECIAL WASTE HANDLING REQUIREMENTS
- PART N: GAS MANAGEMENT SYSTEM REQUIREMENTS
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- PART Q: LONG-TERM CARE
- PART R: FINANCIAL ASSURANCE
- PART S: CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER (SEE PAGE 39 OF APPLICATION IN PART A)

APPENDICES

- APPENDIX A: RESULTS OF LEACHAGE COLLECTION SYSTEM HIGH PRESSURE WATER JETTING AND VIDEO TAPING
- LEACHATE COLLECTION SYSTEM MAINTENANCE CLEANING - 2009
- APPENDIX B: SUMMARY OF GRADIENT REPORT FOR SLURRY WALL FROM 2005 TO 2009
- STAGE II TEMPORARY PIEZOMETERS AND RESULTS OF MONITORING THE INWARD GRADIENT WHILE DEWATERING FOR VIDEO INSPECTION

REFERENCE REPORTS AND DRAWINGS BOUND SEPARATELY

1. "COMPILATION OF HYDROGEOLOGICAL AND GROUNDWATER DATA FOR LENA ROAD LANDFILL STAGE II AREA" REPORT PREPARED BY ARDAMAN & ASSOCIATES, INC., DATED AUGUST 29, 1985.
 2. "SITE EXPLORATION PROPOSED SLURRY WALL LEACHATE CONTROL SYSTEM LENA ROAD LANDFILL, STAGE II, MANATEE COUNTY, FLORIDA" REPORT PREPARED BY ARDAMAN & ASSOCIATES, INC., DATED OCTOBER 31, 1988.
 3. "PROGRESS REPORT SLURRY WALL CONSTRUCTION LENA ROAD LANDFILL" REPORT PREPARED BY ARDAMAN & ASSOCIATES, INC., DATED JULY 22, 1989 THROUGH AUGUST 18, 1989.
 4. "PROGRESS REPORT SLURRY WALL CONSTRUCTION LENA ROAD LANDFILL" REPORT PREPARED BY ARDAMAN & ASSOCIATES, INC., DATED JUNE 19, 1989 THROUGH JULY 21, 1989.
 5. "MANATEE COUNTY, FLORIDA, LENA ROAD LANDFILL IMPROVEMENTS, STAGE 2 & 3" DRAWINGS/PLANS PREPARED BY MANATEE COUNTY PUBLIC WORKS DEPARTMENT/ENGINEERING DIVISION AND ARDAMAN & ASSOCIATES, INC., DATED MARCH 1988 (14 SHEETS 24" X 36").
 6. "MANATEE COUNTY, FLORIDA, LENA ROAD LANDFILL IMPROVEMENTS, STAGE 2-LEACHATE COLLECTION SYSTEM, PUMP STATION, AND FORCE MAIN" DRAWINGS/PLANS PREPARED BY MANATEE COUNTY PUBLIC WORKS DEPARTMENT/ENGINEERING DIVISION, DATED JANUARY 1990 (REVISED OCTOBER 1990) (12 SHEETS 24" X 36").
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BIENNIAL WATER QUALITY MONITORING PLAN EVALUATION
FIRST HALF 2007 THROUGH FIRST HALF 2009
MANATEE COUNTY SOLID WASTE DIVISION
LENA ROAD CLASS I LANDFILL, SWD-41-44795
PERMIT NO.: 39884-010-SO/01
(BOUND SEPARATELY)

**PERMIT RENEWAL DRAWINGS FOR MANAGEE COUNTY
LENA ROAD CLASS I LANDFILL FILL SEQUENCE PLAN
FROM 2009 TO 2015**

LIST OF DRAWINGS

- C-1 COVER
- C-2 GENERAL SITE PLAN
- C-3 SITE TOPOGRAPHIC SURVEY
- C-4 EXISTING GRADE – JANUARY 25, 2010
- C-5 STAGE III LANDFILL – SEQUENCE 1 (FEBRUARY 2009 – OCTOBER 2009)
- C-6 STAGE III LANDFILL – SEQUENCE 2 (OCTOBER 2009 – OCTOBER 2010)
- C-7 STAGE III LANDFILL – SEQUENCE 3 (OCTOBER 2010 – SEPTEMBER 2012)
- C-8 STAGE III LANDFILL – SEQUENCE 4 (SEPTEMBER 2012 –NOVEMBER 2013)
- C-9 STAGE II LANDFILL – EXCAVATION PLAN (SEPTEMBER 2010 – NOVEMBER 2013)
- C-10 STAGE II LANDFILL – SEQUENCE 5 (NOVEMBER 2013 – JANUARY 2015)
- C-11 STAGE III LANDFILL – CROSS SECTIONS
- C-12 STAGE II LANDFILL – CROSS SECTIONS
- C-13 DETAILS
- C-14 STAGE I LANDFILL – GAS WELL LOCATIONS
- C-15 STAGE III LANDFILL – GAS WELL LOCATIONS



Florida Department of Environmental Protection

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

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

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

Effective Date: January 6, 2010

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

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 18 2010
SOUTHWEST DISTRICT
TAMPA

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

APPLICATION INSTRUCTIONS AND FORMS

Northwest District
160 Governmental Center
Pensacola, FL 32502-5794
850-595-9360

Northeast District
7825 Baymeadows Way, Ste. B200
Jacksonville, FL 32256-7590
904-807-3300

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

Southwest District
13051 N. Telecom Pkwy
Temple Terrace, FL 33637
813-632-7600

South District
2295 Victoria Ave., Ste. 364
Fort Myers, FL 33901-3881
239-332-8975

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

INSTRUCTIONS TO APPLY FOR A SOLID WASTE MANAGEMENT FACILITY PERMIT

I. General

Solid Waste Management Facilities shall be permitted pursuant to Section 403.707, Florida Statutes,(FS) and in accordance with Florida Administrative Code (FAC) Chapter 62-701. A 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 through S
- B. Asbestos Monofills - Submit Parts A,B,C,D,E,F,I,K,M, O through S
- C. Industrial Solid Waste Disposal Facilities - Submit Parts A through S

NOTE: Portions of some Parts may not be applicable.

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

III. Application Parts Required for Closure Permits

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

NOTE: Portions of some Parts may not be applicable.

IV. Permit Renewals

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

V. Application Codes

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

VI. LISTING OF APPLICATION PARTS

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

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

Please Type or Print

PART A. GENERAL INFORMATION

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

- | | |
|--|--|
| <input checked="" type="checkbox"/> Class I Landfill | <input type="checkbox"/> Ash Monofill |
| <input type="checkbox"/> Class III Landfill | <input type="checkbox"/> Asbestos Monofill |
| <input type="checkbox"/> Industrial Solid Waste | |
| <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:

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

3. Classification of application:

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

4. Facility name: Lena Road Class I Landfill

5. DEP ID number: SWD-41-44795 County: Manatee

6. Facility location (main entrance):
3333 Lena Road Bradenton Florida 34211

7. Location coordinates:

Section: (1) (31) (6&7) Township: (35S) (34S) (35S) Range: (18E) (19E) (19E)

Latitude: 27° 28' 10" Longitude: 82° 26' 35"

Datum: NAD 83 Coordinate Method: State Plane Florida East Zone NAD 83

Collected by: Isaac F. Rooks, JR., PSM #5416 Company/Affiliation: I.F. Rooks & Associates, Inc.

8. Applicant name (operating authority): Manatee County Government - Utilities Department
- Mailing address: 3333 Lena Road Bradenton Florida 34211
Street or P.O. Box City State Zip
- Contact person: Mike Gore Telephone: (941) 748-5543 Ext. 8005
- Title: Solid Waste Division Manager
- mike.gore@mymanatee.org
E-Mail address (if available)
9. Authorized agent/Consultant: PBS&J
- Mailing address: 482 South Keller Road Orlando Florida 32810
Street or P.O. Box City State Zip
- Contact person: Joe Miller Telephone: (407) 806-4153
- Title: Project Manager
- jlmiller@pbsj.com
E-Mail address (if available)
10. Landowner (if different than applicant): _____
- Mailing address: _____
Street or P.O. Box City State Zip
- Contact person: _____ Telephone: (____) _____
- _____ E-Mail address (if available)
11. Cities, towns and areas to be served:
All of Manatee County, both incorporated and unincorporated, Long Boat Key and small portions of neighboring counties.

12. Population to be served:
Current: 318,176 Five-Year Projection: 326,072
13. Date site will be ready to be inspected for completion: Not applicable
14. Expected life of the facility: 32 years
15. Estimated costs:
Total Construction: \$ _____ Closing Costs: \$ 35,117,834
16. Anticipated construction starting and completion dates:
From: Not applicable To: Not applicable
17. Expected volume or weight of waste to be received:
_____ yds³/day 1,280 tons/day _____ gallons/day

PART B. DISPOSAL FACILITY GENERAL INFORMATION

1. Provide brief description of disposal facility design and operations planned under this application:
This application is to renew the landfill operation permit for the Lena Road Class I Landfill, which includes Stages I, II and III.
2. Facility site supervisor: Bryan White
Title: Landfill Superintendent Telephone: (941) 748-5543 Ext. 8008
bryan.white@mymanatee.org
E-Mail address (if available)
3. Disposal area: Total 316 acres; Used 316 acres; Available 0 acres.
4. Weighing scales used: ☒ Yes ☐ No
5. Security to prevent unauthorized use: ☒ Yes ☐ No
6. Charge for waste received: _____ \$/yds³ 36 \$/ton
7. Surrounding land use, zoning:
- | | |
|--|---|
| <input checked="" type="checkbox"/> Residential | <input type="checkbox"/> Industrial |
| <input checked="" type="checkbox"/> Agricultural | <input type="checkbox"/> None |
| <input type="checkbox"/> Commercial | <input checked="" type="checkbox"/> Other Describe: |
| <u>Transportation and Utilities - Wastewater Treatment Plant</u> | |
| _____ | |
| _____ | |
| _____ | |
| _____ | |
8. Types of waste received:
- | | |
|--|--|
| <input checked="" type="checkbox"/> Household | <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 checked="" type="checkbox"/> Yard trash |
| <input type="checkbox"/> Treated biomedical | <input type="checkbox"/> Septic tank |
| <input checked="" type="checkbox"/> Water treatment sludge | <input type="checkbox"/> Industrial |

- ☐ Air treatment sludge
☒ Agricultural
☒ Asbestos
- ☐ Industrial sludge
☒ Domestic sludge
☐ Other Describe:

9. Salvaging permitted: ☐ Yes ☒ No

10. Attendant: ☒ Yes ☐ No

Trained operator: ☒ Yes ☐ No

11. Trained spotters: ☒ Yes ☐ No

Number of spotters used: 16

12. Site located in: ☐ Floodplain
☒ Uplands

☐ Wetlands

☒ Other:

13. Days of operation: Monday through Saturday

14. Hours of operation: 8 am to 5 pm

15. Days Working Face covered: Daily - Monday through Saturday

16. Elevation of water table: 29 ft. Datum Used: Florida East Zone NAD 83

17. Number of monitoring wells: 18

18. Number of surface monitoring points: 2

19. Gas controls used: ☒ Yes ☐ No

Type controls: ☒ Active ☐ Passive

Gas flaring: ☒ Yes ☐ No

Gas recovery: ☒ Yes ☐ No

20. Landfill unit liner type:

☒ Natural soils

☐ Double geomembrane

☐ Single clay liner

☐ Geomembrane & composite

☐ Single geomembrane

☐ Double composite

☐ Single composite

☐ None

☒ Slurry wall

☐ Other Describe:

21. Leachate collection method:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Collection pipes | <input type="checkbox"/> Sand layer |
| <input type="checkbox"/> Geonets | <input type="checkbox"/> Gravel layer |
| <input type="checkbox"/> Well points | <input checked="" type="checkbox"/> Interceptor trench |
| <input type="checkbox"/> Perimeter ditch | <input type="checkbox"/> None |
| <input type="checkbox"/> Other Describe: | |

22. Leachate storage method:

- | | |
|---|---|
| <input type="checkbox"/> Tanks | <input type="checkbox"/> Surface impoundments |
| <input checked="" type="checkbox"/> Other Describe: | |
| There is no leachate storage. | |

23. Leachate treatment method:

- | | |
|------------------------------------|---|
| <input type="checkbox"/> Oxidation | <input type="checkbox"/> Chemical treatment |
| <input type="checkbox"/> Secondary | <input type="checkbox"/> Settling |
| <input type="checkbox"/> Advanced | <input checked="" type="checkbox"/> None |
| <input type="checkbox"/> Other | |

24. Leachate disposal method:

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

25. For leachate discharged to surface waters:

Name and Class of receiving water:
Not applicable

26. Storm Water:

Collected: ☒ Yes ☐ No

Type of treatment:
Sand filter and / or mechanical filter

Name and Class of receiving water:
Cypress Strand and Gates Creek via on-site wetlands

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

MSSW Permit #403143.01

PART C. PROHIBITIONS (62-701.300, FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
	C 1			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	1. Provide documentation that each of the siting criteria will be satisfied for the facility; (62-701.300(2), FAC)
	C 2			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	2. If the facility qualifies for any of the exemptions contained in Rules 62-701.300(12) through (18), FAC, then document this qualification(s).
	C 3			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	3. Provide documentation that the facility will be in compliance with the burning restrictions; (62-701.300(3), FAC)
	C 4			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	4. Provide documentation that the facility will be in compliance with the hazardous waste restrictions; (62-701.300(4), FAC)
	C 5			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	5. Provide documentation that the facility will be in compliance with the PCB disposal restrictions; (62-701.300(5), FAC)
	C 6			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	6. Provide documentation that the facility will be in compliance with the biomedical waste restrictions; (62-701.300(6), FAC)
	C 7			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	7. Provide documentation that the facility will be in compliance with the Class I surface water restrictions; (62-701.300(7), FAC)
	C 8			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	8. Provide documentation that the facility will be in compliance with the special waste for landfills restrictions; (62-701.300(8), FAC)
	C 9			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	9. Provide documentation that the facility will be in compliance with the liquid restrictions; (62-701.300(10), FAC)
	C 10			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	10. Provide documentation that the facility will be in compliance with the used oil and oily waste restrictions; (62-701.300(11), FAC)

PART D. 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>	
	A			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	1. Four copies, at minimum, of the completed application form, all supporting data and reports; (62-701.320(5)(a), FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	<u>PART D CONTINUED</u>
<input checked="" type="checkbox"/>	Submitted 11/11/09, page 40 of Application & Cover	<input type="checkbox"/>	<input type="checkbox"/>	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)
<input checked="" type="checkbox"/>	See cover letter after inside title page	<input type="checkbox"/>	<input type="checkbox"/>	3. A letter of transmittal to the Department; (62-701.320(7)(a),FAC)
<input checked="" type="checkbox"/>	Submitted 11/11/09, page 40 of Application & A	<input type="checkbox"/>	<input type="checkbox"/>	4. A completed application form dated and signed by the applicant; (62-701.320(7)(b),FAC)
<input checked="" type="checkbox"/>	Submitted 11/11/09 with application - \$10,000	<input type="checkbox"/>	<input type="checkbox"/>	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)
<input checked="" type="checkbox"/>	Submitted 11/11/09 and revised 05/11/10 for RFI 1	<input type="checkbox"/>	<input type="checkbox"/>	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)
<input checked="" type="checkbox"/>	Part K Operation Plan and Part O Closure Plan	<input type="checkbox"/>	<input type="checkbox"/>	7. Operation Plan and Closure Plan; (62-701.320(7)(e)1,FAC)
<input checked="" type="checkbox"/>	K 2. b.	<input type="checkbox"/>	<input type="checkbox"/>	8. Contingency Plan; (62-701.320(7)(e)2,FAC)
<input checked="" type="checkbox"/>	See Fill Sequence Plan from 2009 to 2015	<input type="checkbox"/>	<input type="checkbox"/>	9. Plans or drawings for the solid waste management facilities in appropriate format (including sheet size restrictions, cover sheet, legends, north arrow, horizontal and vertical scales, elevations referenced to NGVD 1929) showing; (62-701.320(7)(f),FAC)
<input checked="" type="checkbox"/>	Fill Sequence Plan Drawings - Cover Sheet	<input type="checkbox"/>	<input type="checkbox"/>	a. A regional map or plan with the project location in relation to major roadways and population centers;
<input checked="" type="checkbox"/>	Fill Sequence Plan Dwg. C-2 and Tab D	<input type="checkbox"/>	<input type="checkbox"/>	b. A vicinity map or aerial photograph no more than 1 year old showing the facility site and relevant surface features located within 1000 feet of the facility;
<input checked="" type="checkbox"/>	"Boundary Survey" in Tab D	<input type="checkbox"/>	<input type="checkbox"/>	c. A site plan showing all property boundaries certified by a Florida Licensed Professional Surveyor and Mapper; and
<input checked="" type="checkbox"/>	See Fill Sequence Plan Dwg. from 2009 to 2015	<input type="checkbox"/>	<input type="checkbox"/>	d. Other necessary details to support the engineering report, including referencing elevations to a consistent, nationally recognized datum and identifying the method used for collecting latitude and longitude data.

S LOCATION N/A N/C

PART D CONTINUED

D 10

☒ _____ ☐ ☐

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)

D 11

☒ _____ ☐ ☐

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)

D 12

☒ _____ ☐ ☐

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)

D 13

☒ _____ ☐ ☐

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)

D 14

☒ _____ ☐ ☐

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)

K 1

☒ _____ ☐ ☐

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

PART E. LANDFILL PERMIT REQUIREMENTS (62-701.330, FAC)

S LOCATION N/A N/C

E 1 See Tab E

☒ _____ ☐ ☐

1. Regional map or aerial photograph no more than 5 years old showing all airports that are located within five miles of the proposed landfill; (62-701.330(3)(a),FAC)

See Fill Sequence Plan
Drawings

☒ _____ ☐ ☐

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

Fill Sequence Plan
Drawings C-2

☒ _____ ☐ ☐

a. Dimensions;

See Drawings L-1 & L-2 in
Tab L Water Monitoring

☒ _____ ☐ ☐

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

See the Geotechnical
Reports in Part I

☒ _____ ☐ ☐

c. Locations of soil borings;

S LOCATION N/A N/C

PART E CONTINUED

<input checked="" type="checkbox"/>	Fill Sequence Plan Drawing C-2 to C-10	<input type="checkbox"/>	<input type="checkbox"/>	d. Proposed plan of trenching or disposal areas;
<input checked="" type="checkbox"/>	Fill Sequence Plan Drawings C-11 and C-12	<input type="checkbox"/>	<input type="checkbox"/>	e. Cross sections showing original elevations and proposed final contours which shall be included either on the plot plan or on separate sheets;
<input checked="" type="checkbox"/>	Fill Sequence Plan Drawings C-2, C-3 & C-4	<input type="checkbox"/>	<input type="checkbox"/>	f. Any previously filled waste disposal areas;
<input checked="" type="checkbox"/>	There is an existing fence along property boundary	<input type="checkbox"/>	<input type="checkbox"/>	g. Fencing or other measures to restrict access.
<input checked="" type="checkbox"/>	See Fill Sequence Plan Drawings for 2009 to 2015	<input type="checkbox"/>	<input type="checkbox"/>	3. Topographic maps with a scale not greater than 200 feet to the inch with 5-foot contour intervals showing; (62-701.330(3)(c),FAC):
<input checked="" type="checkbox"/>	Fill Sequence Plan Drawing C-2	<input type="checkbox"/>	<input type="checkbox"/>	a. Proposed fill areas;
<input checked="" type="checkbox"/>	See Cover (Borrow) Material Stockpile on C-2	<input type="checkbox"/>	<input type="checkbox"/>	b. Borrow areas;
<input checked="" type="checkbox"/>	Fill Sequence Plan Drawings C-2 to C-10	<input type="checkbox"/>	<input type="checkbox"/>	c. Access roads;
<input checked="" type="checkbox"/>	Fill Sequence Plan Drawings C-5 to C-10	<input type="checkbox"/>	<input type="checkbox"/>	d. Grades required for proper drainage;
<input checked="" type="checkbox"/>	Fill Sequence Plan Drawings C-11, C-12 & C-13	<input type="checkbox"/>	<input type="checkbox"/>	e. Cross sections of lifts;
<input checked="" type="checkbox"/>	Fill Sequence Plan Drawing C-13	<input type="checkbox"/>	<input type="checkbox"/>	f. Special drainage devices if necessary;
<input checked="" type="checkbox"/>	There is an existing perimeter fence	<input type="checkbox"/>	<input type="checkbox"/>	g. Fencing;
<input checked="" type="checkbox"/>	Fill Sequence Plan Drawing C-2	<input type="checkbox"/>	<input type="checkbox"/>	h. Equipment facilities.
<input checked="" type="checkbox"/>	See Application page 5 Item #12	<input type="checkbox"/>	<input type="checkbox"/>	4. A report on the landfill describing the following; (62-701.330(3)(d),FAC)
<input checked="" type="checkbox"/>	See Application page 6 Item #8 & page 5 #11 & 17	<input type="checkbox"/>	<input type="checkbox"/>	a. The current and projected population and area to be served by the proposed site;
<input checked="" type="checkbox"/>	Landfill Life 1978 to 2042 Max. height 100' - El. 139	<input type="checkbox"/>	<input type="checkbox"/>	b. The anticipated type, annual quantity, and source of solid waste, expressed in tons;
				c. Planned active life of the facility, the final design height of the facility and the maximum height of the facility during its operation;

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	PART E CONTINUED
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See K 2. g.

<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
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d. The source and type of cover material used for the landfill.

See Part L Water ...

<input checked="" type="checkbox"/>	Monitoring Requirements	<input type="checkbox"/>	<input type="checkbox"/>
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5. Provide evidence that an approved laboratory shall conduct water quality monitoring for the facility in accordance with Chapter 62-160,FAC; (62-701.330(3)(g),FAC)

Manatee County uses the

<input checked="" type="checkbox"/>	Financial Test Method	<input type="checkbox"/>	<input type="checkbox"/>
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6. Provide a statement of how the applicant will demonstrate financial responsibility for the closing and long-term care of the landfill; (62-701.330(3)(h),FAC)

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

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

F 1

<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	-------	--------------------------	--------------------------

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

F 2

<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	-------	--------------------------	--------------------------

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

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

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

<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------	-------------------------------------	--------------------------

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 and shall be designed to achieve a minimum factor of safety of 1.5 using peak strength values to prevent failures of side slopes and deep-seated failures; (62-701.400(2),FAC)

<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------	-------------------------------------	--------------------------

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

<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------	-------------------------------------	--------------------------

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

<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------	-------------------------------------	--------------------------

(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>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	PART G CONTINUED	
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(2)	Document foundation is adequate to prevent liner failure;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(3)	Constructed so bottom liner will not be adversely impacted by fluctuations of the ground water;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(4)	Designed to resist hydrostatic uplift if bottom liner located below seasonal high ground water table;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(5)	Installed to cover all surrounding earth which could come into contact with the waste or leachate.
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. Composite liners; (62-701.400(3)(b),FAC)	
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(1)	Upper geomembrane thickness and properties;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(2)	Design leachate head for primary LCRS including leachate recirculation if appropriate;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(3)	Design thickness in accordance with Table A and number of lifts planned for lower soil component.
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. Double liners; (62-701.400(3)(c),FAC)	
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(1)	Upper and lower geomembrane thicknesses and properties;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(2)	Design leachate head for primary LCRS to limit the head to one foot above the liner;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(3)	Lower geomembrane sub-base design;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(4)	Leak detection and secondary leachate collection system minimum design criteria ($k \geq 10$ cm/sec, head on lower liner ≤ 1 inch, head not to exceed thickness of drainage layer);
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	d. Standards for geosynthetic components; (62-701.400(3)(d),FAC)	

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	<u>PART G CONTINUED</u>
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| <input checked="" type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (1) Factory and field seam test methods to ensure all geomembrane seams achieve the minimum specifications; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (2) Geomembranes to be used shall pass a continuous spark test by the manufacturer; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (3) Design of 24-inch-thick protective layer above upper geomembrane liner; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (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. |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (5) HDPE geomembranes, if used, meet the specifications in GRI GM13 and LLDPE geomembranes, if used, meet the specifications in GRI GM17; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (6) PVC geomembranes, if used, meet the specifications in PGI 1104; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (7) Interface shear strength testing results of the actual components which will be used in the liner system; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (8) Transmissivity testing results of geonets if they are used in the liner system; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (9) Hydraulic conductivity testing results of geosynthetic clay liners if they are used in the liner system; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | e. Geosynthetic specification requirements; (62-701.400(3)(e),FAC) |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (1) Definition and qualifications of the designer, manufacturer, installer, QA consultant and laboratory, and QA program; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (2) Material specifications for geomembranes, geocomposites, geotextiles, geogrids, and geonets; |

S LOCATION N/A N/C

PART G CONTINUED

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| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (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; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (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; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (5) | Geotextile and geogrid specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials and any overlying materials; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (6) | Geonet and geocomposite specifications including handling and placement, conformance testing, stacking and joining, repair, and placement of soil materials and any overlying materials; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (7) | Geosynthetic clay liner specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil material and any overlying materials; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | f. Standards for soil liner components (62-710.400(3)(f),FAC): | |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (1) | Description of construction procedures including overexcavation and backfilling to preclude structural inconsistencies and procedures for placing and compacting soil component in layers; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (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; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (3) | Procedures for testing in-situ soils to demonstrate they meet the specifications for soil liners; |

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	PART G CONTINUED
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| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (4) Specifications for soil component of liner including at a minimum: |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (a) Allowable particle size distribution, Atterberg limits, shrinkage limit; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (b) Placement moisture and dry density criteria; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (c) Maximum laboratory-determined saturated hydraulic conductivity using simulated leachate; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (d) Minimum thickness of soil liner; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (e) Lift thickness; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (f) Surface preparation (scarification); |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (g) Type and percentage of clay mineral within the soil component; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (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. |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | g. If a Class III landfill is to be constructed with a bottom liner system, provide a description of how the minimum requirements for the liner will be achieved. |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. Leachate collection and removal system (LCRS); (62-701.400(4),FAC) |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | a. The primary and secondary LCRS requirements; (62-701.400(4)(a),FAC) |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (1) Constructed of materials chemically resistant to the waste and leachate; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (2) Have sufficient mechanical properties to prevent collapse under pressure; |

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	PART G CONTINUED	
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(3)	Have granular material or synthetic geotextile to prevent clogging;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(4)	Have method for testing and cleaning clogged pipes or contingent designs for rerouting leachate around failed areas;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. Other LCRS requirements; (62-701.400(4)(b) and (c),FAC)	
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(1)	Bottom 12 inches having hydraulic conductivity $\geq 1 \times 10^{-3}$ cm/sec;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(2)	Total thickness of 24 inches of material chemically resistant to the waste and leachate;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(3)	Bottom slope design to accommodate for predicted settlement and still meet minimum slope requirements;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(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.
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Leachate recirculation; (62-701.400(5),FAC)	
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. Describe general procedures for recirculating leachate;	
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. Describe procedures for controlling leachate runoff and minimizing mixing of leachate runoff with storm water;	
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. Describe procedures for preventing perched water conditions and gas buildup;	
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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;	
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	e. Describe methods of gas management in accordance with Rule 62-701.530, FAC;	

S	LOCATION	N/A	N/C	PART G CONTINUED
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| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 5. Leachate storage tanks and leachate surface impoundments; (62-701.400(6), FAC) |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | a. Surface impoundment requirements; (62-701.400(6)(b), FAC) |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (1) Documentation that the design of the bottom liner will not be adversely impacted by fluctuations of the ground water; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (2) Designed in segments to allow for inspection and repair as needed without interruption of service; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (3) General design requirements; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (a) Double liner system consisting of an upper and lower 60-mil minimum thickness geomembrane; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (b) Leak detection and collection system with hydraulic conductivity ≥ 1 cm/sec; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (c) Lower geomembrane placed on subbase ≥ 6 inches thick with $k \leq 1 \times 10^{-5}$ cm/sec or on an approved geosynthetic clay liner with $k \leq 1 \times 10^{-7}$ cm/sec; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (d) Design calculation to predict potential leakage through the upper liner; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (e) Daily inspection requirements and notification and corrective action requirements if leakage rates exceed that predicted by design calculations; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (4) Description of procedures to prevent uplift, if applicable; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (5) Design calculations to demonstrate minimum two feet of freeboard will be maintained; |
| <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (6) Procedures for controlling vectors and off-site odors. |

S LOCATION N/A N/C

PART G CONTINUED

<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. Above-ground leachate storage tanks; (62-701.400(6)(c),FAC)
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(1) Describe tank materials of construction and ensure foundation is sufficient to support tank;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(2) Describe procedures for cathodic protection if needed for the tank;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(3) Describe exterior painting and interior lining of the tank to protect it from the weather and the leachate stored;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(4) Describe secondary containment design to ensure adequate capacity will be provided and compatibility of materials of construction;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(5) Describe design to remove and dispose of stormwater from the secondary containment system;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(6) Describe an overfill prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overfilling;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(7) Inspections, corrective action and reporting requirements;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(a) Overfill prevention system weekly;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(b) Exposed tank exteriors weekly;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(c) Tank interiors when tank is drained or at least every three years;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(d) Procedures for immediate corrective action if failures detected;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(e) Inspection reports available for department review.
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. Underground leachate storage tanks; (62-701.400(6)(d),FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	<u>PART G CONTINUED</u>
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| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (1) Describe materials of construction; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (2) A double-walled tank design system to be used with the following requirements; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (a) Interstitial space monitoring at least weekly; |
| <input type="checkbox"/> | _____ | <input type="checkbox"/> | <input type="checkbox"/> | (b) Corrosion protection provided for primary tank interior and external surface of outer shell; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (c) Interior tank coatings compatible with stored leachate; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (d) Cathodic protection inspected weekly and repaired as needed; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (3) Describe an overfill prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overfilling and provide for weekly inspections; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (4) Inspection reports available for department review. |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | d.Schedule provided for routine maintenance of LCRS; (62-701.400(6)(e),FAC) |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 6.Liner systems construction quality assurance (CQA); (62-701.400(7),FAC) |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | a. Provide CQA Plan including: |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (1) Specifications and construction requirements for liner system; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (2) Detailed description of quality control testing procedures and frequencies; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (3) Identification of supervising professional engineer; |
| <input type="checkbox"/> | _____ | <input checked="" type="checkbox"/> | <input type="checkbox"/> | (4) Identify responsibility and authority of all appropriate organizations and key personnel involved in the construction project; |

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	PART G CONTINUED
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(5) State qualifications of CQA professional engineer and support personnel;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(6) Description of CQA reporting forms and documents;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. An independent laboratory experienced in the testing of geosynthetics to perform required testing;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Soil Liner CQA (62-701.400(8)FAC)
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. Description of field test section construction and test methods to be implemented prior to liner installation;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. Description of field test methods including rejection criteria and corrective measures to insure proper liner installation.
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. Surface water management systems; (62-701.400(9),FAC)
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. Provide a copy of a Department permit for stormwater control or documentation that no such permit is required;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. Design of surface water management system to isolate surface water from waste filled areas and to control stormwater run-off;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. Details of stormwater control design including retention ponds, detention ponds, and drainage ways;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9. Gas control systems; (62-701.400(10),FAC)
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. For landfills designed in ground water, provide documentation that the landfill will provide a degree of protection equivalent to landfills designed with bottom liners not in contact with ground water; (62-701.400(11),FAC)

PART H. HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS (62-701.410(1), FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>
	References are to 03/03/83 Ardaman Report in Part I	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Chapter 2 Site Conditions	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Page 2-3 Chapter 2.3	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Chapter 4.4 Water Quality Monitoring	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Chapter 2.3 Aquifer Systems	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Chapter 2.3 Aquifer Systems	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Chapter 2.3 Aquifer Systems	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Chapter 3.6 Well Inventory & H for updated inventory	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Page 2 Landfills & Fill Sequence Plan Dwg. C-2	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	There are no wells See inventory in H	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	See Page 3 and 12 of Ardaman Letters in Part I	<input type="checkbox"/>	<input type="checkbox"/>

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

- Regional and site specific geology and hydrogeology;
- Direction and rate of ground water and surface water flow including seasonal variations;
- Background quality of ground water and surface water;
- Any on-site hydraulic connections between aquifers;
- 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;
- Description of topography, soil types and surface water drainage systems;
- 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;
- Identify and locate any existing contaminated areas on the site;
- Include a map showing the locations of all potable wells within 500 feet of the waste storage and disposal areas;

2. Report signed, sealed and dated by PE and/or PG.

PART I. GEOTECHNICAL INVESTIGATION REQUIREMENTS (62-701.410(2),FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
<input checked="" type="checkbox"/>	See Ardaman Reports in I	<input type="checkbox"/>	<input type="checkbox"/>	<p>1. Submit a geotechnical site investigation report defining the engineering properties of the site including at least the following:</p> <p>a. Description of subsurface conditions including soil stratigraphy and ground water table conditions;</p> <p>b. Investigate for the presence of muck, previously filled areas, soft ground, lineaments and sink holes;</p> <p>c. Estimates of average and maximum high water table across the site;</p> <p>d. Foundation analysis including:</p> <p>(1) Foundation bearing capacity analysis;</p> <p>(2) Total and differential subgrade settlement analysis;</p> <p>(3) Slope stability analysis;</p> <p>e. Description of methods used in the investigation and includes soil boring logs, laboratory results, analytical calculations, cross sections, interpretations and conclusions;</p> <p>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.</p>
<input checked="" type="checkbox"/>	Chapter 2 Site Conditions	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	Chapter 2 Site Conditions & 3 Field Investigations	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	Chapter 3.3 Groundwater Conditions	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	See Ardaman Reports in I	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	Page I-1	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	Chapter 5.5 Settlement Considerations	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	See Page I-1	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	Ardaman Report Chapters 3, 4, 5 & 6.	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	Ardaman Chapters 2 & 3 and Page I-1	<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	See Cover letters of Ardaman's Reports	<input type="checkbox"/>	<input type="checkbox"/>	2. Report signed, sealed and dated by PE and/or PG.

PART J. VERTICAL EXPANSION OF LANDFILLS (62-701.430,FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Describe how the vertical expansion shall not cause or contribute to leachate leakage from the existing landfill, shall not cause objectionable odors, or adversely affect the closure design of the existing landfill;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Provide foundation and settlement analysis for the vertical expansion;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. Minimum stability safety factor of 1.5 for the lining system component interface stability and deep stability;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6. Provide documentation to show the surface water management system will not be adversely affected by the vertical expansion;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. Provide gas control designs to prevent accumulation of gas under the new liner for the vertical expansion.

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

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
	K 1			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	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)
	K 2			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	2. Provide a landfill operation plan including procedures for: (62-701.500(2), FAC)
	K 2 a			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	a. Designating responsible operating and maintenance personnel;
	K 2 b			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	b. Emergency preparedness and response, as required in subsection 62-701.320(16), FAC;
	K 2 c			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	c. Controlling types of waste received at the landfill;
	K 2 d			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	d. Weighing incoming waste;
	K 2 e			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	e. Vehicle traffic control and unloading;
	K 2 f			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	f. Method and sequence of filling waste;
	K 2 g			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	g. Waste compaction and application of cover;
	K 2 h			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	h. Operations of gas, leachate, and stormwater controls;
	K 2 i			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	i. Water quality monitoring.
	K 2 j			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	j. Maintaining and cleaning the leachate collection system;
	K 3			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	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)
	K 4			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	4. Describe the waste records that will be compiled monthly and provided to the Department annually; (62-701.500(4),FAC)
	K 5			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	5. Describe methods of access control; (62-701.500(5),FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	PART K CONTINUED
<input checked="" type="checkbox"/>	K 6	<input type="checkbox"/>	<input type="checkbox"/>	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)
<input checked="" type="checkbox"/>	K 7	<input type="checkbox"/>	<input type="checkbox"/>	7. Describe procedures for spreading and compacting waste at the landfill that include: (62-701.500(7),FAC)
<input checked="" type="checkbox"/>	K 7 a	<input type="checkbox"/>	<input type="checkbox"/>	a. Waste layer thickness and compaction frequencies;
<input checked="" type="checkbox"/>	K 7 b	<input type="checkbox"/>	<input type="checkbox"/>	b. Special considerations for first layer of waste placed above liner and leachate collection system;
<input checked="" type="checkbox"/>	K 7 c	<input type="checkbox"/>	<input type="checkbox"/>	c. Slopes of cell working face and side grades above land surface, planned lift depths during operation;
<input checked="" type="checkbox"/>	K 7 d	<input type="checkbox"/>	<input type="checkbox"/>	d. Maximum width of working face;
<input checked="" type="checkbox"/>	K 7 e	<input type="checkbox"/>	<input type="checkbox"/>	e. Description of type of initial cover to be used at the facility that controls:
<input checked="" type="checkbox"/>	K 7 e	<input type="checkbox"/>	<input type="checkbox"/>	(1) Vector breeding/animal attraction
<input checked="" type="checkbox"/>	K 7 e	<input type="checkbox"/>	<input type="checkbox"/>	(2) Fires
<input checked="" type="checkbox"/>	K 7 e	<input type="checkbox"/>	<input type="checkbox"/>	(3) Odors
<input checked="" type="checkbox"/>	K 7 e	<input type="checkbox"/>	<input type="checkbox"/>	(4) Blowing litter
<input checked="" type="checkbox"/>	K 7 e	<input type="checkbox"/>	<input type="checkbox"/>	(5) Moisture infiltration
<input checked="" type="checkbox"/>	K 7 f	<input type="checkbox"/>	<input type="checkbox"/>	f. Procedures for applying initial cover including minimum cover frequencies;
<input checked="" type="checkbox"/>	K 7 g	<input type="checkbox"/>	<input type="checkbox"/>	g. Procedures for applying intermediate cover;
<input checked="" type="checkbox"/>	K 7 h	<input type="checkbox"/>	<input type="checkbox"/>	h. Time frames for applying final cover;
<input checked="" type="checkbox"/>	K 7 i	<input type="checkbox"/>	<input type="checkbox"/>	i. Procedures for controlling scavenging and salvaging.

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	<u>PART K CONTINUED</u>
	K 7 j			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	j. Description of litter policing methods;
	K 7 k			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	k. Erosion control procedures.
	K 8			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	8. Describe operational procedures for leachate management including; (62-701.500(8),FAC)
	K 8 a			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	a. Leachate level monitoring, sampling, analysis and data results submitted to the Department;
	K 8 b			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	b. Operation and maintenance of leachate collection and removal system, and treatment as required;
	K 8 c			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	c. Procedures for managing leachate if it becomes regulated as a hazardous waste;
	K 8 d			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	d. Identification of treatment or disposal facilities that may be used for off-site discharge and treatment of leachate;
	K 8 e			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	e. Contingency plan for managing leachate during emergencies or equipment problems;
	K 8 f			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	f. Procedures for recording quantities of leachate generated in gal/day and including this in the operating record;
	K 8 g			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	g. Procedures for comparing precipitation experienced at the landfill with leachate generation rates and including this information in the operating record;
	K 8 h			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	h. Procedures for water pressure cleaning or video inspecting leachate collection systems.
	K 9			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	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)
	K 10			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	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)

<div style="margin-bottom: 10px;"> <input checked="" type="checkbox"/> K 11 <input type="checkbox"/> _____ </div> <div> <input checked="" type="checkbox"/> K 11 a <input type="checkbox"/> _____ </div> <div> <input checked="" type="checkbox"/> K 11 b <input type="checkbox"/> _____ </div> <div> <input checked="" type="checkbox"/> K 11 c <input type="checkbox"/> _____ </div> <div> <input checked="" type="checkbox"/> K 11 d <input type="checkbox"/> _____ </div> <div> <input checked="" type="checkbox"/> K 11 e <input type="checkbox"/> _____ </div> <div> <input checked="" type="checkbox"/> K 11 f <input type="checkbox"/> _____ </div> <div> <input checked="" type="checkbox"/> K 11 g <input type="checkbox"/> _____ </div> <div> <input checked="" type="checkbox"/> K 12 <input type="checkbox"/> _____ </div> <div> <input checked="" type="checkbox"/> K 13 <input type="checkbox"/> _____ </div> <div> <input checked="" type="checkbox"/> K 13 a <input type="checkbox"/> _____ </div> <div> <input checked="" type="checkbox"/> K 13 b <input type="checkbox"/> _____ </div> <div> <input checked="" type="checkbox"/> K 13 c <input type="checkbox"/> _____ </div> <div> <input checked="" type="checkbox"/> K 13 d <input type="checkbox"/> _____ </div>	<div>11. Equipment and operation feature requirements; (62-701.500(11),FAC)</div> <div>a. Sufficient equipment for excavating, spreading, compacting and covering waste;</div> <div>b. Reserve equipment or arrangements to obtain additional equipment within 24 hours of breakdown;</div> <div>c. Communications equipment;</div> <div>d. Dust control methods;</div> <div>e. Fire protection capabilities and procedures for notifying local fire department authorities in emergencies;</div> <div>f. Litter control devices;</div> <div>g. Signs indicating operating authority, traffic flow, hours of operation, disposal restrictions.</div> <div>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)</div> <div>13. Additional record keeping and reporting requirements; (62-701.500(13),FAC)</div> <div>a. Records used for developing permit applications and supplemental information maintained for the design period of the landfill;</div> <div>b. Monitoring information, calibration and maintenance records, copies of reports required by permit maintained for at least 10 years;</div> <div>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;</div> <div>d. Procedures for archiving and retrieving records which are more than five year old.</div>
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PART L. WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS (62-701.510, FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
<input checked="" type="checkbox"/>	L _____	<input type="checkbox"/>	<input type="checkbox"/>	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;
<input checked="" type="checkbox"/>	L 1 a _____	<input type="checkbox"/>	<input type="checkbox"/>	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)
<input checked="" type="checkbox"/>	L 1 b _____	<input type="checkbox"/>	<input type="checkbox"/>	b. All sampling and analysis performed in accordance with Chapter 62-160, FAC; (62-701.510(2)(b),FAC)
<input checked="" type="checkbox"/>	L 1 c _____	<input type="checkbox"/>	<input type="checkbox"/>	c. Ground water monitoring requirements; (62-701.510(3),FAC)
<input checked="" type="checkbox"/>	L 1 c _____	<input type="checkbox"/>	<input type="checkbox"/>	(1) Detection wells located downgradient from and within 50 feet of disposal units;
<input checked="" type="checkbox"/>	L 1 c _____	<input type="checkbox"/>	<input type="checkbox"/>	(2) Downgradient compliance wells as required;
<input checked="" type="checkbox"/>	L 1 c _____	<input type="checkbox"/>	<input type="checkbox"/>	(3) Background wells screened in all aquifers below the landfill that may be affected by the landfill;
<input checked="" type="checkbox"/>	L 1 c _____	<input type="checkbox"/>	<input type="checkbox"/>	(4) Location information for each monitoring well;
<input checked="" type="checkbox"/>	L 1 c _____	<input type="checkbox"/>	<input type="checkbox"/>	(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;
<input checked="" type="checkbox"/>	L 1 c _____	<input type="checkbox"/>	<input type="checkbox"/>	(6) Well screen locations properly selected;
<input checked="" type="checkbox"/>	L 1 c _____	<input type="checkbox"/>	<input type="checkbox"/>	(7) Monitoring wells constructed to provide representative ground water samples;
<input checked="" type="checkbox"/>	L 1 c _____	<input type="checkbox"/>	<input type="checkbox"/>	(8) Procedures for properly abandoning monitoring wells;
<input type="checkbox"/>	_____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(9) Detailed description of detection sensors if proposed.
<input checked="" type="checkbox"/>	L 1 d _____	<input type="checkbox"/>	<input type="checkbox"/>	d. Surface water monitoring requirements; (62-701.510(4),FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	<u>PART L CONTINUED</u>
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|-------------------------------------|-------|--------------------------|--------------------------|---|
| <input checked="" type="checkbox"/> | L 1 d | <input type="checkbox"/> | <input type="checkbox"/> | (1) Location of and justification for all proposed surface water monitoring points; |
| <input checked="" type="checkbox"/> | L 1 d | <input type="checkbox"/> | <input type="checkbox"/> | (2) Each monitoring location to be marked and its position determined by a registered Florida land surveyor; |
| <input checked="" type="checkbox"/> | L 1 e | <input type="checkbox"/> | <input type="checkbox"/> | e. Leachate sampling locations proposed; (62-701.510(5),FAC) |
| <input checked="" type="checkbox"/> | L 1 f | <input type="checkbox"/> | <input type="checkbox"/> | f. Initial and routine sampling frequency and requirements; (62-701.510(6),FAC) |
| <input checked="" type="checkbox"/> | L 1 f | <input type="checkbox"/> | <input type="checkbox"/> | (1) Initial background ground water and surface water sampling and analysis requirements; |
| <input checked="" type="checkbox"/> | L 1 f | <input type="checkbox"/> | <input type="checkbox"/> | (2) Routine leachate sampling and analysis requirements; |
| <input checked="" type="checkbox"/> | L 1 f | <input type="checkbox"/> | <input type="checkbox"/> | (3) Routine monitoring well sampling and analysis requirements; |
| <input checked="" type="checkbox"/> | L 1 f | <input type="checkbox"/> | <input type="checkbox"/> | (4) Routine surface water sampling and analysis requirements. |
| <input checked="" type="checkbox"/> | L 1 g | <input type="checkbox"/> | <input type="checkbox"/> | g. Describe procedures for implementing evaluation monitoring, prevention measures and corrective action as required; (62-701.510(7),FAC) |
| <input checked="" type="checkbox"/> | L 1 h | <input type="checkbox"/> | <input type="checkbox"/> | h. Water quality monitoring report requirements;(62-701.510(9),FAC) |
| <input checked="" type="checkbox"/> | L 1 h | <input type="checkbox"/> | <input type="checkbox"/> | (1) Semi-annual report requirements (see paragraphs 62 701.510(6)(c),(d)and (e) for sampling frequencies); |
| <input checked="" type="checkbox"/> | L 1 h | <input type="checkbox"/> | <input type="checkbox"/> | (2) Documentation that the water quality data shall be provided to the Department in an electronic format consistent with requirements for importing into Department databases, unless an alternate form of submittal is specified in the permit. |
| <input checked="" type="checkbox"/> | L 1 h | <input type="checkbox"/> | <input type="checkbox"/> | (3) Two and one-half year report requirements, or every five years if in long-term care, signed, dated and sealed by PG or PE. |

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

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
	K 14.a			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	1. Describe procedures for managing motor vehicles; (62-701.520(1),FAC)
	K 14.b			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	2. Describe procedures for landfilling shredded waste; (62-701.520(2),FAC)
	K 14.c			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	3. Describe procedures for asbestos waste disposal; (62-701.520(3),FAC)
	K 14.d			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	4. Describe procedures for disposal or management of contaminated soil; (62-701.520(4), FAC)
	K 14.e			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	5. Describe procedures for disposal of biological wastes; (62-701.520(5), FAC)

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

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
	N 1			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	1. Provide the design for a gas management system that will (62-701.530(1), FAC):
	N 1a			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	a. Be designed to prevent concentrations of combustible gases from exceeding 25% the LEL in structures and 100% the LEL at the property boundary;
	N 1b			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	b. Be designed for site-specific conditions;
	N 1c			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	c. Be designed to reduce gas pressure in the interior of the landfill;
	N 1d			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	d. Be designed to not interfere with the liner, leachate control system or final cover.
	N 2			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	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):
	N 3			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	3. Provide documentation describing how the gas remediation plan and odor remediation plan will be implemented; (62-701.530(3), FAC):
	N 4			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	4. Landfill gas recovery facilities; (62-701.530(5), FAC):

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	PART N CONTINUED
	N 4a			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	a. Information required in Rules 62-701.320(7) and 62-701.330(3), FAC supplied;
	N 4b			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	b. Information required in Rule 62-701.600(4), FAC supplied where relevant and practical;
	N 4c			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	c. Estimate of current and expected gas generation rates and description of condensate disposal methods provided;
	N 4d			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	d. Description of procedures for condensate sampling, analyzing and data reporting provided;
	N 4e			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	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;
	N 4f			
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	f. Performance bond provided to cover closure costs if not already included in other landfill closure costs.

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

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
	O 1			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	1. Closure permit requirements; (62-701.600(2),FAC)
	O 1a			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	a. Application submitted to Department at least 90 days prior to final receipt of wastes;
	O 1b			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	b. Closure plan shall include the following:
	O 1b			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(1) Closure design plan;
	O 1b			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(2) Closure operation plan;
	O 1b			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(3) Plan for long-term care;
	O 1b			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(4) A demonstration that proof of financial responsibility for long-term care will be provided.

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	<u>PART O CONTINUED</u>
	O 2			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	2. Closure design plan including the following requirements: (62-701.600(3),FAC)
	O 2a			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	a. Plan sheet showing phases of site closing;
	O 2b			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	b. Drawings showing existing topography and proposed final grades;
	O 2c			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	c. Provisions to close units when they reach approved design dimensions;
	O 2d			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	d. Final elevations before settlement;
	O 2e			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	e. Side slope design including benches, terraces, down slope drainage ways, energy dissipaters and discussion of expected precipitation effects;
	O 2f			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	f. Final cover installation plans including:
	O 2f			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(1) CQA plan for installing and testing final cover;
	O 2f			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(2) Schedule for installing final cover after final receipt of waste;
	O 2f			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(3) Description of drought-resistant species to be used in the vegetative cover;
	O 2f			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(4) Top gradient design to maximize runoff and minimize erosion;
	O 2f			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(5) Provisions for cover material to be used for final cover maintenance.
	O 2g			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	g. Final cover design requirements:
	O 2g			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(1) Protective soil layer design;
	O 2g			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(2) Barrier soil layer design;

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	<u>PART O CONTINUED</u>
	O 2g			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(3) Erosion control vegetation;
	O 2g			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(4) Geomembrane barrier layer design;
<input type="checkbox"/>	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(5) Geosynthetic clay liner design if used;
	O 2g			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	(6) Stability analysis of the cover system and the disposed waste.
	O 2h			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	h. Proposed method of stormwater control;
	O 2i			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	i. Proposed method of access control;
	O 2j			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	j. Description of the proposed or existing gas management system which complies with Rule 62-701.530, FAC.
	O 3			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	3. Closure operation plan shall include:(62-701.600(4),FAC)
	O 3a			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	a. Detailed description of actions which will be taken to close the landfill;
	O 3b			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	b. Time schedule for completion of closing and long-term care;
	O 3c			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	c. Describe proposed method for demonstrating financial assurance for long-term care;
	O 3d			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	d. Operation of the water quality monitoring plan required in Rule 62-701.510, FAC.
	O 3e			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	e. Development and implementation of gas management system required in Rule 62-701.530, FAC.
	O 4			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	4. Certification of closure construction completion including: (62-701.600(6),FAC)
	O 4a			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	a. Survey monuments; (62-701.600(6)(a),FAC)
	O 4b			
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	b. Final survey report; (62-701.600(6)(b),FAC)

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	PART O CONTINUED
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O 5				
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	5. Declaration to the public; (62-701.600(7),FAC)

O 6				
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	6. Official date of closing; (62-701.600(8),FAC)

O 7				
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	7. Justification for and detailed description of procedures to be followed for temporary closure of the landfill, if desired; (62-701.600(9),FAC)

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

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
P 1				
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	1. Describe how the requirements for use of closed solid waste disposal areas will be achieved;(62-701.610(1),FAC)

P 2				
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	2. Describe how the requirements for relocation of wastes will be achieved; (62-701.610(2), FAC)

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

<u>S</u>	<u>LOCATION</u>	<u>N/A</u>	<u>N/C</u>	
Q 1				
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	1. Maintaining the gas collection and monitoring system; (62-701.620(5), FAC)

Q 2				
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	2. Stabilization report requirements; (62-701.620(6),FAC)

Q 3				
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	3. Right of access;(62-701.620(7),FAC)

Q 4				
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	4. Requirements for replacement of monitoring devices; (62-701.620(8),FAC)

Q 5				
<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	5. Completion of long-term care signed and sealed by professional engineer (62-701.620(9), FAC).

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

S LOCATION N/A N/C

R 1

☒ _____ ☐ ☐

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).

R 2

☒ _____ ☐ ☐

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).

R 3

☒ _____ ☐ ☐

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

☐ _____ ☒ ☐

4. Provide documentation and the appropriate forms for delaying submitting proof of financial assurance for solid waste disposal units that qualify; (62-701.630(2)(c), FAC).

FLORIDA DEPARTMENT OF
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There is no additional information for

Part B

Disposal Facility General Information

The information for Part B is included on the

Application in Part A

FLORIDA DEPARTMENT OF
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SOUTHWEST DISTRICT
TAMPA

PART C. PROHIBITIONS (62-701.300, FAC)

C 1 General Siting Criteria

The following Siting Criteria applies to the Lena Road Class I Landfill which includes all three stages defined as the Stage I Landfill, Stage II Landfill and Stage III Landfill.

- (a) The Lena Road Landfill is located in an area where the geological formations or other subsurface features provide support for the solid waste. This is documented in Part H – Hydrogeological Investigation Requirements, and Part I – Geotechnical Investigation Requirements. There are no potable water wells within 500-feet of the landfill. The landfill has a public water supply. This is documented in Part H Hydrogeological Investigation Requirements which contain the well inventory when the landfill construction permit was issued and an updated inventory. Since this is an existing facility constructed prior to 1994, the facility is not subject to this prohibition per 62-701.300 (18) Existing facilities as explained in C-2 below.
- (b) No waste is being placed in a dewatered pit.
- (c) The landfill is not subject to frequent and periodic flooding. The landfill lies outside the 100-year floodplain. See also the flood map included in Part F General Criteria for Landfills. Storm water is being managed per the permit. See the Part K Operation Plan – Section 10 Storm Water Management for description of the storm water management plan.
- (d) No solid waste is being placed in any natural or artificial bodies of water including ground water.
- (e) There are bodies of water within 200-feet of the landfill, but the bodies of water are contained completely within the property boundaries of the disposal facility as shown on the aerial photograph on Drawing C-2 of the Fill Sequence Plan from 2009 to 2015. In addition, the landfill has permanent leachate control methods that result in compliance with the water quality standards and criteria.
- (f) No solid waste is stored on the right of way of any public highway, road or alley. The limits of the solid waste disposed of in the landfill are shown on Drawing C-2 of the Fill Sequence Plan from 2009 to 2015.

C-2 Exemptions

Since the Lena Road Class I Landfill, including all three stages, was constructed prior to 1992, the Lena Road Class I Landfill qualifies for the exemption in 62-701.300 (18) for existing facilities which states:

“(18) Existing facilities. Those portions of facilities which were constructed prior to May 27, 2001, remain subject to the prohibitions that were in effect at the time the permit authorizing construction was issued. Lateral expansions of such facilities remain subject to the prohibitions that were in effect at the time the permit authorizing the lateral expansion was

issued. For example, portions of facilities constructed prior to May 19, 1994 were subject to the prohibition against storing or disposing of solid waste within 500 feet of an existing or approved shallow water supply well, but are not subject to the prohibitions of paragraph (2) (b) of this section. However, lateral expansions of such facilities which occurred after May 19, 1994 are subject to the prohibitions of paragraph (2) (b) of this section.”

C-3 Burning Restrictions

Burning of solid waste is prohibited at the Lena Road Class I Landfill.

C-4 Hazardous Waste Restriction

Hazardous waste is prohibited from disposal in the Lena Road Class I Landfill.

C-5 PCB Disposal Restrictions

Disposal of liquids containing polychlorinated biphenyl (PCB) or non-liquid PCBs in the form of contaminated soil, rags, or other debris is prohibited from disposal in the Lena Road Class I Landfill.

C-6 Biomedical Waste Restrictions

Disposal of biomedical waste is prohibited from disposal in the Lena Road Class I Landfill.

C-7 Class I Surface Water Restrictions

No Class I surface Waters are located within 3,000 feet.

C-8 Special Waste for Landfills Restrictions

The follows types of waste are prohibited from the landfill:

- a. Lead-acid batteries
- b. Used oil, except as provided in Chapter 62-710, F.A.C.
- c. Yard Waste
- d. White goods
- e. Whole tires, except as provided in Chapter 62-711, F.A.C.

Special Waste for Waste-to-Energy Facilities – This facility is not a waste-to-energy facility. Ash from waste-to-energy facilities is prohibited.

C-9 Liquid Restrictions

Non-containerized liquid waste shall not be placed in the landfill except if the waste is household waste other than septic waste, or the waste is leachate or gas condensate derived from the landfill. Containers holding liquid waste shall not be placed in a solid waste disposal unit unless:

- The container is a small container similar in size to that normally found in household waste.

- The container is designed to hold liquids for use other than storage.
- The waste is household waste.
- Containers or tanks twenty gallons or larger in capacity shall either have one end removed or cut open, or have a series of punctures around the bottom to ensure the container is empty and free of residue. The empty container or tank shall be compacted to its smallest practical volume for disposal.

C-10 Used Oil Restrictions

Used oil and solid waste purposely contaminated with used oil is prohibited from disposal in the landfill except for oily wastes, sorbents or other materials used for maintenance or to clean up or contain leaks, spills or accidental releases of used oil, and soils contaminated with used oil as a result of spills or accidental releases.

**PART D: SOLID WASTE MANAGEMENT FACILITY PERMIT
REQUIREMENTS (62-701.302, FAC)**

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TAMPA

D 9. Plans or Drawings for the Solid Waste Management Facility

The drawings for the Lena Road Class I Landfill are shown on the Fill Sequence Plan from 2009 to 2015 dated April 2010. There are 15 drawings that are 24" 36". Due to the size and number of the drawings, they are not in this binder. The drawings were bound separately, folded and included with this submittal.

D 9.b. Aerial Photograph

An aerial photograph taken on January 25, 2010 is included in Part D. This photograph is less than one year old. The photograph shows the facility site and relevant surface features located within 1000 feet of the facility.

Also included in Part D is the topographic survey developed from the aerial photograph taken on January 25, 2010. This topographic map is the base map for the plan drawings in the Fill Sequence Plan drawing. As requested by the Department, this topographic map is signed and sealed by the surveyor who was responsible for taking the aerial photograph and developing the topographic survey.

D 9.c. Boundary Survey

A site plan showing all property boundaries certified by a Florida Licensed Professional Surveyor was submitted with the original permit application. A copy of the survey is included here in Part D for reference.

D 10. Documentation that Manatee County Owns the Property

The documentation that Manatee County owns the property is on file with the Department in the previous permit application. Manatee County still owns the property.

D 11. Waste Reduction and Recycling Goals

At the Manatee County Lena Road Class I Landfill there are designated areas for waste diverted from the landfill. These areas include the Waste Tire Facility, White Goods / Scrap Metal Facility, Yard Waste Facility and Household Hazardous Waste Drop-off Facility. These facilities 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).

D 12 History of Enforcement Actions Taken by the Department

The Department has taken no enforcement actions against this Facility since the last permit renewal or in the last five years.

There was an enforcement action in 2002. Case #00-1305 related to an action taken by the Department because the Stage I landfill gas collection system was completed approximately two months late. The consent agreement required the applicant to complete an in-kind project with an estimated expenditure of \$81,942. This project was completed, and is described in a November 27, 2002 letter to FDEP's Ms. Sheila Schneider, Air Program Enforcement Coordinator. The applicant has satisfied all the activities and reporting requirements of the consent agreement with the understanding that there will be four calendar years of monitoring and maintenance performed after completing of the project.

D 13 Proof of Publication

A copy of the proof of publication is included in this Part D.

D 14 Airport Safety

The 2009 Florida Aeronautical Chart is included in Part E. The location of the Lena Road Class I Landfill was added to the chart along with a 5 mile radius circle. The Chart shows no airports within 5 miles of the Facility. Since this is an existing landfill and no lateral expansions are requested, the Facility complies with 62-701.320(13), FAC.

BRADENTON HERALD

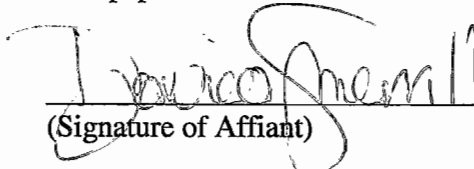
WWW.BRADENTON.COM
P.O. Box 921
Bradenton, FL 34206-0921
102 Manatee Avenue West
Bradenton, FL 34205-8894
Ph: 941-745-7066
Fax: 941-708-7758

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Published Daily
Bradenton, Manatee County, Florida

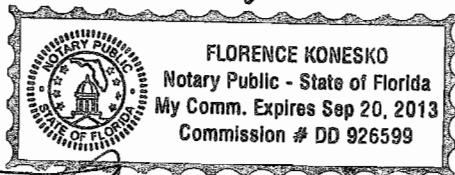
STATE OF FLORIDA COUNTY OF MANATEE

Before the undersigned authority personally appeared Danica Sherrill, who, on oath, says that she is a Legal Advertising Representative of the Bradenton Herald, a daily newspaper published at Bradenton in Manatee County, Florida; that the attached copy of the advertisement, **LEGAL NOTICE** as published in said newspaper in the issue **01/13/2010**.

Affiant further says that the said publication is a newspaper published at Bradenton, in said Manatee County, Florida, and that the said newspaper has heretofore been continuously published in said Manatee County, Florida, each day and has been entered as second-class mail matter at the post office in Bradenton, in said Manatee County, Florida, for a period of 1 year next preceding the first publication of the attached copy of advertisement; and affiant further says that she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.


(Signature of Affiant)

Sworn to and subscribed before me this
10 Day of Jan, 2010




SEAL & Notary Public

Personally Known ☒ OR Produced Identification ☐

Type of Identification Produced _____

BRADENTON HERALD**CLASSIFIED ADVERTISING**

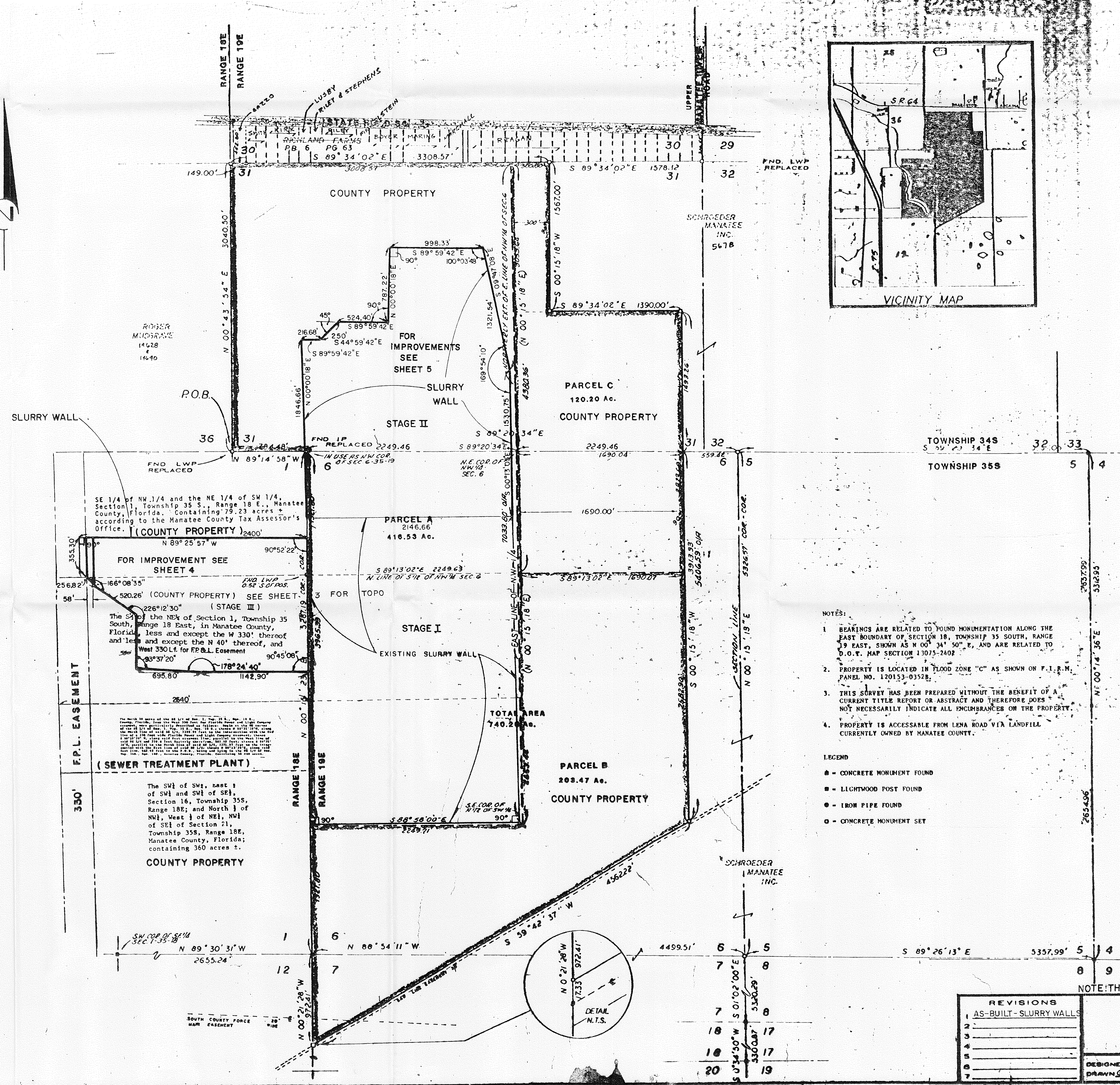
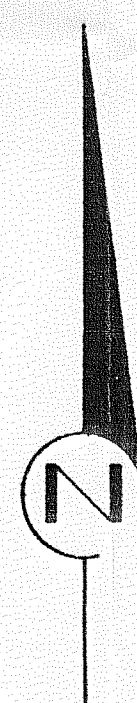
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Name:	MANATEE,	Stop Date:	01/13/2010	Payments:	\$ 0.00
Firm:	MANATEE CO UTILITY	Insertions:	2	Balance:	\$ 71.61

State of Florida
Department of Environmental
Protection
Notice of Application

The Department announces receipt of application for a solid waste permit from the Manatee County Government for a renewal of the existing operation permit, including operation of a lateral expansion (Stage II) of a Class I Landfill, subject to Department rules, at the Lena Road Class I Landfill located at 3333 Lena Road, Bradenton, Manatee County, Florida.

This application is being processed and is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Department of Environmental Protection, Southwest District office, 13051 Telecom Parkway, Temple Terrace, Florida 33637-0926.

01/13/2010



NOTES:

1. BEARINGS ARE RELATED TO FOUND MONUMENTATION ALONG THE EAST BOUNDARY OF SECTION 18, TOWNSHIP 35 SOUTH, RANGE 19 EAST, SHOWN AS N 00° 34' 50" E, AND ARE RELATED TO D.O.T. MAP SECTION 13075-2402.
2. PROPERTY IS LOCATED IN FLOOD ZONE "C" AS SHOWN ON F.I.R.N. PANEL NO. 120153-0352B.
3. THIS SURVEY HAS BEEN PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT OR ABSTRACT AND THEREFORE DOES NOT NECESSARILY INDICATE ALL ENCUMBRANCES ON THE PROPERTY.
4. PROPERTY IS ACCESSIBLE FROM LENA ROAD VIA LANDFILL CURRENTLY OWNED BY MANATEE COUNTY.

LEGEND

- - CONCRETE MONUMENT FOUND
- - LIGHTWOOD POST FOUND
- - IRON PIPE FOUND
- - CONCRETE MONUMENT SET

PARCEL "A" (FORMERLY PARCEL A AND B) DESCRIPTION: AS FURNISHED

THE SOUTH 1/2 OF THE N.W. 1/4 AND THE NORTH 1/2 OF THE S.W. 1/4 OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST.

ALSO:

THE NORTH 1/2 OF THE N.W. 1/4 OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST, AND ALL OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST, LESS THAT PART OF SECTION 31, LYING EAST OF A LINE WHICH IS THE NORTHERLY EXTENSION OF THE EAST LINE OF THE N.W. 1/4 OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST.

PARCEL "B" DESCRIPTION: AS FURNISHED

THAT PART OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST, LYING NORTHERLY OF THE NORTHERLY LINE OF THAT CERTAIN GAS LINE EASEMENT RUNNING DIAGONALLY THROUGH THE PROPERTY; LESS THE SOUTH 1/2 OF THE N.W. 1/4 AND THE NORTH 1/2 OF THE S.W. 1/4 OF SAID SECTION 6; ALSO LESS THAT PART OF SECTION 6, LYING NORTHERLY OF A LINE WHICH IS THE EASTERLY EXTENSION OF THE NORTH LINE OF THE SOUTH 1/2 OF THE N.W. 1/4 OF SAID SECTION 6; ALSO LESS THAT PART OF SECTION 6 LYING EASTERLY OF A LINE WHICH IS PARALLEL WITH AND 1690 FEET EASTERLY OF THE EAST LINE OF THE N.W. 1/4 OF SAID SECTION 6 AND ANY NORTHERLY OR SOUTHERLY EXTENSION THEREOF.

ALSO:

THAT PART OF SECTION 7, TOWNSHIP 35 SOUTH, RANGE 19 EAST LYING NORTHERLY OF THE NORTHERLY LINE OF THAT CERTAIN GAS LINE EASEMENT RUNNING DIAGONALLY THROUGH THE PROPERTY.

PARCEL "C" DESCRIPTION: AS FURNISHED

THAT PART OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST, MORE FULLY DESCRIBED AS BEING BOUNDED ON THE NORTH BY THE NORTH LINE OF SAID SECTION 6, AND BOUNDED ON THE WEST BY THE EAST LINE OF THE N.W. 1/4 OF SAID SECTION 6, AND BOUNDED ON THE SOUTH BY THE EASTERLY EXTENSION OF THE NORTH LINE OF THE SOUTH 1/2 OF THE N.W. 1/4 OF SAID SECTION 6, AND BOUNDED ON THE EAST BY A LINE WHICH LIES 1690 FEET EASTERLY OF AND PARALLEL WITH THE EAST LINE OF THE N.W. 1/4 OF SAID SECTION 6.

ALSO:

THAT PART OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST, MORE FULLY DESCRIBED AS BEING BOUNDED ON THE NORTH BY THE NORTH LINE OF SAID SECTION 31, AND BOUNDED ON THE WEST BY A LINE WHICH IS THE NORTHERLY EXTENSION OF THE EAST LINE OF THE N.W. 1/4 OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST, AND BOUNDED ON THE SOUTH BY A LINE WHICH LIES 1567 FEET SOUTHERLY OF AND PARALLEL WITH THE NORTH LINE OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST AND BOUNDED ON THE EAST BY A LINE WHICH LIES 300 FEET EASTERLY OF AND PARALLEL WITH THE NORTHERLY EXTENSION OF THE EAST LINE OF THE N.W. 1/4 OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST.

ALSO:

THAT PART OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST, MORE FULLY DESCRIBED AS BEING BOUNDED ON THE NORTH BY A LINE WHICH LIES 1567 FEET SOUTHERLY OF AND PARALLEL WITH THE NORTH LINE OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST AND BOUNDED ON THE WEST BY THE NORTHERLY EXTENSION OF THE EAST LINE OF THE N.W. 1/4 OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST, AND BOUNDED ON THE SOUTH BY THE SOUTH LINE OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST, (ALSO BEING THE NORTH LINE OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST) AND BOUNDED ON THE EAST BY A LINE WHICH LIES 1690 FEET EAST OF AND PARALLEL WITH THE NORTHERLY EXTENSION OF THE EAST LINE OF THE N.W. 1/4 OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST.

ALL OF THE ABOVE BEING AND LYING IN MANATEE COUNTY, FLORIDA.

DESCRIPTION:

PARCELS A, B AND C, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE S.W. CORNER OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST; THENCE N 00° 43' 54" E, ALONG WEST BOUNDARY OF SAID SECTION 31, A DISTANCE OF 3040.50 FEET TO THE N.W. CORNER OF SAID SECTION 31; THENCE S 09° 34' 02" E, ALONG NORTH BOUNDARY OF SAID SECTION 31, A DISTANCE OF 3308.57 FEET; THENCE S 00° 15' 18" E, A DISTANCE OF 1567.00 FEET; THENCE S 89° 34' 02" E, A DISTANCE OF 1390.00 FEET; THENCE S 00° 15' 18" W, A DISTANCE OF 5406.59 FEET TO THE NORTH RIGHT OF WAY LINE OF A GAS LINE EASEMENT; THENCE S 59° 42' 37" W, ALONG SAID RIGHT OF WAY LINE, A DISTANCE OF 4562.22 FEET TO THE WEST BOUNDARY OF SECTION 7, TOWNSHIP 35 SOUTH, RANGE 19 EAST; THENCE N 00° 21' 28" W, ALONG SAID WEST BOUNDARY LINE OF SAID SECTION 7, TO THE S.W. CORNER OF SECTION 6, TOWNSHIP 35 SOUTH, RANGE 19 EAST; THENCE N 00° 15' 23" E, ALONG WEST BOUNDARY OF SAID SECTION 6, A DISTANCE OF 5287.19 FEET TO THE N.W. CORNER OF SAID SECTION 6; THENCE N 89° 14' 50" W, ALONG SOUTH BOUNDARY OF SECTION 31, TOWNSHIP 34 SOUTH, RANGE 19 EAST, A DISTANCE OF 784.48 FEET TO THE POINT OF BEGINNING, LYING AND BEING IN MANATEE COUNTY, FLORIDA.

SUBJECT TO PERTINENT EASEMENTS, RIGHTS OF WAY AND RESTRICTIONS OF RECORD, CONTAINING 740.20 ACRES, MORE OR LESS.

BOUNDARY SURVEY
OF
MANATEE COUNTY LANDFILL
IN
SEC 31 TWP 34 S., RGE 19 E.S.
SEC 6A7, TWP 35 S., RGE 19 E.
MANATEE COUNTY, FLORIDA
FOR: MANATEE COUNTY

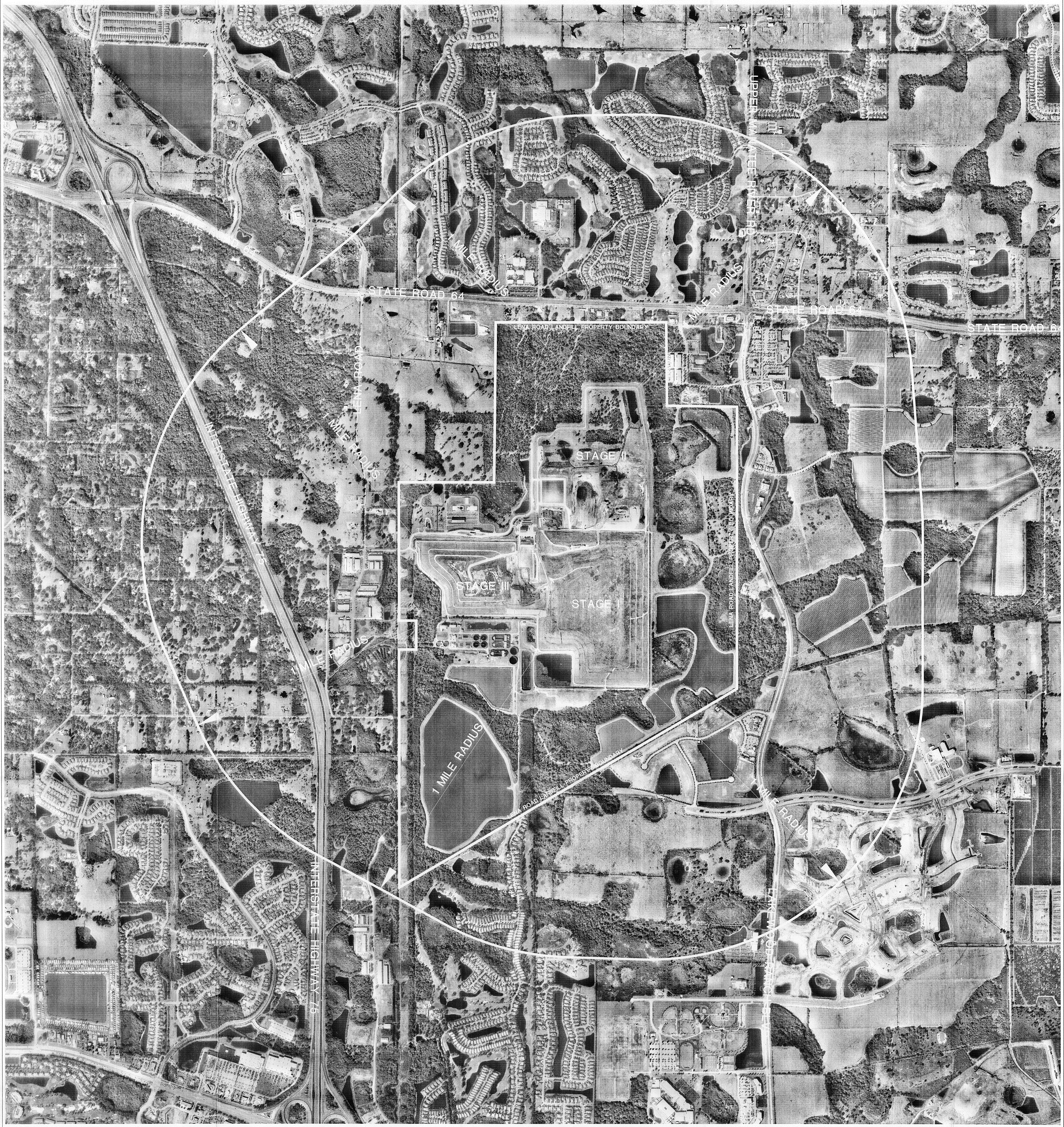
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DRAWING NUMBER 3

PROJECT 485-0190-530

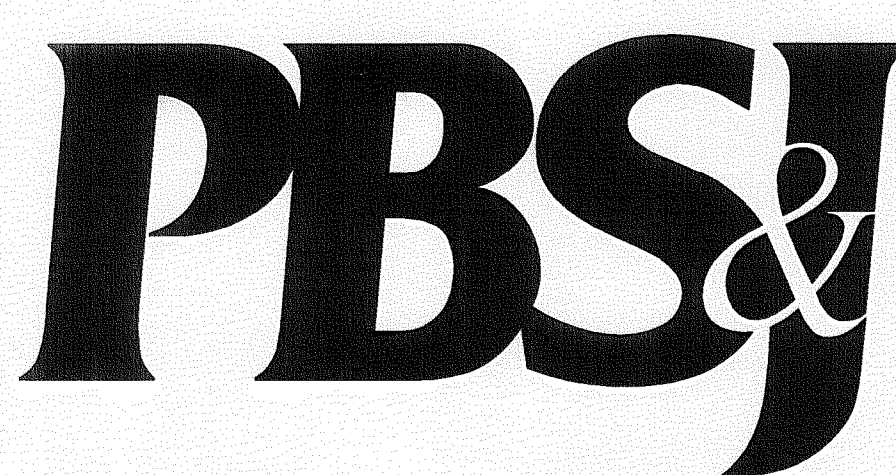
REVISIONS	
1	AS-BUILT - SLURRY WALLS
2	
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DESIGNED: M.V. CHECKED: GGS/1/9 DATE: 1/3/90
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SHEET 2 OF 2



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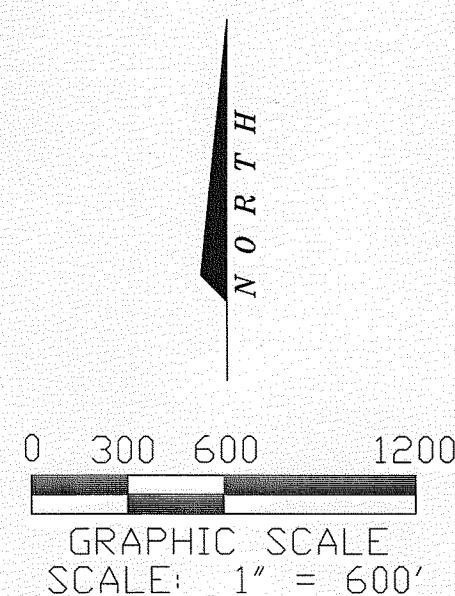
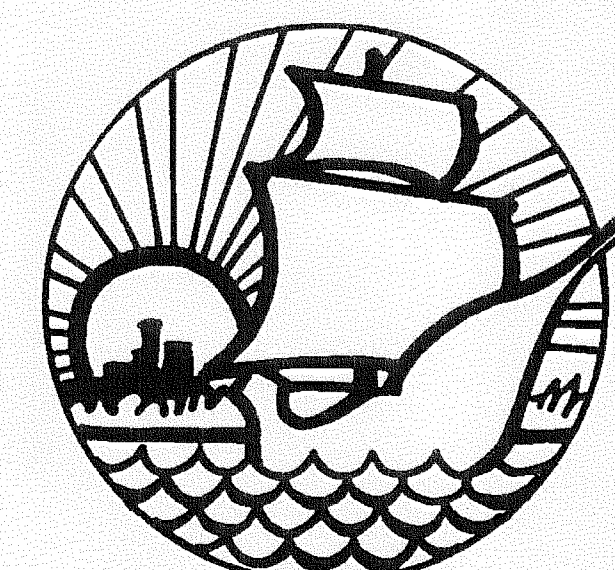
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MAY 13 2010
SOUTHWEST DISTRICT
TAMPA



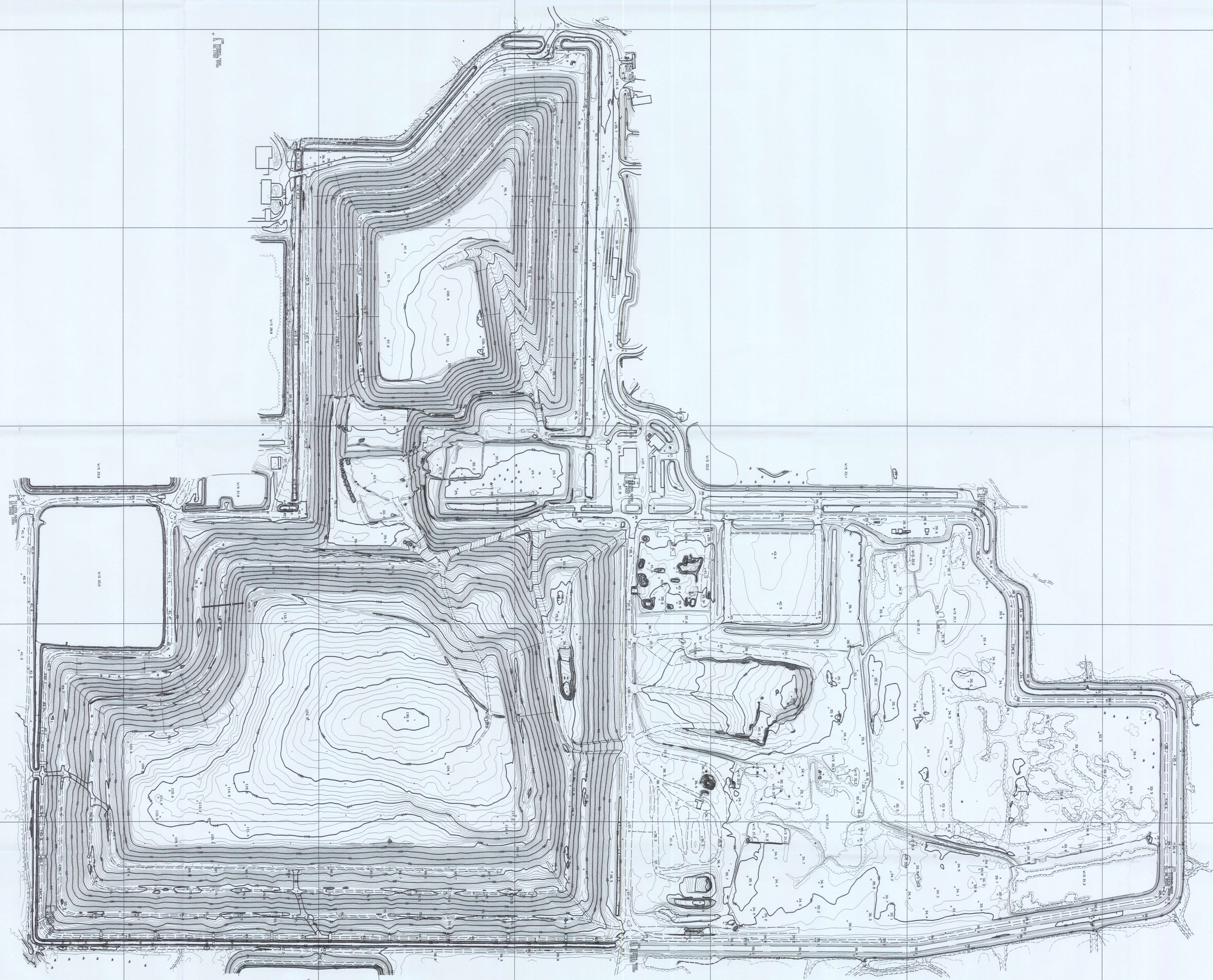
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FAX (407) 647-0624
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DATE FLOWN: 01-25-2010

MANATEE COUNTY LENA ROAD LANDFILL STAGES I, II AND III PHOTOGRAPH



MANATEE COUNTY GOVERNMENT
TO SERVE WITH EXCELLENCE
UTILITY OPERATIONS DEPARTMENT
DANIEL T. GRAY - DIRECTOR



FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 18 2010
SOUTHWEST DISTRICT
TAMPA

LEGEND

- | | | | |
|-------------|-------|----------------|-------|
| PAVED ROAD | ===== | GUARDRAIL | ===== |
| CURB-GUTTER | ===== | RETAINING WALL | ===== |
| DIRT ROAD | ===== | FENCES | ===== |
| TRAIL | ===== | PIPELINES | ===== |
| DRIVEWAYS | ===== | LAKE | ===== |
| PARKLOTS | ===== | RIVER | ===== |
| SIDEWALKS | ===== | STREAM | ===== |
| RUNWAYS | ===== | TREE LINE | ===== |
| RR SINGLE | ===== | BRUSH LINE | ===== |
| RR DOUBLE | ===== | HEDGE | ===== |
| WALLS | ===== | GROVE | ===== |
| DRAINAGE | ===== | | |

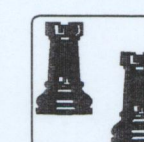
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| OBSCURED INDEX | ===== |
| DEPRESSED INDEX | ===== |
| OBSCURED DEP. INDEX | ===== |
| INTERMEDIATE CONTOUR | ===== |
| OBSCURED INTERMEDIATE | ===== |
| DEPRESSED INTERMEDIATE | ===== |
| OBSCURED DEP. INTERMEDIATE | ===== |
| STRUCTURES | ===== |
| BUILDINGS | ===== |
| OUTLINE | ===== |

- | | |
|------------------------|-------|
| SPOT HEIGHT | + |
| OBSCURED SPOT HEIGHT | + |
| CONTROL POINT | + |
| WATER SURFACE ELEV. | W/S |
| SWAMP | SWAMP |
| EDGE OF PAVEMENT | ===== |
| BUMPER | ===== |
| RAILROAD SIGNAL | ===== |
| RAILROAD SWITCH | ===== |
| RAILROAD CROSSING GATE | ===== |

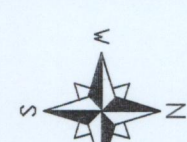
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| TRAFFIC LIGHT | ===== |
| TOWER | ===== |
| UTILITY POLES | ===== |
| VALVE | ===== |
| FIRE HYDRANT | ===== |
| ELECTRICAL BOX | ===== |
| CATCH BASIN | ===== |
| DRAIN INLET | ===== |
| MANHOLE | ===== |
| MAILBOX | ===== |
| MISC. POST | ===== |

- | | |
|--------------------|-------|
| SIGN | ===== |
| DOUBLE LEGGED SIGN | ===== |
| TELEPHONE BOOTH | ===== |
| ANTENNA | ===== |
| SATELLITE DISH | ===== |
| BIRD BATH | ===== |
| FLAG POLE | ===== |
| SHRUB | ===== |
| SINGLE TREE | ===== |
| PALM TREE | ===== |
| EVERGREEN TREE | ===== |

I, THE UNDERSIGNED REGISTERED SURVEYOR & MAPPER
CERTIFY THAT THIS MAP WAS COMPILED USING PHOTOGRAMMETRIC
METHODS UNDER MY SUPERVISION AND THAT THE DATA SHOWN IS
TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.
THIS SURVEY MEETS THE MINIMUM TECHNICAL STANDARDS,
FLORIDA CHAPTER 61G17-6 (FLORIDA ADMINISTRATIVE CODES),
01-25-10
DATE OF PHOTOGRAPHY 12/26/09
THIS MAP IS NEITHER FULL NOR COMPLETE WITHOUT THE
"SURVEY AND MAP REPORT" AND DIGITAL FILE(S) REFERENCED
IN SAID REPORT. UNLESS THIS MAP OR REPORT BEARS THE
SIGNATURE AND ORIGINAL RAISED SEAL OF THE ABOVE FLORIDA
LICENSED SURVEYOR AND MAPPER, IT IS FOR INFORMATIONAL
PURPOSES ONLY AND IS NOT VALID.
NOTE:



L.F. ROOKS & ASSOCIATES, INC.
105 NW DRANE ST.
PLANT CITY, FL 33566
(813) 758-1113



200 0 200 400 600

TOPOGRAPHIC SURVEY

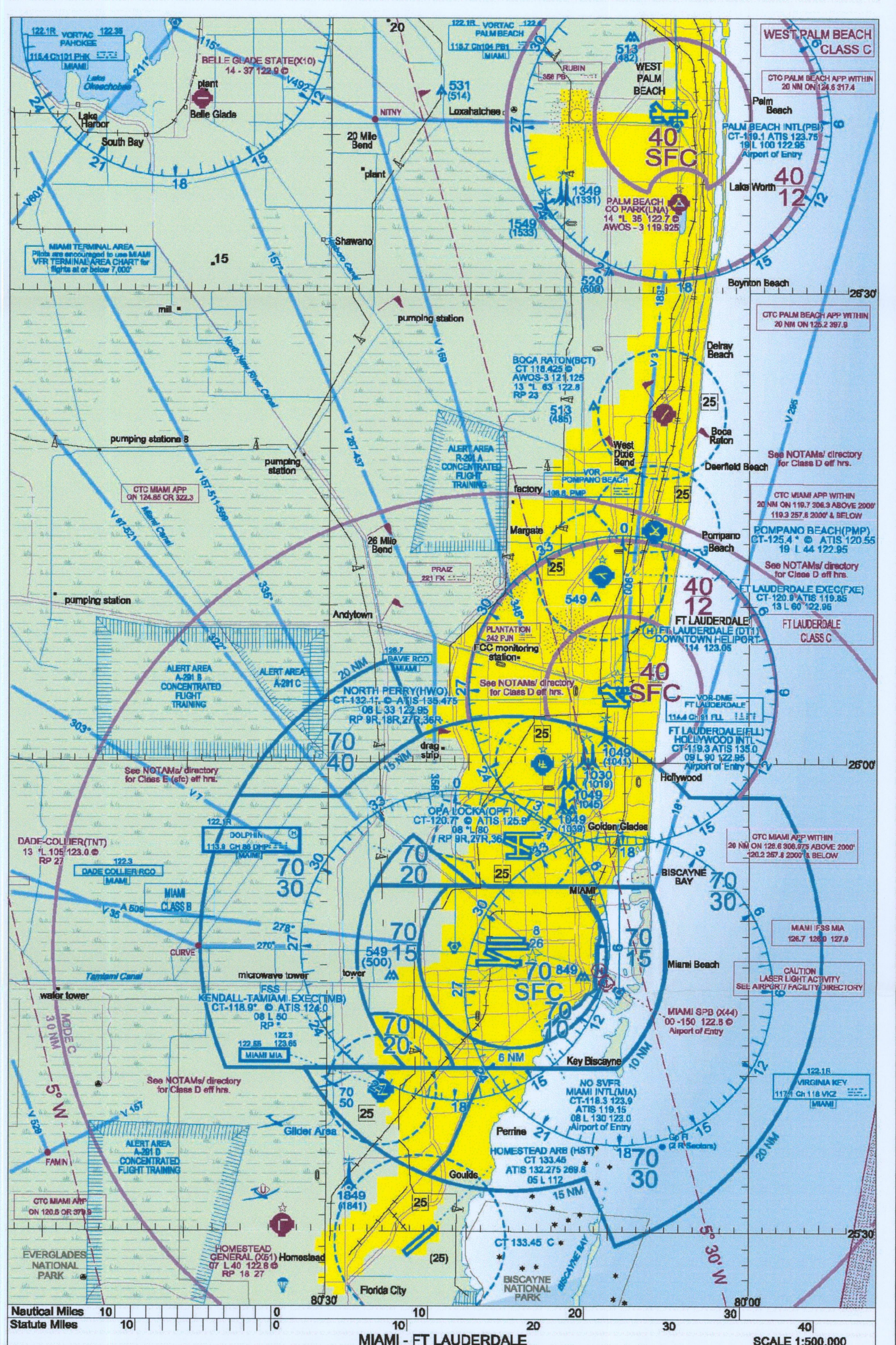
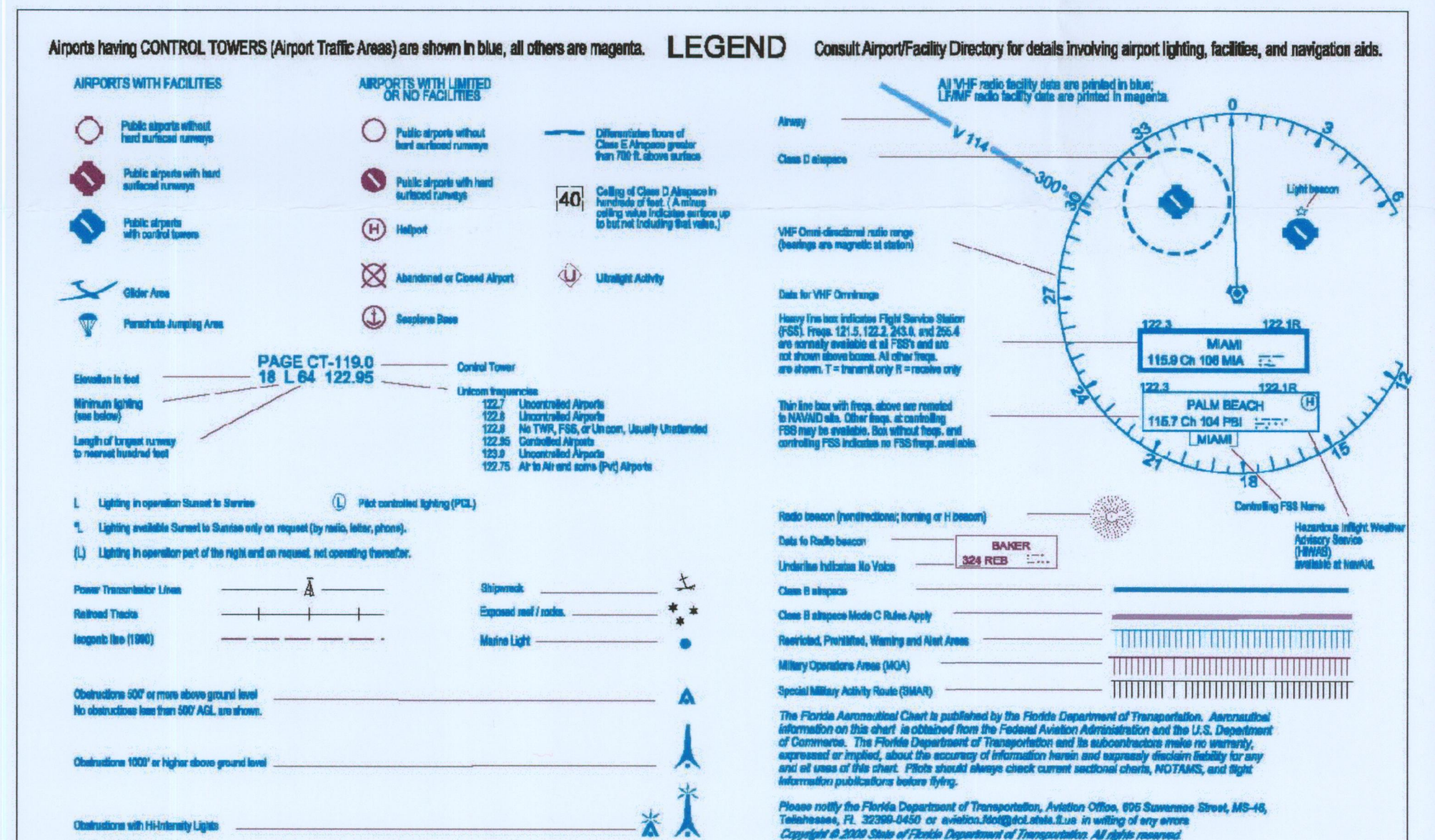
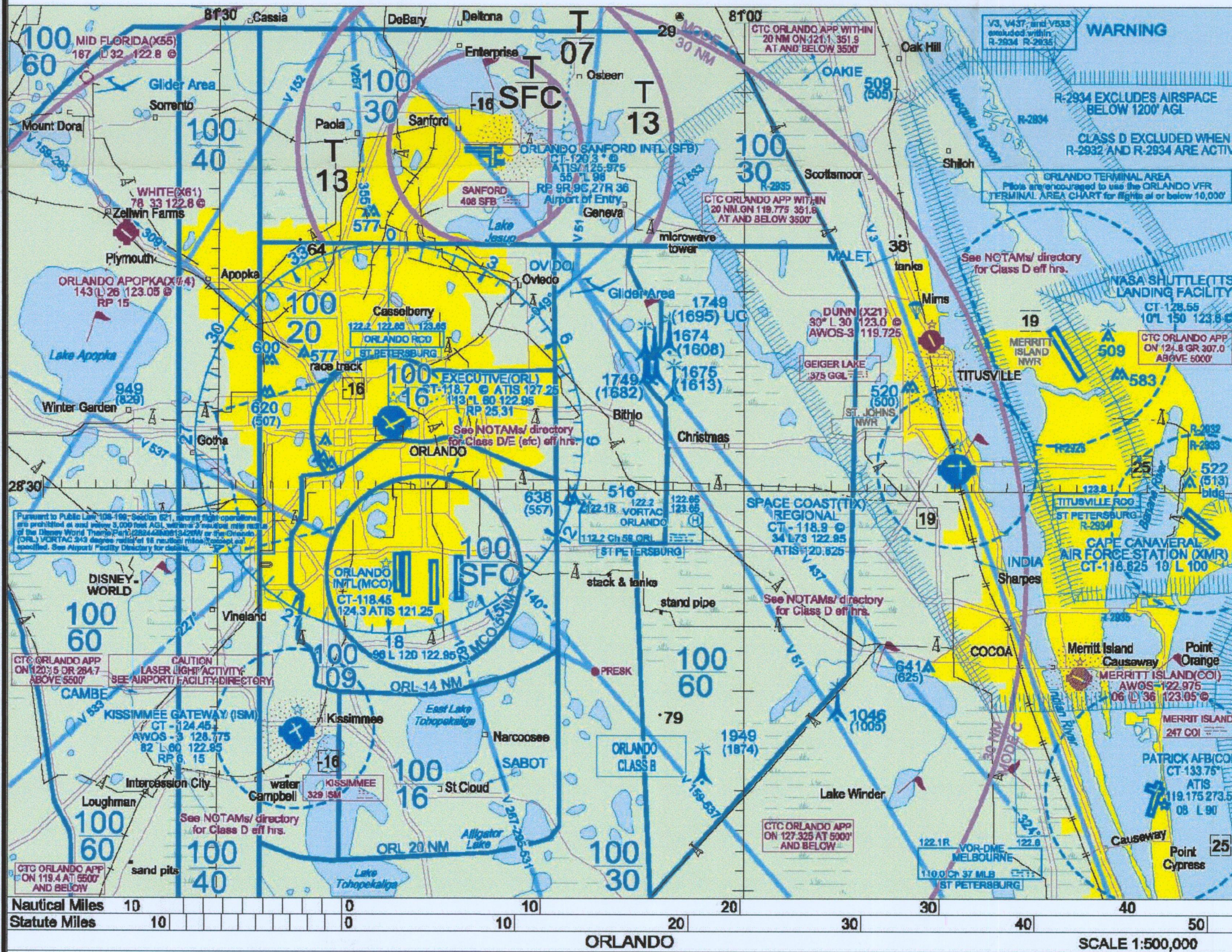
IPR NO.: 8769
SCALE: 1" = 200'
DRAWN BY: DSR
DATUM: STATE PLANE FLORIDA EAST ZONE NAD 83
REVISED:

FILE: 8769.Dwg
CONT. INTERVAG: 1'
CHK. BY: NWI
SOUTHWEST DISTRICT
TAMPA

PBS&J, INC.
LENA ROAD LANDFILL
SHEET 1 OF 1

2009 FLORIDA AERONAUTICAL CHART

FLORIDA DEPARTMENT OF
TRANSPORTATION
AERONAUTICAL CHART
MAY 1, 2009
TAMPA, FLORIDA



Part F General Criteria for Landfills

F 1 Flood Plain

The Lena Road Class I Landfill toe of the proposed final cover slope is plotted on Figure F-1 which also shows the approximate boundaries of the flood zones as shown on the following Federal Insurance Administration flood maps:

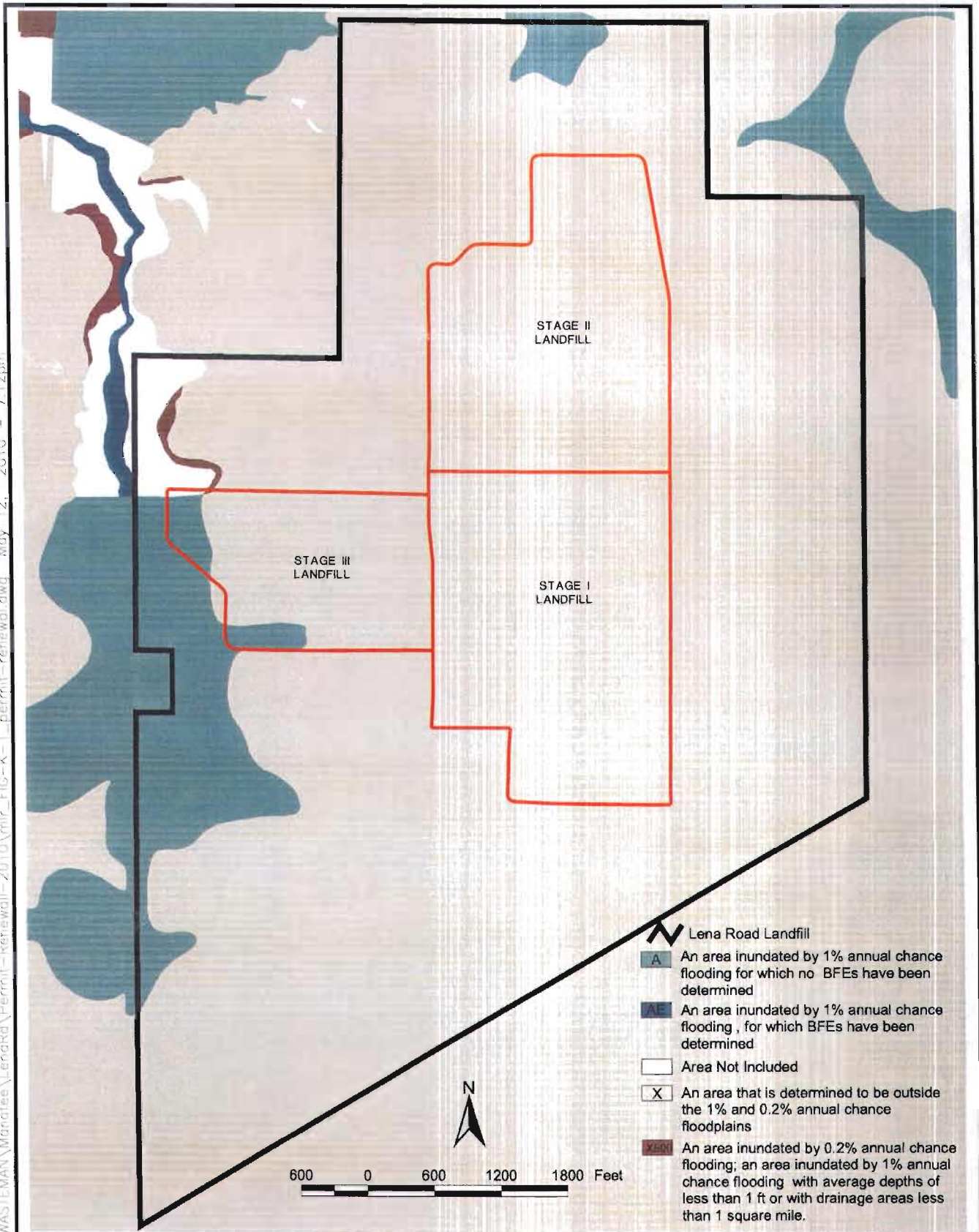
- National Flood Insurance Program - Flood Insurance Rate Map (FIRM) - Manatee County, Florida (Unincorporated Areas) - Panel 354 of 550 - Community Panel Number: 120153 0354 C - Map Revised: July 15, 1992.
- National Flood Insurance Program - Flood Insurance Rate Map (FIRM) - Manatee County, Florida (Unincorporated Areas) - Panel 360 of 550 - Community Panel Number: 120153 0360 C - Map Revised: July 15, 1992.
- National Flood Insurance Program - Flood Insurance Rate Map (FIRM) - Manatee County, Florida (Unincorporated Areas) - Panel 352 of 550 - Community Panel Number: 120153 0352 C - Map Revised July 15, 1992.

A small western area of the Stage III Landfill appears to be in Zone A. Zone A is defined as: "An area inundated by 1% annual chance of flooding for which no base flood elevations (BFE) were determined." The perimeter storm water berm separates the landfill from inundation during flood events. The storm water retention area compensates for any lost water storage capacity of the floodplain taken by the landfill. The landfill does not restrict the flow of the 100-year flood.

F 2 Minimum Horizontal Separation

The closest distance from the property boundary to the toe of the proposed final cover slope is on the west side of the Stage III Landfill where the minimum distance at approximately 300 feet, is greater than the required minimum separation of 100 feet.

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TAMPA



FLOODPLAINS MAP

MANATEE COUNTY

FLORIDA

FIG NO.

F-1

DATE

12/17/97

FLORIDA DEPARTMENT OF
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MAY 13 2010
SOUTHWEST DISTRICT
TAMPA

There is no additional information for

Part G

Landfill Construction Requirements

Part G is Not Applicable

Part H: Hydrogeological Investigation Requirements

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

MAY 18 2010
SOUTHWEST DISTRICT
TAMPA

Part H 1: HYDROGEOLOGICAL AND GEOTECHNICAL REPORTS

The following hydrogeological and geotechnical reports were referenced in the application in Part H. These reports were bound separately.

1. "COMPILATION OF HYDROGEOLOGICAL AND GROUNDWATER DATA FOR LENA ROAD LANDFILL STAGE II AREA" REPORT PREPARED BY ARDAMAN & ASSOCIATES, INC., DATED AUGUST 29, 1985.
2. "SITE EXPLORATION PROPOSED SLURRY WALL LEACHATE CONTROL SYSTEM LENA ROAD LANDFILL, STAGE II, MANATEE COUNTY, FLORIDA" REPORT PREPARED BY ARDAMAN & ASSOCIATES, INC., DATED OCTOBER 31, 1988.

Part H g and i: PUBLIC AND PRIVATE WATER USE PERMITS

The following aerial photograph shows the Lena Road Landfill and the location of Water Use Permits (WUP) issued by the Southwest Florida Water Management District. The map shows no potable wells within 500 feet of the waste storage and disposal areas. The closest down gradient WUP is located 3000 feet northwest of the Stage II Landfill. The two closest up gradient WUP's are located 2,000 feet east of the Stage II Landfill, and the other is 1,500 feet southeast of the Stage I Landfill.

Permitting Map Viewer

Find Address Find STR Find WUP Find ERP



Results

Map Contents

☒ Permitting Data Layer

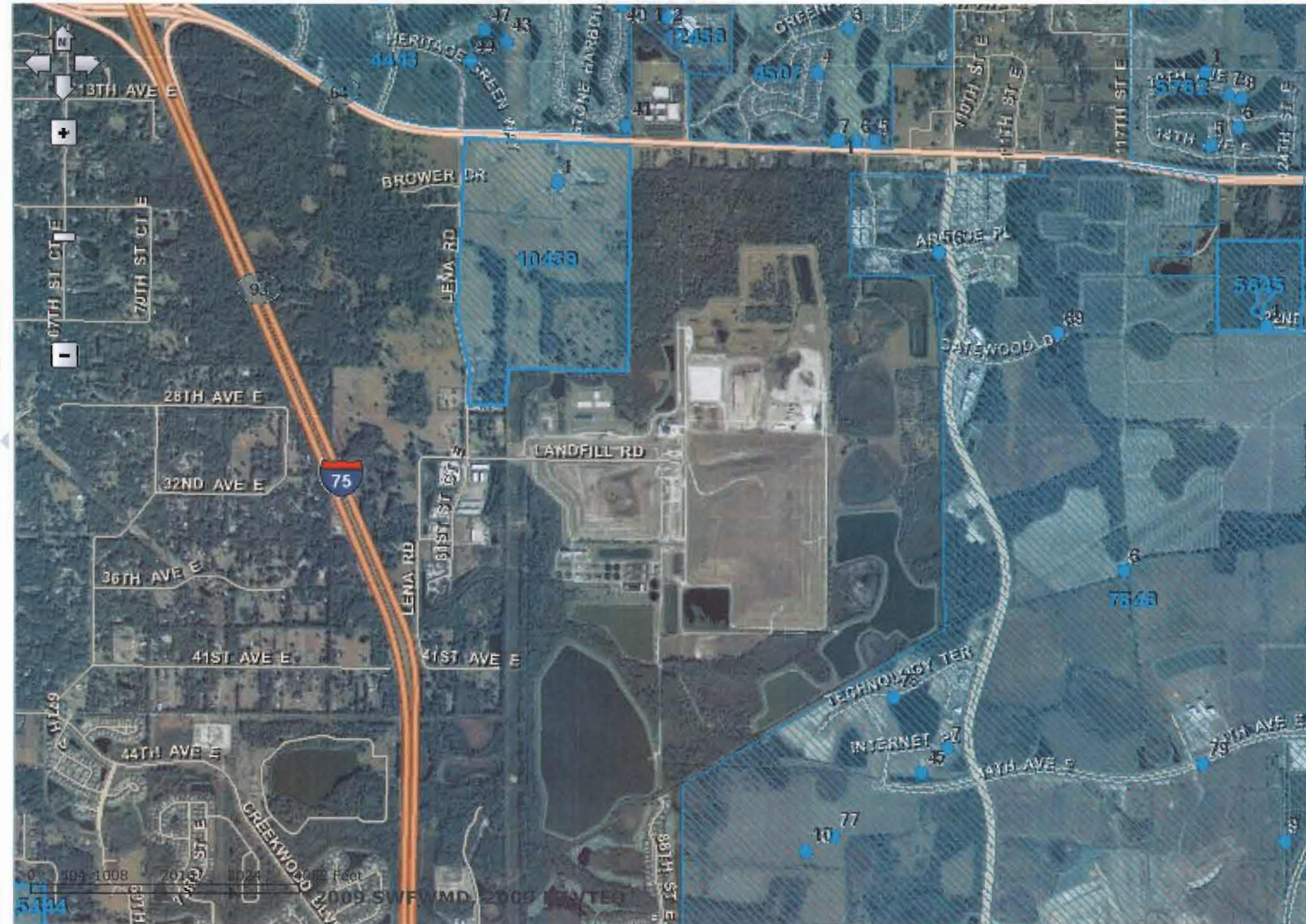
☒ Water Use Permits

☒ WUP Withdrawal Loca
 ☒ WUP Control Area
 ☒ WUP Irrigated Areas

☐ Environmental Resources Pe
☐ ERP Conservation Easements
☐ ERP Exemptions
☐ Dredge and Fill Permits
☐ Storm Water Management P
☐ Well524 - Wells in Vicinity of
☐ DEP Contamination Sites

☒ Base Map Data Layers

☐ Stream Names
☐ Lakes and Reservoir Names
☐ Section/Township/Range
☐ Cities
☒ Counties
☐ Water Use Caution Areas
☐ Basin Boards
☐ ERP Watersheds
☐ 2007 Land Use/Land Cover
☐ Soils - Hydrologic Group



Part I: Geotechnical Investigation Requirements

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 18 2010
SOUTHWEST DISTRICT
TAMPA

Part I 1a, b, c, d and e: GEOTECHNICAL REPORTS

The following geotechnical reports were referenced in the application in Part I. These reports were bound separately.

1. "COMPILATION OF HYDROGEOLOGICAL AND GROUNDWATER DATA FOR LENA ROAD LANDFILL STAGE II AREA" REPORT PREPARED BY ARDAMAN & ASSOCIATES, INC., DATED AUGUST 29, 1985.
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4. "PROGRESS REPORT SLURRY WALL CONSTRUCTION LENA ROAD LANDFILL" REPORT PREPARED BY ARDAMAN & ASSOCIATES, INC., DATED JUNE 19, 1989 THROUGH JULY 21, 1989.

Part I 1.b: SINKHOLE POTENTIAL INVESTIGATION

An evaluation of the sinkhole occurrences on-site was address in the Ardaman Reports. The investigation showed to the satisfaction of the Department that there was no sinkhole activity at this site. Included in Part I is Figure I-1 entitled "Manatee County Sinkholes – Sinkholes of Manatee County, Florida, 2008", prepared by the Florida Center for Instructional Technologies, Sinkholes (Tampa, FL: University of South Florida, 2008). We added the location of the Lena Road Class I Landfill to the drawing and a circle with a 5 mile radius around the site. No sinkholes were found or sinkhole activity reported within five miles of the landfill. This confirms the findings in the Ardaman study that there is no presence of sinkholes or sinkhole activity at this site.

Part I 1.d.(1): FOUNDATION BEARING CAPACITY ANALYSIS

The foundation bearing capacity analysis is shown on Figure I-2. The foundation has adequate bearing capacity to support the landfill as designed.

Part I: Geotechnical Investigation Requirements

Part I 1.d.(3): SLOPE STABILITY ANALYSIS

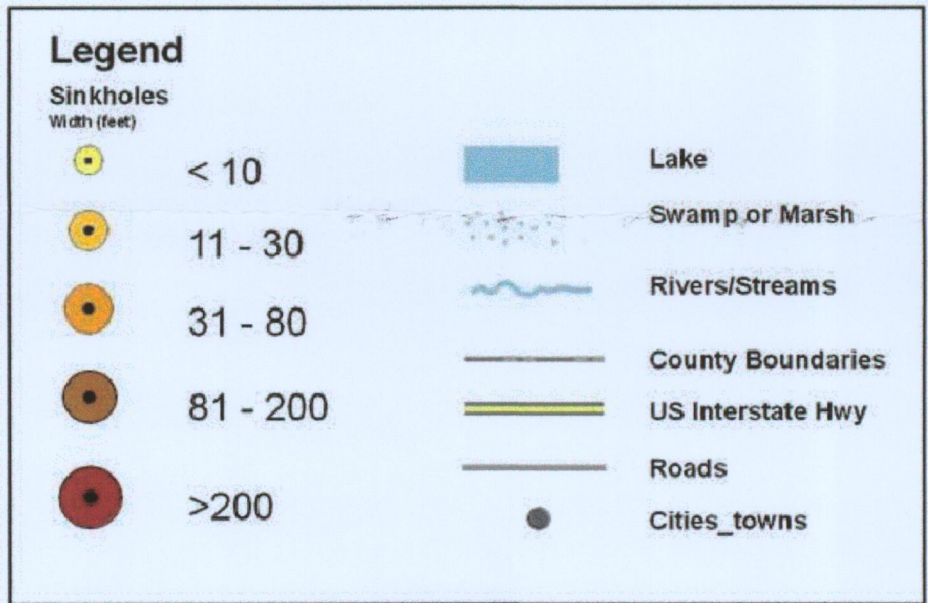
The purpose of this slope stability analysis is to determine the landfill factor of safety. The landfill is designed with 5H:1V side slopes between 20-foot wide terraces at El. 55, El. 75, El. 95 and El. 115 +/- and 4% slope to maximum landfill El. 136. The perimeter landfill berm is at crest El. 38 +/-.

A typical cross-section through the landfill was used to set up the geometry for the slope stability analysis using a software package called Slope/W Version 5 developed by Geoslope International, Ltd. The program analyzed this slope stability problem using the Ordinary, Bishop, Janbu Simplified, Morgenstern-Price and General Limit Equilibrium methods. Conservative soil parameters were estimated based on the information provided in the Ardaman & Associates, Inc. reports entitled "Hydrogeological Investigation – Existing Lena Road Landfill – Manatee County" dated January 26, 1983 and "Compilation of Hydrogeological and Groundwater Data for Lena Road Landfill – Stage II Area" dated August 29, 1985. An assumed weight of 75 pounds per cubic foot (pcf) was chosen for the landfill solid waste/initial soil cover.

The results of the analysis indicated that the minimum factor of safety against failure encountered was about 2.7, which is adequate as compared to the minimum acceptable of 1.5. A cross-section of the slope, shown with a summary of the soil parameters, a representation of the failure surface and the minimum factor of safety, is provided as Figure I-3.

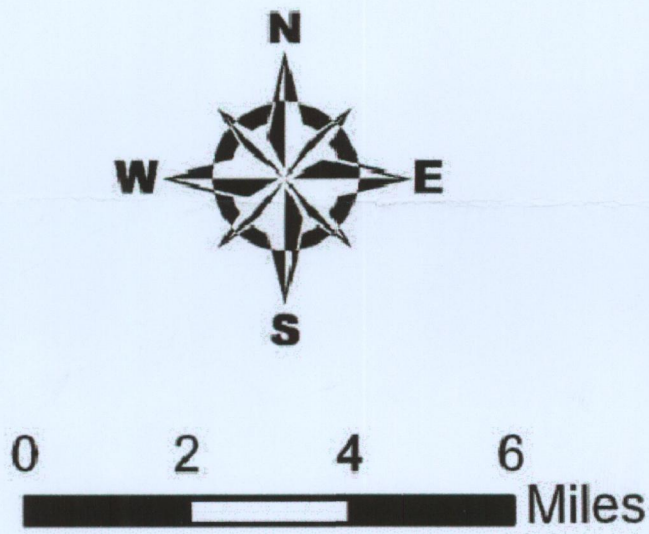
Part I 1.d.(1): SEISMIC IMPACT

The original geotechnical investigation did not detect any faults or unstable areas in or around the landfill site that would affect the construction or stability of the landfill. There is no seismic impact on the stability of the landfill. As shown on Figure I-4, Seismic Risk Map of the United States from the Uniform Building Code, the landfill is within Zone 0, which is a zone designated as "No Damage."



Manatee County Sinkholes

Produced in 2008 by the Florida Center for Instructional Technology (FCIT) using data from the Florida Department of Environmental Protection and the Florida Geological Survey.



FLORIDA DEPARTMENT OF
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Sinkholes of Manatee County, Florida, 2008
Florida Center for Instructional Technology, *Sinkholes* (Tampa, FL: University of South Florida, 2008)
Downloaded from *Maps ETC*, on the web at <http://etc.usf.edu/maps> [map #f11142]

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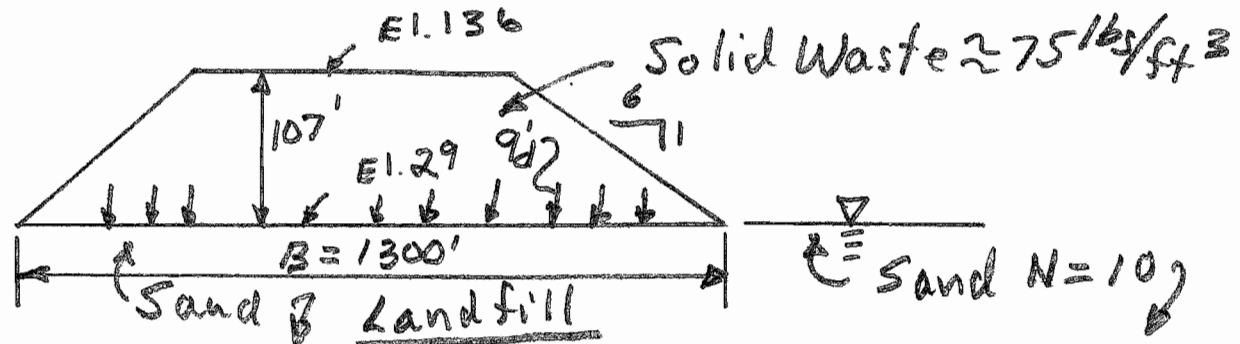
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Subject: Lena Road Landfill- Foundation
Bearing Capacity Analysis

Ref: Foundation Engineering by Peck, Hanson & Thornburn
 (1953 Edition). p. 219 - 225



q_d' = ultimate bearing capacity

$$q_d' = \frac{1}{2} B \gamma N_\gamma + \gamma D_f N_q$$

$$q_d' = \frac{1}{2} (1300') 48 (10) + 0$$

$$q_d' = 312,000 \text{ lbs/SF}$$

$$\gamma = 110 \text{ lbs/ft}^3 - 62.4$$

$$\gamma = 48 \text{ lbs/ft}^3$$

$$\gamma D_f N_q = 0$$

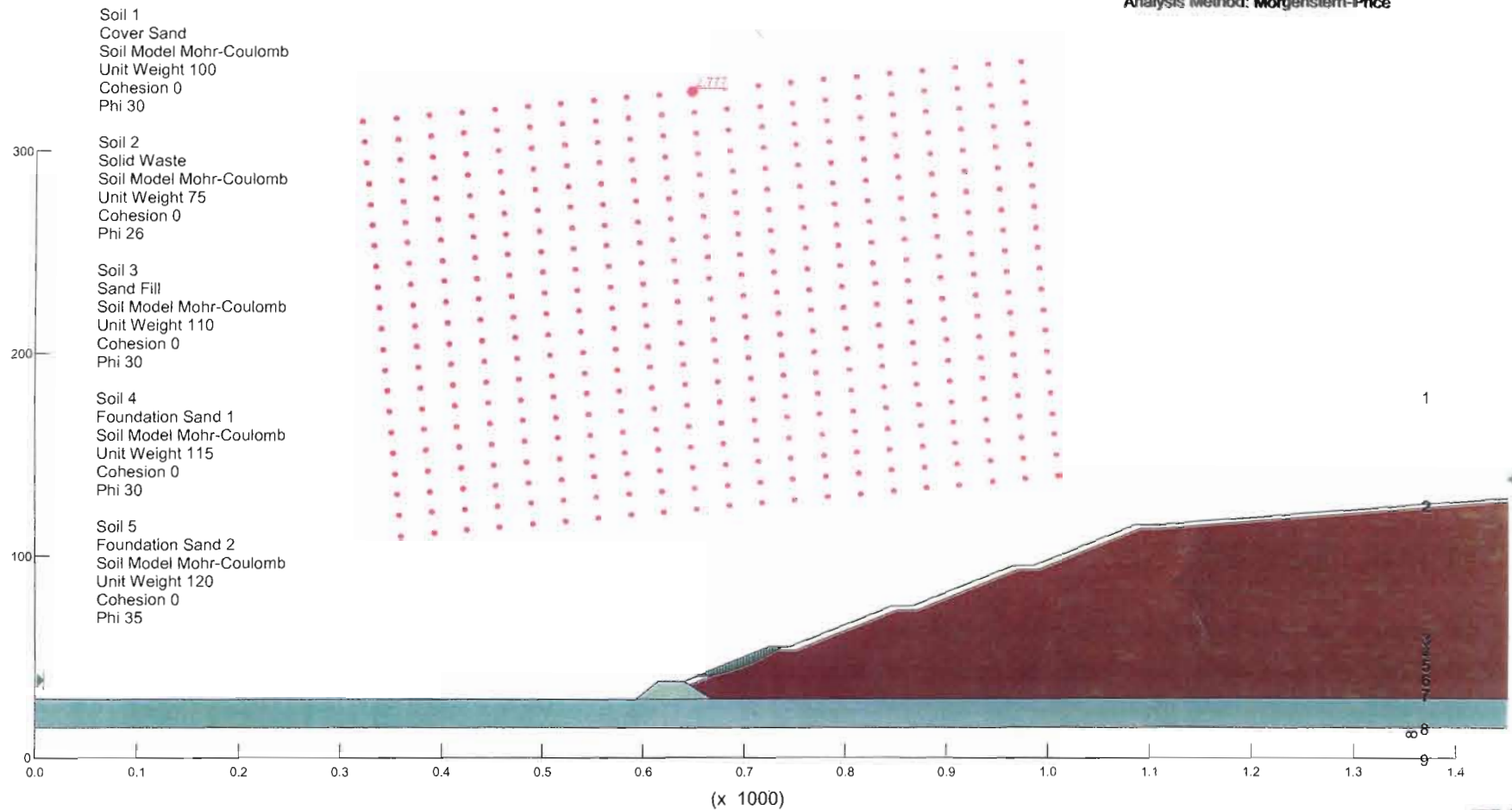
$$N_\gamma = 10 \text{ for } N=10^*$$

$$F.S. = \frac{312,000 \text{ lbs/SF}}{107' \cdot 75 \text{ lbs/SF}} = 39$$

* Ref. Ardaman
 Report for
 Blow Counts
 in Foundation
 Sand.

OK - Foundation Bearing
 Capacity Analysis
 for landfill.

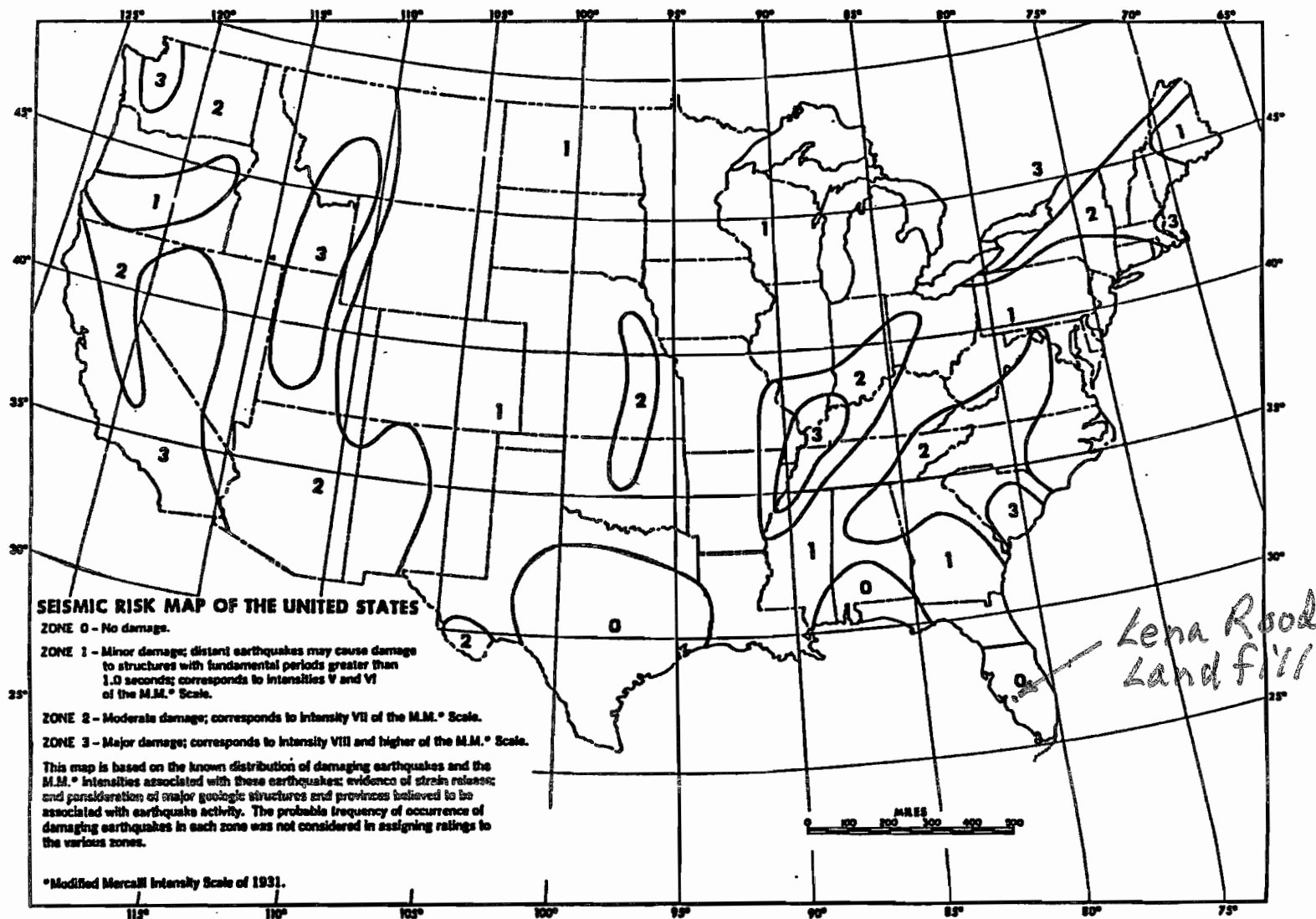
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 Comments:
 File Name: Lena Landfill 2.siz
 Last Saved Date: 10/6/2004
 Last Saved Time: 2:28:44 PM
 Analysis Method: Morgenstern-Price



PBSJ

LENA ROAD LANDFILL SLOPE STABILITY ANALYSIS

FIGURE I-3



SOURCE: UNIFORM BUILDING CODE, 1985 EDITION.

There is no additional information for

Part J

Vertical Expansion of Landfills

Part J is Not Applicable

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 18 2010
SOUTHWEST DISTRICT
TAMPA

MANATEE COUNTY LENA ROAD CLASS I LANDFILL OPERATIONS PLAN

~~November 2009~~

Revised May 11, 2010

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 18 2010
SOUTHWEST DISTRICT
TAMPA

Part K

**Prepared by:
Manatee County Government
Utilities Department, Solid Waste Division
3333 Lena Road
Bradenton, Florida 34211
941-748-5543**

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K-2	Household Hazardous Waste Collection and Storage Facility - Operation Plan
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Bound Separately - Fill Sequence Plan Drawings from 2009 to 2015

1.0 Trained Operators

Manatee County Government personnel operate the Lena Road Landfill. The County requires at least one trained landfill operator certified in accordance with F.A.C., Chapter 62-701.500 (1) and one spotter at the working face at all times during waste disposal operations. The spotter is responsible for guiding vehicles and for assisting code enforcement with enforcing provisions for controlling the waste received. An example of a typical workweek staff schedule is shown in Figure K-1.

General daily operations are as follows:

Time	Activity
7:00 am	Landfill Operations Supervisors, Solid Waste Disposal Chiefs and/or the Solid Waste Maintenance Chief (all certified, trained operators) arrive; distribute daily assignments and checks attendance and equipment sheets. The equipment moves to the working area to prepare the roads and sites for that working day. At least one trained operator is always on site during operations. At least one trained spotter is assigned to the working face each time waste is received to inspect each load from the ground level.
8:00 am	The Scalehouse opens and traffic is routed to the appropriate disposal area.
9:00 am	Personnel begin the morning break times
11:30 pm	Personnel begin the lunch break times
2:00 pm	Personnel begin the afternoon break times
5:00 pm	The Scalehouse closes, entry gates are closed, and the working faces are cleared and covered with approved cover material.
5:45 pm	Operators leave work sites and cleanup equipment.
6:00 pm	Equipment and buildings are secured; alarm set, gates locked and personnel depart.

Figure K-1

Landfill Operations - Typical Workweek Staff Schedule

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Robert Bennett Landfill Operations Supervisor	Robert Bennett Landfill Operations Supervisor	Robert Bennett Landfill Operations Supervisor	Robert Bennett Landfill Operations Supervisor	Robert Bennett Landfill Operations Supervisor	
Vacant Disposal Chief	Vacant Disposal Chief	Vacant Disposal Chief	Vacant Disposal Chief		
Roy Ezell Landfill Attendant	Roy Ezell Landfill Attendant	Roy Ezell Landfill Attendant	Roy Ezell Landfill Attendant	Roy Ezell Landfill Attendant	
Wiley Ballard Landfill Operator	Wiley Ballard Landfill Operator	Wiley Ballard Landfill Operator	Wiley Ballard Landfill Operator		
John Gigiliotti Landfill Operator	John Gigiliotti Landfill Operator			John Gigiliotti Landfill Operator	John Gigiliotti Landfill Operator
Joe Dobosz Landfill Operator	Joe Dobosz Landfill Operator		Joe Dobosz Landfill Operator	Joe Dobosz Landfill Operator	
Joshua Fields Landfill Operator	Joshua Fields Landfill Operator			Joshua Fields Landfill Operator	Joshua Fields Landfill Operator
David Bryant Landfill Operator	David Bryant Landfill Operator			David Bryant Landfill Operator	David Bryant Landfill Operator
Vacant Landfill Operator	Vacant Landfill Operator			Vacant Landfill Operator	Vacant Landfill Operator
		Eric Siegfried Disposal Chief	Eric Siegfried Disposal Chief	Eric Siegfried Disposal Chief	Eric Siegfried Disposal Chief
Keith Jones Landfill Operator	Keith Jones Landfill Operator		Keith Jones Landfill Operator	Keith Jones Landfill Operator	
		Dan Pfeffer Landfill Operator	Dan Pfeffer Landfill Operator	Dan Pfeffer Landfill Operator	Dan Pfeffer Landfill Operator
Danny Newman Landfill Operator	Danny Newman Landfill Operator			Danny Newman Landfill Operator	Danny Newman Landfill Operator
Keith Parker Landfill Operator	Keith Parker Landfill Operator	Keith Parker Landfill Operator	Keith Parker Landfill Operator		
Anthony Detweiler Landfill Operations Supervisor	Anthony Detweiler Landfill Operations Supervisor	Anthony Detweiler Landfill Operations Supervisor	Anthony Detweiler Landfill Operations Supervisor	Anthony Detweiler Landfill Operations Supervisor	
Vacant Maintenance Chief	Vacant Maintenance Chief	Vacant Maintenance Chief	Vacant Maintenance Chief	Vacant Maintenance Chief	
Armando Ayala Landfill Operator	Armando Ayala Landfill Operator	Armando Ayala Landfill Operator	Armando Ayala Landfill Operator	Armando Ayala Landfill Operator	
Clayton Mathis Landfill Operator	Clayton Mathis Landfill Operator	Clayton Mathis Landfill Operator	Clayton Mathis Landfill Operator	Clayton Mathis Landfill Operator	
Richard Jones Landfill Operator	Richard Jones Landfill Operator	Richard Jones Landfill Operator	Richard Jones Landfill Operator	Richard Jones Landfill Operator	
Gary Seeley Landfill Operator	Gary Seeley Landfill Operator	Gary Seeley Landfill Operator	Gary Seeley Landfill Operator	Gary Seeley Landfill Operator	
Richard Beaulieu Landfill Operator	Richard Beaulieu Landfill Operator	Richard Beaulieu Landfill Operator	Richard Beaulieu Landfill Operator	Richard Beaulieu Landfill Operator	

Note: This schedule is updated as needed

2.0 Operations Plan

a. Designation of Responsible Operating and Maintenance Personnel

The Manatee County Solid Waste Management Facility (Landfill) is owned by Manatee County Government and operated under the direction of the Utilities Department, Solid Waste Division. An After Hours Contact List is provided in Table K-1, and a list of landfill positions is given below

Solid Waste Division Manager*	Landfill Superintendent *
Landfill Operation Supervisor (2) *	Household Hazardous Waste Technician
Fiscal Analyst*	Solid Waste Maintenance Chief *
Solid Waste Disposal Chief (2)*	Office Assistant
Landfill Operator (15)*	Landfill Attendant*

* Trained spotters

b. Contingency Operations for Emergencies

In the event of an emergency, the County may close the landfill during the emergency event, but will maintain open access to the landfill after the emergency condition passes or the treat level drops. For example, the landfill will be closed during a hurricane, but opened after the hurricane has passed. On-site equipment may not be sufficient to maintain the excess volume of waste generated in an emergency. If so, backup equipment will be rented within 24 hours from the County's approved bid list. Additionally, back-up equipment will be provided for equipment breakdowns and down time for routine maintenance. In the case of equipment failure or emergencies, rental equipment or equipment from other County agencies will be delivered to the site within 24 hours if necessary.

Emergency conditions at the landfill may occur as a result of natural weather events (tornado, flooding, hurricanes, etc.) or fire. Staff is currently equipped to mobilize to alternative sites that will be designated as such in conjunction with the Manatee County Emergency Management Department. In the event that emergency conditions interrupt operations at the landfill, a contingency plan will be developed and implemented to establish temporary operations on a case-by-case basis, dependent on conditions at alternative sites such as the closed Erie Road Landfill. Such temporary operations will accept storm debris only, and will be terminated and disposal operations resumed at Lena Road Landfill as soon as practical. If the Lena Road Landfill cannot operate during an emergency, solid waste collection trucks will be diverted to Waste Management's Okeechobee Landfill.

When an emergency condition threatens the landfill operation, the following actions will be taken:

1. Daily cover shall be applied to all exposed refuse before a major storm arrives, if possible.
2. All landfill equipment shall be parked near any natural windscreens such as earthen mounds and berms.
3. All lightweight signs and equipment shall be secured.
4. When operation resumes, work shall commence in dry areas only (up from the active face).
5. Refuse shall not be disposed of in standing water.

**Table K-1
Emergency and After Hours Contacts
Lena Road Landfill/Solid Waste Division**

Person/Agency	Telephone Number
<u>Fire Department</u> Battalion Captain Stacey Bailey Chief Byron Teates Manatee County Fire Rescue Administration Office: 3200 Lakewood Ranch Blvd, Bradenton First Responder: Station 2 803 60 th Street Court East Bradenton, FL 34202	911 Non-Emergency # 751-5611
<u>Ambulance</u>	911
<u>Bomb Squad</u> Lieutenant Gary Samons	911 Non-Emergency # 747-3011 Extension 1980
<u>Public Safety Haz Mat Coordinator</u> Bob Tollise	911 Non-Emergency # 727-6223
<u>Mike Gore, Solid Waste Division Manager</u>	H: 322-8094 C: 812-4531
<u>Bryan White, Landfill Superintendent</u>	H: 322-2369 C: 812-2455
<u>Bob Bennett, Landfill Operations Supervisor</u>	H: 758-1741 C: 704-7855
<u>Anthony Detweiler, Landfill Operations Supervisor</u>	H: 322-8703 C: 812-8796
<u>Eric Siegfried, Solid Waste Disposal Chief</u>	H: 756-3507 C: 730-6554
<u>Vacant, Solid Waste Disposal Chief</u>	H: C:
<u>Vacant, Solid Waste Maintenance Chief</u>	H: C:
<u>Cari Walz, Household Hazardous Waste Technician</u>	H: 358-6820 County Cell: 720-4820 C: 920-9445
<u>Jerilynn Amrhein Scalehouse Supervisor</u>	H: 755-0390 C: 720-3306
<u>Department of Environmental Protection</u> Susan Pelz	Office: 813-632-7600 X 386

Fire Event

Small fires on the working face will be controlled by a water wagon, bulldozer or landfill compactor and ample water and cover material to extinguish the fire. On-site stockpiles of soil cover material are available for suppressing fires. In the event an uncontrollable fire does occur at the landfill site, the Braden River Fire Department (941/751-5611) is the responding Department and will be called immediately. The Braden River Fire Department presently maintains a fire station approximately 3.5 miles west of the facility. In the event of a fire or other emergency, the landfill operator will notify the FDEP within twenty-four (24) hours by telephone and within seven (7) days a written report will be submitted describing the origins of the emergency, actions taken, result of the actions taken, and an analysis of the success or failure of the actions.

A hot load area is provided in a location away from the working face to allow vehicles arriving at the landfill with a fire in their load to dump quickly in an area where the material can be spread out and quickly sprayed with the water wagon. All water sprayed on hot loads will be managed as leachate. The location of the hot load area will change from time to time with the changing working face locations. Hot loads will not be dumped on the working face until sufficiently cool to avoid combustion.

The landfill has accommodations for wet weather solid waste disposal for the residential or small business patrons. The location of the wet weather operations area changes depending upon progression of the fill sequence. The area is bermed and a stabilized tipping surface is provided.

The solid waste disposed of in the wet weather area is loaded into dump trucks and transported to the working face for proper disposal. The wet weather area is also cleaned at the end of each day in order to provide proper litter and vector control.

c. Control of Types of Materials Received:

Procedures for observing waste as it is brought to the landfill and unloaded are provided in Section K.2.e. The load-checking program is described in Section K.6. The landfill may dispose of Class I solid waste as defined in 62-701.200 (13).

The following separate areas are maintained for special wastes:

1. Lead-Acid Battery Collection Area
2. Household Hazardous Waste Collection Site
3. White Goods/Scrap Metal Storage Area
4. Yard Waste Processing Area
5. Tire Storage Area
6. Freon Containing Staging Area
7. E-Scrap

Special wastes such as white goods, tires, and yard wastes, require special handling and management. The locations for the Waste Tire Facility, White Goods/Scrap Metals Facility, Household Hazardous Waste Drop-off Facility and Yard Waste Facility are shown on Sheet C-2 of the Fill Sequence Plan. The County temporarily stores white goods and whole tires prior to

processing. The white goods are stored in an upright position until such time as the contracted commercial recyclers remove them. Waste tires are stored in the permitted waste tire site prior to removal by the recycler. Tires mixed in loads are removed from the active face. Yard wastes are processed on site by a contracted vendor and removed from the site for re-use in land applications or waste-to-energy plants as fuel. Waste types not accepted for landfilling include all hazardous wastes, all infectious wastes, pesticides and unexpended pesticide containers, free liquids, flammable and volatile wastes, and radioactive wastes.

Asbestos

Asbestos waste haulers are required to notify the landfill operator in advance and provide information on the estimated volume and delivery date of friable asbestos. All incoming asbestos material is required to comply with all applicable permit conditions and to be wet down and double bagged. Asbestos will not be accepted during adverse weather conditions. Asbestos is covered with non-asbestos containing waste or soil and the location will be recorded. Additional procedures for handling asbestos are given in Section K-14.0.c Special Waste Handling - Asbestos.

Hazardous Waste

If hazardous wastes are located at any area of the Landfill, the area must be isolated and Management notified immediately. Management/Supervisory staff must notify the below listed agencies dependent on the type of material brought to the Landfill.

Management/Supervisory staff must notify the following offices for handling and proper disposal of hazardous wastes:

1. Environmental Management Department - (941) 742-5980
2. Sheriff's Department/HazMat Section - (941) 747-3011, Extension 2580
3. Utilities Department Director - (941) 792-8811, Extension 5323
4. Household Hazardous Waste Technician - (941) 798-6761 (Household Hazardous Waste & E-Scrap Only)

All events regarding receipt of non-household hazardous waste material are kept at the Landfill office.

A brief outline of the following materials/programs is given below.

Typical household hazardous wastes (HHW) are as follows:

paint	pesticides	used motor oil	ammunition
herbicides	aerosol cans	propane tanks	flares
gasoline	mercury containing devices	cleaning supplies	

The Household Hazardous Waste Technician (Tech) responsible for operation of the Household Hazardous Waste Collection and Storage Facility must be notified if HHW material is to be disposed. The Tech will arrange for removal and proper disposal. The maximum onsite storage and frequency for removing these recyclables from the site is as follows:

- Used oil (up to 1000 gallons) is to be removed quarterly
- Paints (up to 1,500 gallons) are to be removed quarterly
- Batteries (up to 300 batteries) are to be removed quarterly
- Light bulbs (up to 800) are to be removed at least quarterly
- Electronic devices (up to 400 pounds) are to be removed quarterly
- Household Hazardous Waste (up to 200 gallons and 500 pound bags of chemicals) are to be removed quarterly

White Goods

All white goods containing Freon (e.g., refrigerators, air conditioners) are segregated from the waste stream and placed upright in the staging area. Freon is removed by a certified operator, and the item marked as being Freon free. The compressors are removed and oils drained off-site for collection by a licensed hazardous waste transporter under the direction of the scrap metal processor. The white goods are then moved to the general white goods/scrap metal area for collection by the scrap metal contractor.

All white goods, as defined in 62-701.200 (141), entering the landfill in separated loads are sent directly to the designated white goods/scrap metal storage area to be collected by a private scrap metal contractor for recycling purposes.

Up to 400 tons of scrap metal and white goods (a maximum of 600 pieces of white goods) can be stored in this area. The minimum frequency for removal is every six months.

Yard Waste

Disposal of yard waste in the Class I Landfill is prohibited. All incoming yard waste is directed to the designated area to be processed on site by a contracted vendor and removed from the site for re-use in land applications or waste-to-energy plants as fuel. Mulch is also used for the wet weather area during rainy season to assure access to the tipping area during rain events. The minimum frequency for processing yard trash is once every six months or when 3,000 tons (12,000 cubic yards) are accumulated. The contracted vendor then removes the shredded material for re-sale to various outlets for land applications or waste-to-energy plants for fuel. The fines generated are also utilized at the Landfill and mixed with soil for use as initial cover.

Tires

Tires entering the landfill are directed to the permitted storage area. Large agricultural equipment tires and large or solid forklift tires that cannot be processed for recycling are sent to the landfill disposal area for disposal in the landfill. The contracted vendor removes the tires to a waste-to-energy facility for processing and use as a fuel additive. Removal by the vendors is conducted on an on-call basis.

Batteries

State regulations prohibit disposal of lead-acid batteries in a landfill. The County prohibits collection of batteries by its franchised waste haulers. The Solid Waste Management Act aids in providing for proper disposal by requiring that all entities that sell batteries at retail shall accept used batteries as trade-ins for new batteries.

The County accepts batteries at no cost to its citizens who bring them to the Landfill Facility. Upon entering the scales, the transporter is advised to place all batteries in the storage shed located in the Community Drop Off area. In addition, batteries are accepted at the HHW Facility during its collection events.

The Household Hazardous Waste Technician conducts frequent inspections of the storage shed and HHW Facility to monitor the number of batteries on site. When the on-site count reaches 80, the contracted battery vendor is called to remove them for recycling and/or proper disposal.

The contracted vendor collects the batteries on an on-call basis. When the vendor arrives on site, they are met by the Household Hazardous Waste Technician who observes the transfer of batteries from the collection shed to the vendor's vehicle. The vendor must sign a battery log before the batteries are removed from the facility, and the log is also signed by the Household Hazardous Waste Technician verifying the count of batteries removed. The collection agreement is provided for on an annual basis.

d. Weighing Incoming Waste

The Scalehouse operations are supervised and operated by the Manatee County Utilities Department, Solid Waste Section. Three scales are located at the entrance to the landfill. Two are inbound and one is outbound. The weighing of waste is required prior to entering the landfill and weight records are reported to the Department quarterly. Vehicles that enter the electronic scales are recorded on an information management system. This system records the date, type of vehicle, weight, material to be disposed, daily transaction number, and any other information available pertaining to account name or status. The driver is directed to the appropriate disposal area by the scale attendant.

e. Vehicle Traffic Control and Unloading

The landfill facility is surrounded by fencing and other natural barriers that limit vehicle access to the landfill. Directional signs have been placed to safely direct vehicles to the current waste disposal area. These signs have large legible letters and are cleaned, refurbished and moved as necessary. The signs are strategically placed so that the route is clear to the drivers. In addition, verbal instruction is issued by the Scalehouse attendant as required. Fencing or temporary barricades are employed as additional traffic control features. Speed limit, safety, and prohibitive practice signs are also placed as necessary in order to encourage a safe, clean operating area.

The Disposal Chiefs direct disposal operations. The landfill attendant acts as the spotter at the active face. Unloading is permitted only at the designated tipping area next to the working face. At the fill areas, temporary signs and at least one spotter direct vehicles to the proper tipping areas. The spotter directs those persons requiring additional assistance. Haulers are responsible for unloading their own vehicles. Wastes requiring special handling are coordinated with and unloaded under the direct supervision of Landfill personnel. Spotters shall be trained and

stationed per 62-701.320 (15) (d) Spotter location. The spotter shall be stationed where they can inspect each shipment of waste for unauthorized waste. If spotters are located on heavy equipment spreading the waste at the working face, the heavy equipment operator shall be trained as a spotter and as a heavy equipment operator. When unauthorized waste is discovered, the operator must either move the unauthorized waste away from the active area for later removal and proper management, or must stop operation and notify another person on the ground or on other equipment who will come to the active area and remove the unauthorized waste before operations are resumed. Also, each load of waste must be visually inspected for unauthorized waste prior to being compacted. The spotter may move about the working face on foot or on a vehicle as needed to properly direct the positioning of vehicles for unloading and to observe waste as it is unloaded.

Any suspicious loads or vehicles are stopped by the Scalehouse staff for inspection. The County also has a random load inspection program in place as discussed in Section L.6. Spot checking also occurs at the active face. If the spotter detects prohibited, special or hazardous waste while the hauler is still present, the waste is reloaded into the vehicle and is removed from the site. If the hauler cannot be identified, it is the County's responsibility to remove the waste from the landfill for proper disposal.

f. Method and Sequence of Filling Waste

The Fill Sequence Plan from 2009 to 2015 are bound separately and included with the permit application.

g. Waste Compaction and Application of Cover

Waste is typically dumped at the toe of the active face and is spread over the face in a maximum two-foot lift with dozers. Upon completion of waste spreading, compactors typically roll the waste with six passes prior to spreading of additional waste. To achieve the optimum compaction, while minimizing initial cover usage, the active face slopes are maintained at approximately 5:1 (H:V). The flatter the slope, the greater is the compaction rate and greater amount of soil to cover the waste. The 5:1 face slope provides a good compromise between compaction and soil usage. The compaction with the given equipment and working conditions is approximately 1,200 lb/cy.

Cover material for daily operations of the landfill is obtained from the designated stockpile area. The location for the Cover Material Stockpile is shown on Sheet C-2 of the Fill Sequence Plan drawings. The stockpile is located in the footprint of the Stage II Landfill. The landfill currently has sufficient cover material available for one year. The County has an open purchase order to buy cover soil as needed to supplement the on-site stockpiles. To minimize soil usage, Manatee County has purchased mechanically installed tarp-type alternate daily cover system (ADC). Tarps are laid across the working face and taken up the next day. Tarps are loaded to minimize the effects of wind uplift. If waste is not deposited on the working face within 24 hours, then soil is used as the cover material. The areas of the working face not covered by the tarps are covered with soil.

- h. Operations of Gas, Leachate, and Storm Water Controls - Leachate management is described in K-8.0, gas monitoring in K-9.0 and storm water controls in K-10.0
- i. Water Quality Monitoring - See Part L of this permit application.
- j. Maintaining and Cleaning the Leachate Collection System – The system shall be water pressure cleaned or inspected by video recording at the time of permit renewal, and results submitted to FDEP.

3.0 Landfill Records and Record Locations

The operating records consist of all records, reports, analytical results, demonstrations, and notifications required by Chapter 62-701, F.A.C., all permits and permit modifications, and training records. The Operating Records are maintained within the filing system at the landfill facility.

Operating records denoting events are maintained by the Landfill staff in accordance with the Operational Permit. Some examples of daily operations of the landfill are:

- Operation and maintenance of the facility
- Special wastes monitoring
- Manpower and equipment usage
- Storm water and leachate issues
- Compliance with permits, applicable rules, regulations and laws
- Fill sequence plan adherence

4.0 Waste Records

Monthly waste records are kept on site and submitted to the Department quarterly. A sample report is included as Figure K-2.

FIGURE k-2

**MANATEE COUNTY CLASS I LANDFILL
WASTE RECORDS**

YEAR _____

TOTAL WASTE RECEIVED AND WASTE TYPE (SEE NOTE BELOW) *	SOLID WASTE RECEIVED MONTHLY REPORTED IN TONS												TOTAL FOR YEAR
	FIRST QUARTER			SECOND QUARTER			THIRD QUARTER			FOURTH QUARTER			
	January	February	March	April	May	June	July	August	September	October	November	December	
TOTAL WASTE RECEIVED													
Household													
Commercial													
Water Treatment Sludge													
C & D debris													
Shredded/cut tires													
Yard Trash													
Agricultural													
Industrial Waste													
Asbestos													
Domestic sludge													

* The Landfill Operator shall:

- 1) Weigh all solid waste as it is received;
- 2) Record, in tons per day, the amount of solid waste received;
- 3) Estimate the amount received by waste type as listed in this table; and,
- 4) Compile the reports monthly, and send copies to the Department quarterly.

5.0 Access Controls

Access to the Landfill is controlled by a six-foot high chain link fence along the west side of the landfill and a barbed-wire fence around the remainder of the site. The access gates are locked at the close of each business day. Signs indicating hours of operation, operating and permitting authorities and directions for persons delivering waste are posted at the entrance. Additional signs are used along the site access roads and at the working face to direct traffic to the proper disposal areas.

6.0 Load Checks

The County has a random load inspection program in accordance with F.A.C. Chapter 62.701 in place and inspects at least three loads per week. Drivers with loads selected for random inspection are instructed to dump their loads at a designated location near the working face but segregated from other waste. The selected load is inspected to determine if the load contains any unauthorized waste. Spot-checking also occurs at the active face. If the spotter detects a load of unauthorized waste while the hauler is still present, the waste is reloaded into the vehicle and is removed from the site. If the hauler has left the site, attempts will be made to identify the generator, hauler, or other party responsible for shipping the waste. Identified responsible parties will be contacted and asked to remove the unauthorized waste. If the generator, hauler, or other party responsible for shipping the waste cannot be identified, or if they will not remove the waste, the County will remove the waste from the landfill for proper disposal.

If any regulated hazardous wastes are identified by random load inspection, or are otherwise discovered to be improperly deposited at Lena Road Landfill, the landfill operator shall notify the FDEP, the person responsible for shipping the wastes to the landfill and the generator of the wastes, if known. The area where the wastes are deposited shall be immediately cordoned off from public access. If the generator or hauler cannot be identified, the landfill operator shall assure the cleanup, transportation, and disposal of the waste at a permitted hazardous waste management facility.

A small quantity of unauthorized waste which must be stored on-site while awaiting removal for disposal will be stored in the household hazardous waste collection area until it can be removed by contractor for proper disposal. For quantities too large to store in the household hazardous waste collection area, it will be isolated at the landfill face with temporary berms constructed around the waste to ensure containment of any surface runoff. The area will be properly marked with signs and temporary fencing will be used to prevent unauthorized access to the material until it can be shipped off-site for proper disposal.

Sources found or suspected to be previously responsible for shipping regulated hazardous waste will be informed of landfill requirements and referred to FDEP for hazardous waste information. Subsequent shipments from such sources will be scrutinized for unauthorized or hazardous waste.

Inspection results, information and observations resulting from each random inspection will be recorded and retained at the landfill for at least three years.

Supervisors, landfill operators and spotters are trained to identify unauthorized wastes or potential sources of regulated hazardous wastes. This training emphasizes familiarity with containers and labels typically used for hazardous wastes and hazardous materials. Controlling types of waste received is discussed in Section K.2.e.

6.0 Load Checks

LOAD INSPECTION FORM

DATE: _____ TIME: _____ INSPECTOR: _____

LOCATION: _____

DRIVER NAME: _____

COMPANY NAME: _____ DECAL #: _____

TAG #: _____ TRUCK DESCRIPTION: _____

ORIGIN OF WASTE: _____

WASTE COMPOSITION: _____

NOTE QUANTITY OF THE FOLLOWING, IF APPLICABLE:

FLUORESCENT LAMPS (10 or more) _____

MERCURY CONTAINING DEVICES _____
Thermostats, Thermometers, Bilge Pumps, Manometers, Etc.

BIO-HAZARD MATERIALS FOUND _____

OTHER HAZARDOUS MATERIALS FOUND _____

TIRES, LEAD ACID BATTERIES _____

OIL BASED PAINT _____

IF YES, EXPLAIN CIRCUMSTANCES OF COLLECTION: _____

IF YES, MANAGEMENT INFORMED: Yes _____ No _____

NAME AND TITLE: _____

FIGURE K - 3

7.0 Waste Compaction

a. Waste Layer Thickness

Waste is typically dumped at the toe of the working face and is spread over the face in a maximum of two-foot lifts prior to compaction. This procedure continues throughout the day for a typical lift thickness of no more than 10-feet.

b. First Waste Layer

The area to be filled has been completely covered by waste during previous permit periods. The first layer of waste placed above the leachate collection system in Stage II will be a minimum of four feet in compacted thickness and shall consist of selected wastes containing no large rigid objects that may damage the leachate collection system. Special care shall be exercised when filling around pump stations to prevent damage.

c. Slopes and Lift Depths

The exterior landfill side slope is constructed at 4:1 (H:V) because due to settlement the side slope tends to settle to a final slope of 5:1. Any temporary slopes for such structures as storm water diversion dikes, roads, excavations, etc. are constructed with slopes no steeper than 3:1. The lift depths shall be 10-feet or less. The typical minimum top slopes to promote drainage are generally one percent within the bermed working face, and two percent on the intermediate cover areas.

d. Working Face

The active face width is no greater than necessary to accommodate the peak number of disposal vehicles at one time. The wider the active face, the more cover soil is used. The County uses an active face of 150 feet. The working area of the active face slope is approximately 5 horizontal to 1 vertical. The objective for the dimensions of the active face is to maximize the volume to face surface ratio.

e. Initial Cover Controls

Materials used as cover include tarp alternative daily cover (ADC), soil, soil with up to 25% fines from the yard processing area and recovered screen material (RSM) from Department permitted facilities. The ADC, when used, covers the working face with a weighted tarp. Currently, 100' x 40' tarps are used to cover the working face. Soil, when used, is applied daily at a minimum thickness of six inches. While the Department in letters Dated February 14, 2002 and August 27, 2002 (See attachment K-1 for copies of letters) permitted ground-up construction and demolition debris including asphalt roofing shingles, unscreened, applied in a six inch compacted layer as initial cover within the bermed working area, Manatee County no longer uses these types of materials and does not plan to use these again. Soil, with up to 25% fines from yard trash processing by volume, may be used for initial cover.

f. Initial Cover Applications

The tarp alternative daily cover system is the primary method of daily cover. Soil is used to supplement ADC and when conditions prohibit use of ADC. For those times when conditions prohibit the use of ADC, initial cover will be stockpiled near the active face for use at the end of each day. Dozers used for spreading waste will spread cover soil, when used or authorized equipment for tarp cover application will be utilized to cover the exposed refuse when ADC is used.

g. Intermediate Cover

An additional 12 inches of compacted cover soil (intermediate cover) is placed over six inches of initial cover, within seven days of cell completion, on areas that are not scheduled to receive wastes within 180 days. The top of the intermediate soil cover will be graded at a minimum of two percent. These areas have sod to reduce erosion. Prior to placement of additional wastes in these areas, the intermediate cover is removed and stockpiled adjacent to the active face for use as initial cover.

h. Final Cover Timing

Final cover will be placed after the landfill is closed.

i. Scavenging

Scavenging is prohibited.

j. Litter Policing

Litter fences are installed near the active face to capture wind-blown litter. Manatee County contracts a temporary labor employer to police the landfill property daily to ensure that litter outside the working area is picked up within 24 hours. Litter fences are also installed along the top of the banks, parallel with interior storm water ditches to minimize litter from entering the storm water management system.

k. Erosion Control

Erosion is controlled with sod and terraces. Manatee County has implemented an aggressive sod plan to protect intermediately covered side slopes from erosion. Temporary piping is used to remove runoff from the sod covered terraces. This temporary piping drains collected runoff for discharge into the perimeter storm water ditch system.

The landfill is inspected daily for signs of erosion and exposed solid waste. Erosion control measures are employed to correct any erosion which exposes waste or causes malfunction of the storm water management system. Such measures are implemented within three days of occurrence. Typically this requires replacing the eroded cover soil with clean cover soil, and

Waste Compaction

coving the soil with sod, or removing debris from the storm water inlets, pipes and outlet structures. If the erosion cannot be corrected within seven days of occurrence, the landfill operator shall notify the Department and propose a correction schedule.

8.0 Leachate Management

a. Leachate Level Monitoring

Leachate Collection and Removal System Overview

Stage I System

The Stage I Leachate Collection and Removal System (LCRS) as shown on Figure K-4 is a perimeter underdrain around Stage I. The underdrain is approximately 10 feet inside the perimeter slurry wall and approximately 12 feet below grade. The underdrain is an 8-inch, perforated pipe surrounded by aggregate. The pipe and aggregate are wrapped in a geotextile. Manholes and cleanouts are constructed to provide access for cleaning and repairs.

The slurry wall and underlying clay-confining unit is the containment/barrier system designed to prevent leachate movement to the outside surficial aquifer. The slurry wall and LCRS is the FDEP-approved method designed and constructed to minimize impacts, due to landfill operations, to the surrounding environment. The slurry wall is keyed into the underlying natural clay unit. The depth of the slurry wall varies, depending on depth to the clay unit.

Two lift stations are used to pump collected leachate to the wastewater treatment plant (WWTP). Lift Station No. 1 is located in the northwest corner of Stage I. Lift Station No. 2 is located at the southeast corner. Collected leachate enters the underdrain system and gravity flows back to either lift station. Both lift stations operate in the similar manner. Two submersible pumps pump collected leachate from the lift station. The first pump is activated when the low-level float senses leachate entering the lift station. The pump will operate until the float sensor deactivates. If leachate enters the lift station at a faster rate than the first pump can draw it down, the high-level float will activate the second pump to turn on. Upon deactivation of the high-level float, the second pump will shut off. Lift stations can operate in the hand or automatic setting. Both lift stations are set to operate in the automatic mode. Both pumps are 10HP 230/60 1735 RPM. From the lift stations, leachate is pumped through a 6-inch pipe to the adjacent WWTP storage tank. The flow in each forcemain will be individually metered. After the meters, the individual forcemains will be manifolded into a single 12-inch forcemain and connected to the waste treatment plant piping.

Stage II

The Stage II LCRS has a perimeter leachate collection trench and an underdrain to collect leachate which flows to Lift Station (Pump Station) 34. The location for the leachate collection system and pump station is shown on Figure K-4 and on the Fill Sequence Plan drawings. The slurry wall is keyed into the underlying clay unit to prevent movement of leachate to the outside surficial aquifer. Unlike Stages I and III, Stage II has collection laterals which run the entire width of Stage II, spaced on 200 foot centers. However, until refuse is buried in Stage II, no leachate is produced so the inward gradient requirement around Stage II is not required or maintained. Ground water and rain water collected in the underdrain system is pumped into the Stage II perimeter storm water ditch. When solid waste is placed in Stage II, the pump station will pump the leachate to the wastewater treatment plant.



METERING STATION

NOTE:
LIFT STATION NUMBER APPEARS
ON EACH METER

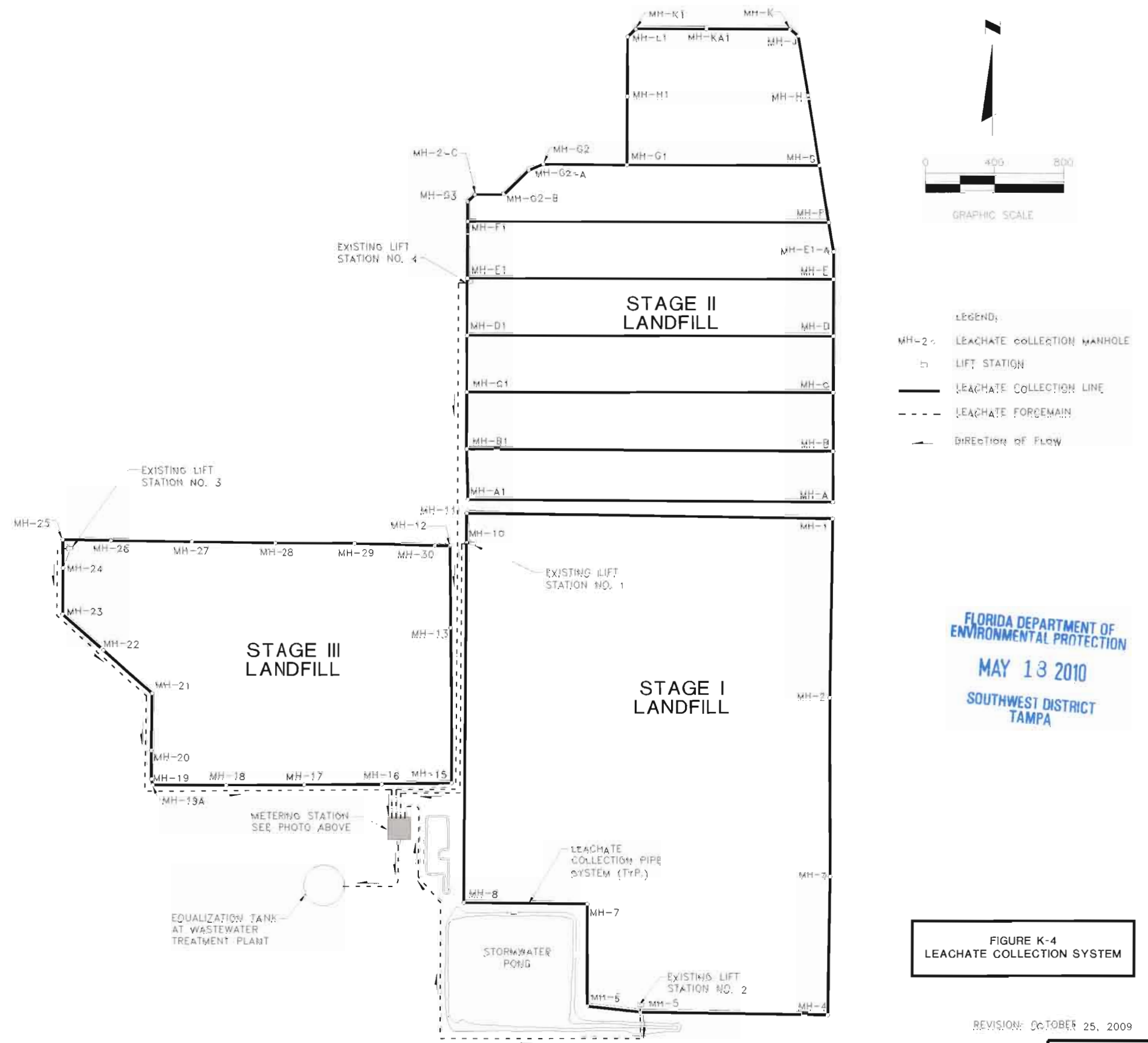


FIGURE K-4
LEACHATE COLLECTION SYSTEM

REVISION: OCTOBER 25, 2009



482 South Keller Road
ORLANDO, FL 32810-6101
TEL. (407) 647-7275
FAX. (407) 647-0624
WWW.PBSJ.COM
POST, BUCKLEY, SCHUM & JORDANA, Inc.
4700 West Cypress Street Suite 200
Tampa, FL 33607
EPA Certificate of Authorization No. 34

CLIENT
BOARD OF COUNTY COMMISSIONERS
MANATEE COUNTY
FLORIDA

PROJECT
LENA ROAD CLASS I LANDFILL
PERMIT RENEWAL 2009

TASK
LEACHATE COLLECTION SYSTEM
PLAN

ORIGINAL NOV. 2009
REVISIONS:
1.
2.
3.
4.
5.

6.
7.
8.
9.
10.
11.
12.

Drawn: Joseph L. Miller
Florida P.E. No. 28177
Address: PBSJ
482 S. Keller Road
Orlando, FL 32810-6101
Signature _____ Date _____

JOB NO. 0006517
DRAWN: RBC
DESIGN: Rec/JLM
CHECKED: JLM
G.C.: DEB
SHEET

Stage III

The Stage III LCRS is similar in design to Stage I and Stage II LCRS. The underdrain runs along the north, south, east, and west sides of Stage III, approximately 10 feet inside the slurry wall. The slurry wall ties into the west side of the Stage I slurry wall. The alignment of the slurry wall defines the footprint for Stage III. Leachate entering the underdrain gravity flows back to the lift station. One lift station, Lift Station 3, is located in the northwest corner of Stage III. Collected leachate is pumped to the WWTP. The lift station is similar in design and operation to the lift stations described for Stage I. Storm water runoff from Stage III drains from the surface through a sand trench into an underdrain. This runoff adds significantly to the total volume of leachate produced from Stage III. When above grade filling begins, top slopes will be graded to drain storm water to the perimeter storm water ditches.

Operational Performance Objectives

Objectives

It is the County's intent to maintain an inward gradient by collection and removal of leachate, with subsequent discharge to the WWTP. Staff will evaluate the following conditions in an effort to maintain water levels lower inside the slurry wall compared to levels outside the slurry wall, or to recover the inward gradient within thirty days.

- Water Levels
- WWTP Availability
- Pumping Rates
- Seasonal Variations
- Unexpected or Scheduled Downtime

Compliance Monitoring and Evaluation

Monitoring Reports

Figure K-5 is a typical Water Balance Report. This report is used to quantify the volume of leachate generated on a daily and per month basis from Stages I and III. Figure K-5A is a typical Water Balance Report for when the Stage II Landfill becomes the active landfill.

Additional information includes:

- The volume of leachate pumped to the WWTP
- The volume of leachate pumped from Stages I and III
- Rainfall in gallons and inches

The content and format of the report are approved by the FDEP. Figure K-6 (K-6A will be used when the Stage II Landfill is active) is a typical Monthly Leachate Summary Report. This report is used to summarize the following information:

- Total leachate
- Total rainfall
- Total leachate treated by the WWTP

Figure K-5

MANATEE COUNTY SOLID WASTE MANAGEMENT FACILITY

LENA ROAD LANDFILL

MONTHLY WATER BALANCE REPORT

APRIL, 2010

A	B	C	D	E	F	G	H
DATE	LEACHATE STAGE I Lift Station 1 (gallons)	LEACHATE STAGE I Lift Station 2 (gallons)	LEACHATE STAGE I TOTAL (gallons)	LEACHATE STAGE III TOTAL (gallons)	TOTAL LEACHATE PUMPED (gallons)	RAINFALL (inches)	RAINFALL (gallons)
01-Apr-10	27,380	610	27,990	17,400	45,390	0.00	0
02-Apr-10	29,430	960	30,390	17,700	48,090	0.00	0
03-Apr-10	0	0	0	0	0	0.00	0
04-Apr-10	0	0	0	0	0	0.00	0
05-Apr-10	85,040	4,570	89,610	53,400	143,010	0.00	0
06-Apr-10	26,890	1,200	28,090	17,500	45,590	0.00	0
07-Apr-10	29,460	2,170	31,630	18,100	49,730	0.00	0
08-Apr-10	32,320	2,510	34,830	18,700	53,530	0.00	0
09-Apr-10	25,180	210	25,390	14,800	40,190	0.02	91,244
10-Apr-10	0	0	0	0	0	0.00	0
11-Apr-10	0	0	0	0	0	0.00	0
12-Apr-10	73,980	5,040	79,020	50,500	129,520	0.00	0
13-Apr-10	24,850	2,900	27,750	16,600	44,350	0.00	0
14-Apr-10	22,640	1,890	24,530	15,700	40,230	0.00	0
15-Apr-10	20,980	1,760	22,740	25,400	48,140	0.00	0
16-Apr-10	23,190	2,700	25,890	6,700	32,590	0.00	0
17-Apr-10	0	0	0	0	0	0.25	1,140,553
18-Apr-10	0	0	0	0	0	0.36	1,642,397
19-Apr-10	78,460	2,080	80,540	48,400	128,940	0.03	136,866
20-Apr-10	22,200	890	23,090	14,600	37,690	0.05	228,111
21-Apr-10	24,650	190	24,840	16,100	40,940	0.00	0
22-Apr-10	21,860	1,200	23,060	14,400	37,460	0.00	0
23-Apr-10	23,870	1,150	25,020	16,800	41,820	0.00	0
24-Apr-10	0	0	0	0	0	0.00	0
25-Apr-10	0	0	0	0	0	0.00	0
26-Apr-10	69,400	1,660	71,060	43,100	114,160	1.83	8,348,850
27-Apr-10	23,590	400	23,990	14,900	38,890	0.00	0
28-Apr-10	20,240	540	20,780	15,100	35,880	0.00	0
29-Apr-10	18,640	2,010	20,650	15,500	36,150	0.00	0
30-Apr-10	19,140	70	19,210	14,400	33,610	0.00	0
01-May-10	0	0	0	0	0	0.00	0
TOTAL	743,390	36,710	780,100	485,800	1,265,900	2.54	11,588,021
Leachate Pumped as Percentage of Rainfall			11.1%	10.7%			

Column Notes:

A - Date of reading.

B - Leachate pumped (gallons) from Stage I by lift station 1.

C - Leachate pumped (gallons) from Stage I by lift station 2.

D - Total Stage I leachate pumpage (B+C).

E - Leachate pumped (gallons) from Stage III.

F - Total leachate pumped to WWTP storage tank (D+E).

G - Rainfall (inches) recorded on this date.

H - Rainfall (gallons) calculated based on open area (G x Area x 27,156 gal/acre-in).

	Stage I (acres)	Stage III (acres)	TOTAL (acres)
Initial Cover	--	66.0	66.0
Intermediate Cover	102.0	--	102.0
Closed	30.0	--	30.0
TOTAL	132.0	66.0	198.0
Open Area	102.0	66.0	168.0

Comments

Figure K-5A

MANATEE COUNTY SOLID WASTE MANAGEMENT FACILITY

LENA ROAD LANDFILL

MONTHLY WATER BALANCE REPORT

APRIL, 2010

A	B	C	D		E	F	G	H
DATE	LEACHATE STAGE I Lift Station 1 (gallons)	LEACHATE STAGE I Lift Station 2 (gallons)	LEACHATE STAGE I TOTAL (gallons)	LEACHATE STAGE II TOTAL (gallons)	LEACHATE STAGE III TOTAL (gallons)	TOTAL LEACHATE PUMPED (gallons)	RAINFALL (inches)	RAINFALL (gallons)
01-Apr-10								
02-Apr-10								
03-Apr-10								
04-Apr-10								
05-Apr-10								
06-Apr-10								
07-Apr-10								
08-Apr-10								
09-Apr-10								
10-Apr-10								
11-Apr-10								
12-Apr-10								
13-Apr-10								
14-Apr-10								
15-Apr-10								
16-Apr-10								
17-Apr-10								
18-Apr-10								
19-Apr-10								
20-Apr-10								
21-Apr-10								
22-Apr-10								
23-Apr-10								
24-Apr-10								
25-Apr-10								
26-Apr-10								
27-Apr-10								
28-Apr-10								
29-Apr-10								
30-Apr-10								
01-May-10								
TOTAL	0	0	0		0	0	0.00	0
Leachate Pumped as Percentage of Rainfall			#DIV/0!		#DIV/0!			

Column Notes:

A - Date of reading.

B - Leachate pumped (gallons) from Stage I by lift station 1.

C - Leachate pumped (gallons) from Stage I by lift station 2.

D - Total Stage I leachate pumpage (B+C).

E - Leachate pumped (gallons) from Stage III.

F - Total leachate pumped to WWTP storage tank (D+E).

G - Rainfall (inches) recorded on this date.

H - Rainfall (gallons) calculated based on open area (G x Area x 27,156 gal/acre-in).

	Stage I (acres)	Stage III (acres)	TOTAL (acres)
Initial Cover	--	66.0	66.0
Intermediate Cover	102.0	--	102.0
Closed	30.0	--	30.0
TOTAL	132.0	66.0	198.0
Open Area	102.0	66.0	168.0

Comments

FIGURE K-6

**MANATEE COUNTY SOLID WASTE MANAGEMENT FACILITY
LENA ROAD LANDFILL
MONTHLY LEACHATE TRACKING SUMMARY -- _____ Year**

	B	C	D	E	F	G	H
MONTH	STAGE I LEACHATE (gallons)	STAGE III LEACHATE (gallons)	TOTAL LEACHATE (gallons)	RAINFALL (inches)	RAINFALL (gallons)	STAGE I LEACHATE/ RAINFALL (%)	STAGE III LEACHATE/ RAINFALL (%)
JANUARY							
FEBRUARY							
MARCH							
APRIL							
MAY							
JUNE							
JULY							
AUGUST							
SEPTEMBER							
OCTOBER							
NOVEMBER							
DECEMBER							
TOTAL	0	0	0	0.00	0	#DIV/0!	#DIV/0!

Notes:

1. (B) Total leachate pumped from Stage I.
2. (C) Total leachate pumped from Stage III.
3. (D) Total leachate (Column B+C) pumped to the WWTP storage tank.
4. (E) Total rainfall in inches.
5. (F) Total rainfall in gallons (Stage I and III Open Area of 168-acres x Rainfall)
6. (G) Stage I leachate pumped as a percentage of rainfall.
7. (H) Stage III leachate pumped as a percentage of rainfall.

Landfill Stage Land Areas

	Stage I	Stage III	TOTAL
	<i>(acres)</i>	<i>(acres)</i>	<i>(acres)</i>
Initial Cover	--	66.0	66.0
Intermediate Cov	102.0	--	102.0
Closed	30.0	--	30.0
TOTAL	132.0	66.0	198.0
Open Area	102.0	66.0	168.0

FIGURE K-6A

**MANATEE COUNTY SOLID WASTE MANAGEMENT FACILITY
LENA ROAD LANDFILL
MONTHLY LEACHATE TRACKING SUMMARY -- _____ Year**

	B		C	D	E	F	G	H
	STAGE I	STAGE II	STAGE III	TOTAL			STAGE I	STAGE III
MONTH	LEACHATE	LEACHATE	LEACHATE	LEACHATE	RAINFALL	RAINFALL	LEACHATE/ RAINFALL	LEACHATE /RAINFALL
	(gallons)	(gallons)	(gallons)	(gallons)	(inches)	(gallons)	(%)	(%)
JANUARY								
FEBRUARY								
MARCH								
APRIL								
MAY								
JUNE								
JULY								
AUGUST								
SEPTEMBER								
OCTOBER								
NOVEMBER								
DECEMBER								
TOTAL	0		0	0	0.00	0	#DIV/0!	#DIV/0!

Notes:

1. (B) Total leachate pumped from Stage I.
2. (C) Total leachate pumped from Stage III.
3. (D) Total leachate (Column B+C) pumped to the WWTP storage tank.
4. (E) Total rainfall in inches.
5. (F) Total rainfall in gallons (Stage I and III Open Area of 168-acres x Rainfall)
6. (G) Stage I leachate pumped as a percentage of rainfall.
7. (H) Stage III leachate pumped as a percentage of rainfall.

Landfill Stage Land Areas

	Stage I	Stage III	TOTAL
	(acres)	(acres)	(acres)
Initial Cover	--	66.0	66.0
Intermediate Cov	102.0	--	102.0
Closed	30.0	--	30.0
TOTAL	132.0	66.0	198.0
Open Area	102.0	66.0	168.0

FIGURE K-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: APRIL 2010

Piezometers Inside Slurry Wall			Gradient Flow	Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation		Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.62	<i>inward</i>	GW-1	38.68	30.13
P-2	42.32	28.82	<i>inward</i>	GW-2	40.92	29.41
P-3	40.36	26.46	<i>inward</i>	GW-3	39.40	34.10
P-4	40.78	22.08	<i>inward</i>	GW-4	40.53	32.82
P-5	40.73	20.82	<i>inward</i>	GW-5	39.90	32.08
P-6	40.74	19.78	<i>inward</i>	GW-6	38.95	31.30
P-7	40.60	18.82	<i>inward</i>	GW-7	39.49	29.38
P-8	40.21	18.59	<i>inward</i>	GW-8	39.75	28.45
P-9	39.97	19.36	<i>inward</i>	GW-9	39.65	28.95
P-10	39.86	19.25	<i>inward</i>	GW-10	38.34	29.25
P-11	40.52	22.39	<i>inward</i>	GW-11	38.26	30.29
P-12	43.28	29.37	<i>inward</i>	GW-12	42.09	31.64
P-13	44.78	30.35	<i>inward</i>	GW-13	44.79	32.46
P-14	45.09	29.79	<i>inward</i>	GW-14	39.63	33.86
P-15	45.57	30.89	<i>inward</i>	GW-15	42.33	35.17
P-16	44.67	30.96	<i>inward</i>	GW-16	44.41	35.08
P-17	44.28	29.94	<i>inward</i>	GW-17	42.19	33.26

Comments:

Date Data Collected: April 21, 2010

Form Revised December 6, 2004

FIGURE K-7A

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year:

Piezometers Inside Slurry Wall			Gradient Flow	Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation		Monitoring Well	Riser Elevation	Groundwater Elevation
P-3	40.36	26.46	inward	GW-3	39.40	34.10
P-4	40.78	22.08	inward	GW-4	40.53	32.82
P-5	40.73	20.82	inward	GW-5	39.90	32.08
P-6	40.74	19.78	inward	GW-6	38.95	31.30
P-7	40.60	18.82	inward	GW-7	39.49	29.38
P-8	40.21	18.59	inward	GW-8	39.75	28.45
P-9	39.97	19.36	inward	GW-9	39.65	28.95
P-10	39.86	19.25	inward	GW-10	38.34	29.25
P-11	40.52	22.39	inward	GW-11	38.26	30.29
P-12	43.28	29.37	inward	GW-12	42.09	31.64
P-13	44.78	30.35	inward	GW-13	44.79	32.46
P-14	45.09	29.79	inward	GW-14	39.63	33.86
P-15	45.57	30.89	inward	GW-15	42.33	35.17
P-16	44.67	24.67	inward	GW-16	44.41	41.41
P-17	44.28	29.60	inward	GW-17	42.19	35.03
P-18				GW-18		
P-19				GW-19		
P-20				GW-20		
P-21				GW-21		
P-22				GW-22		
P-23				GW-23		
P-24				GW-24		
P-25				GW-25		
P-26				GW-26		
P-27				GW-27		
P-28				GW-28		

Comments:

Date Data Collected:

Form Revised December 6, 2004

Figure K-7 (K-7A will be used when the Stage II Landfill is active.) is a typical Ground Water Gradient Monitoring Report. Seventeen ground water monitoring wells are installed around the perimeter of the landfill, outside the slurry wall to monitor the shallow aquifer. Seventeen piezometers are installed around the perimeter of the landfill inside the slurry wall to measure depth to ground water of the shallow aquifer only. No ground water samples are collected from the piezometers. This report presents ground water elevations recorded at selected monitoring wells and compares them to the ground water elevations recorded at the piezometers. These locations are shown on Figure L-1. The monitoring wells are located outside the slurry wall. The piezometers are located inside the slurry wall. An inward gradient is maintained when water elevations outside the slurry wall are higher than elevations recorded inside the slurry wall.

b. Operation and Maintenance of Leachate Collection System

Quantities from Lift Station Nos. 1, 2 and 3 are recorded and submitted to FDEP on a monthly basis using the forms on Figures K-5 and K-6. When the Stage II Landfill becomes active, Pump Station 4 will be included. Flow rates are checked and confirmed semi-annually and kept at the Lena Road Landfill. If a failure in the underdrain system is suspected, the system is videoed. Every five years, or if a problem is suspected, the underdrain is cleaned by hydro jetting. Manholes are visually inspected on a monthly basis. When necessary, the manholes are cleaned to promote drainage towards the lift station.

c. Leachate as Hazardous Waste

Based on years of analysis, leachate from the landfill is not a hazardous waste. If at any time the leachate is determined to be hazardous, it will be managed in accordance with Rule 62-730, F.A.C. If the leachate analysis indicates a contaminate listed in 40 CFR Part 261.24 exceeds the regulatory level, a monthly sampling of leachate will begin and FDEP notified. If in any three consecutive months no listed contaminant is found to exceed the regulatory limit, the monthly sampling will be discontinued and the routine sampling schedule implemented.

d. Off-Site Discharge Agreements

All collected leachate is pumped to an equalization tank at the adjacent wastewater treatment plant (WWTP) for treatment and disposal. Due to the common ownership of the landfill and the WWTP, the Utilities Department Director has issued a letter stating leachate will be accepted at this facility or at another off-site treatment plant as required.

e. Leachate Management Contingency Plan

In the event of short duration system failure, the landfill can store leachate. The County intends to maintain a one-foot inward gradient across the slurry wall so leachate would have to rise a foot before the facility was out of compliance with the permit condition to maintain an inward gradient. In the event of an extended power outage at the landfill, the County will rent a portable generator to provide power to the lift stations.

Any treatment plant operational or power problems will be addressed by the treatment plant as a part of its permitting procedures. A generator is available to provide emergency power at the treatment plant.

Leachate will be trucked to the County's Southwest Treatment Plant or North Wastewater Treatment Plant, if necessary.

f. Leachate Generation Recording

Leachate generation records are reported on the forms in Figures K-6 and K-7.

g. Precipitation/Leachate Comparison

Precipitation is compared to leachate collected using the form in Figures K-6 and K-7.

h. Procedures for Water Pressure Cleaning or Video Inspecting Leachate Collection System

Every five years, or if a problem is suspected, the leachate collection pipes are pressure cleaned.

9.0 Gas Monitoring

Gas monitoring is performed on a monthly and quarterly basis by a consultant, PBS&J. The gas monitoring at the site is divided into three separate tasks: Quarterly monitoring of the gas well and points; quarterly monitoring of surface emissions on the closed portions of the landfill; and monthly monitoring of the landfill gas extraction system. Each task will be discussed in detail below.

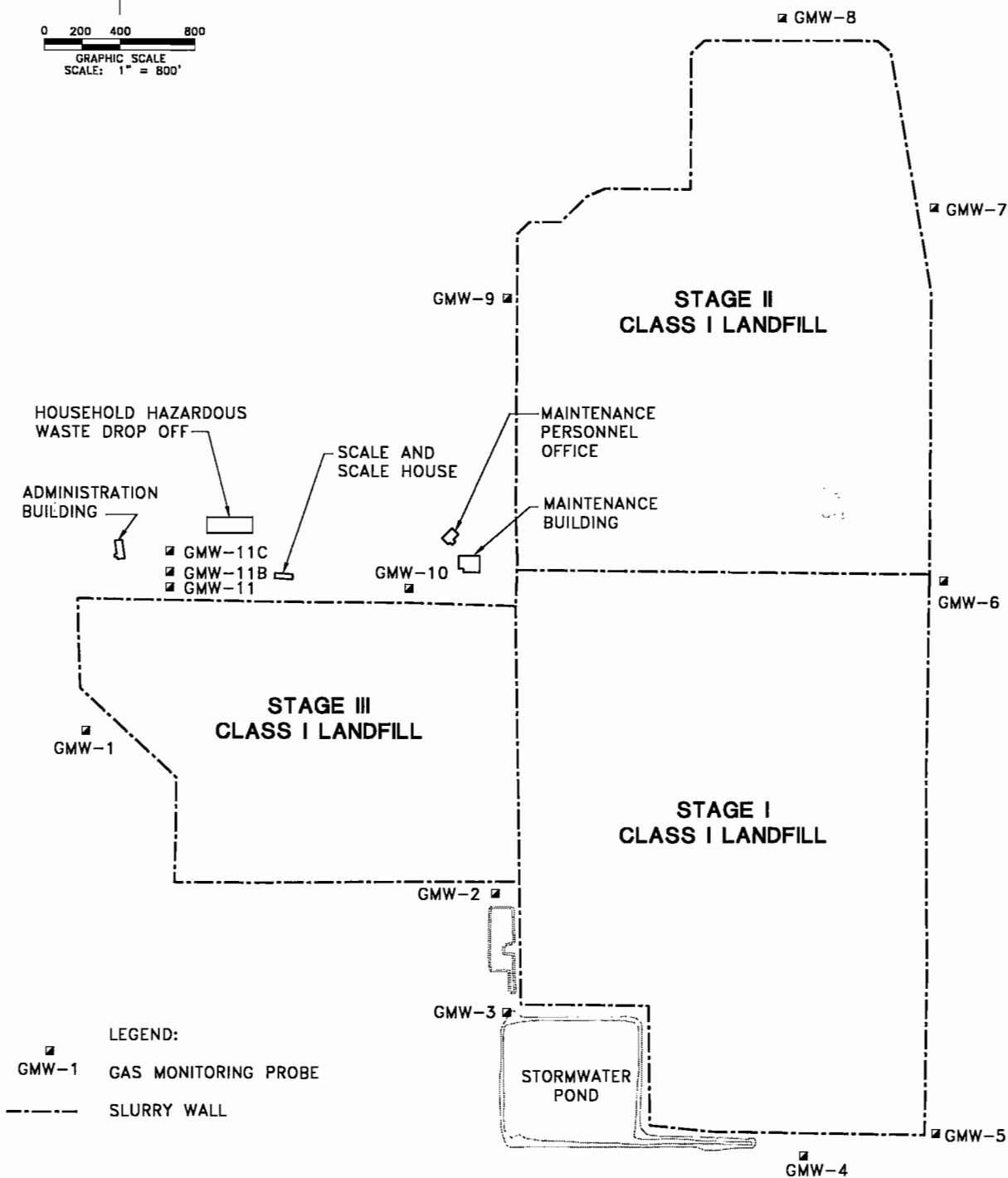
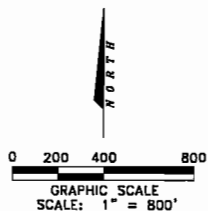
a. Gas Well and Point Monitoring

On a quarterly basis, PBS&J monitors landfill gas emissions at eleven gas wells located on the site as shown on Figure K-8. The gas monitoring wells are located along the perimeter of the landfill, and are constructed of 1 ¼ to 2-inch diameter PVC, encased in locking aluminum stand-boxes.

The monitoring is performed using the CES Landtec Gas Extraction Monitor Model 2000 (GEM 2000). According to Chapter 62-701.530(1) of the Florida Administrative Code, methane gas levels are required to be less than the maximum level of 25% of the Lower Explosive Limit (LEL) for the interior of structures (gas points) and 100% for points at or beyond the landfill property boundary.

The gas well samples are collected by removing the PVC cap of the well and inserting the intake tube of the GEM 2000 into the casing, or attaching it to the sampling port on the top of the well cap. The sample points are monitored by walking the area of interest while exposing the GEM 2000 intake tube to the atmosphere. The monitoring event typically takes one workday. The results are reported using a typical form as shown on Figure K-9.

U:\OldH_S\ENVCADD\WASTEMAN\Manatee\Manatee\Permit-Renewal-2010\mir_FIG-K-8_LFG_PROBES.dwg May11,2010 -- 4:27pm Plotted By: 9327



REVISED: 1-12-10



**LENA ROAD LANDFILL
MANATEE COUNTY, FLORIDA**

**LANDFILL GAS MIGRATION
MONITORING LOCATIONS**

FIG. K-8

MANATEE COUNTY LENA ROAD LANDFILL
GAS MONITORING REPORT
3rd QUARTER 2009
July 2009 - September 2009
METHANE GAS READINGS

Date of Readings: _____

Gas Monitoring Well	Reading % LEL	NOTES
GMW-1	0.0	
GMW-2	0.0	
GMW-3	0.0	
GMW-4	0.0	
GMW-5	0.0	
GMW-6	0.0	
GMW-7	0.0	
GMW-8	0.0	
GMW-9	0.0	
GMW-10	0.0	
GMW-11A	0.0	
GMW- 11B	0.0	
GMW-I 11C	0.0	
Administration Building	0.0	
HH Waste Drop-off Building	0.0	
Scale House Building	0.0	
Maintenance Office	0.0	
Maintenance Building	0.0	

FIGURE K-9

b. Surface Emission Monitoring

PBS&J performs surface-emission monitoring event on a quarterly basis on the Stage I and III Landfills in compliance with Section 60.753 of the Title V Permit No. 0810055-004-AV. Quarterly monitoring will begin at the Stage II Landfill five years after solid waste is placed in the Stage II Landfill. During this event, PBS&J performs surface gas sampling with Thermo Environmental Instruments Model 680 Hydrocarbon Vapormeter (HVM). The monitoring path followed the same grid system as in previous events as approved for the permit. The sensor of the HVM was maintained at approximately 5 centimeters above the Landfill surface during monitoring. The perimeter of the Landfill was checked. All Landfill penetrations for gas wells, pipes, etc., areas with distressed vegetation and cracks in the soil cover were also checked for Landfill gas emissions.

Locations at which a methane concentration of 500 parts per million (ppm) or greater as observed will be noted on a site map and the appropriate changes to the landfill gas system will be made. The location of interest should be rechecked within a week to verify that the problem has been rectified. This event takes approximately one day to perform. However, depending on the number of locations (if any) that are observed to be in violation, additional monitoring time may be necessary.

c. Landfill Gas Extraction System Monitoring

PBS&J performs monthly monitoring of the landfill gas extraction system. There are one hundred ninety eight wells and fifteen sample points in the system. The sample points include locations in the extraction system pipes leading into the flare and a point at the flare itself. The gas composition, static pressure, differential pressure, flow and temperatures at each of the well locations and points are recorded using the GEM 2000. The flare temperature and total gas flow at the flare reported by the flare computer are recorded by hand. In order to minimize the amount of air pulled into the system, it may be necessary to close some of the extraction wells. As a result, not all of the wells will be sampled on a monthly basis.

The data recorded using the GEM 2000 is reported in tabular form on a monthly basis. A sample data table is shown on Figure L-10. The table indicates which wells or point locations that are not in compliance with the landfill's Title V Air Operation Permit. Compliance at a gas well or point is achieved when the concentration of oxygen is less than 5%, the concentration of nitrogen or balance gas is less than 20%, the static pressure is less than 0 inches of water (i.e., the well is under vacuum) and the temperature is less than 131° F. Shaded boxes on the data table indicate out-of-compliance parameters.

MANATEE COUNTY - LENA ROAD LANDFILL									
GAS EXTRACTION WELL - MONTHLY MONITORING									
FEBRUARY 2007									
Well ID	Date and Time	CH ₄ (%)	O ₂ (%)	Bal (%)	Temp. (°F)	Static Pressure (inches H ₂ O)	Corrective Action	Comments / Damage	
1								Well Closed	
2								Well Closed	
3								Well Closed	
4								Well Closed	
5								Well Closed	
6								Well Closed	
7								Well Closed	
8								Well Closed	
9								Well Closed	
10								Well Closed	
11								Well Closed	
12								Well Closed	
13								Well Closed	
14								Well Closed	
15								Well Closed	
16								Well Closed	
17								Well Closed	
18								Well Closed	
19								Well Closed	
20								Well Closed	
21								Well Closed	
22								Well Closed	
23								Well Closed	
24								Well Closed	
25								Well Closed	
26								Well Closed	
27								Well Closed	
28								Well Closed	
29								Well Closed	
30								Well Closed	
31								Well Closed	
32								Well Closed	
33	2/1/2007 8:51	91.8	0.3	10.5	68	3.5		50	
34	2/1/2007 8:38	93.1	0.1	8.8	68	1.4		55	
35	2/1/2007 8:43	92.5	0.8	8.8	48	-17		100	
37	2/1/2007 8:47	41.6	5.2	25.3	78	1.9		50	
38	2/1/2007 8:51	50.2	0.4	12.5	60	7.1		50	
39	2/1/2007 8:55	53.6	0.5	9.2	50	9.3		52	
40	2/1/2007 8:58	54.1	0.8	8.5	42	7.1		35	
41								Well Closed	
42								Well Closed	
43	2/1/2007 9:02	96.7	0.4	9.9	58	4.4		50	
44								Well Closed	
45								Well Closed	
46	2/1/2007 9:08	98	0	7.5	92	16.5		100	
47								Well Closed	
48	2/1/2007 9:18	98.4	0.8	2.0	65	13.8		50	
49	2/1/2007 11:20	95.8	1.1	2.4	89	13.8		100	
50	2/1/2007 11:33	98.4	0.7	0.8	93	14.8		100	
51	2/1/2007 11:38	95.5	0.7	1.2	102	14.1		50	
52	2/1/2007 11:39	95.4	0.8	1.4	110	14.5		100	
53	2/1/2007 11:44	97.1	0.7	1.2	79	5		35	
54	2/1/2007 11:47	98.3	0.8	0.8	27	3.9		50	
55	2/1/2007 12:02	98.4	0.8	0.2	90	13.7		100	
56	2/1/2007 12:05	98.1	0.6	0.2	112	4.2		50	
57	2/1/2007 12:11	95.5	0.9	0.1	104	4.3		50	
58	2/1/2007 12:16	98.4	0.9	0.3	72	9.8		50	
59	2/1/2007 12:27	95.2	0.7	0.3	78	11.21		100	
60	2/1/2007 12:31	99.7	0.8	0.5	77	14.8		50	
61								Well Closed	
62								Well Closed	
63								Well Closed	
64	2/1/2007 12:35	57.3	0.6	1.4	53	-14.9		100	
65								Well Closed	
66	2/1/2007 12:35	53.3	2.9	4.8	98	-12.3		50	
67	2/1/2007 12:31	94.8	0.7	0.2	83	9.8		100	
68								Well Closed	
69	2/1/2007 12:07	98.4	0.5	0.4	119	11.8		50	
70	2/1/2007 11:49	98.5	0.9	0.1	88	7.5		50	
71	2/1/2007 11:51	98.8	0.6	0.8	89	-10.5		50	
72								Well Closed	
73	2/1/2007 11:55	98.8	0.7	0.4	84	-12.2		50	
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75								Well Closed	
76								Well Closed	
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When wells are encountered with out-of-compliance parameters, changes can be made to the valve setting that may improve or eliminate the problem. If the gas composition indicates high levels of oxygen or nitrogen in the gas, the valve should be turned down. This would lower the flow at the well and lessen the amount of air that may be drawn into the system. If the static pressure at the well is positive, then the valve setting should be turned up, effectively increasing the flow at the well. The valve settings should be adjusted in small increments in order to decrease the possibility of improving gas composition while causing the pressure to become positive, or vice versa.

This task typically takes between two and three days to perform, depending on the number of valve setting adjustments. A site map displaying the locations of the landfill gas collection wells is included as Attachment K-1.

10.0 Storm Water Management

a. Introduction

The purpose of this Storm water Management Plan (SWMP) is to describe the system, operation and maintenance of the Storm water Management System (SWMS) for the Lena Road Landfill.

The Manatee County Lena Road Landfill is located in Bradenton Florida on approximately 1,200 acres owned by Manatee County. Three hundred and sixteen acres are designated for landfill. The rest of the property is used for wetlands mitigation, buffer, administration facilities, storm water management and the Manatee County regional wastewater treatment plant.

The Lena Road Landfill is divided into three stages which are listed below with the acreage and status for each stage:

- Stage I – 131 acres – filled and inactive
- Stage II – 110 acres – empty and inactive
- Stage III – 75 acres – partly filled and active

Figure K-11 is a site map of the Lena Road Landfill Storm Water Management System. The map shows the landfill stages, storm water swales, storm water pond and outfall structures. The landfill waste areas have a storm water drainage system. The details for the drainage system on the Stage I, II and III Landfills are shown on the Fill Sequence Plan drawings

b. Storm Water Management System Overview

The purpose of the storm water management system is to collect clean storm water run-off from the landfill in terrace swales located on the landfill side slopes and convey the storm water to the detention areas for treatment and disposal to Cypress Strand Creek or Gates Creek. Any storm water that comes in contact with solid waste or is contaminated by leachate makes the storm water leachate, and requires discharge of the storm water to the leachate collection system for treatment at the wastewater treatment plant.

There are three permits that relate to storm water.

1. Environmental Resource Standard General Permit #41-0224996-001

This permit was issued on Feb.25, 2005 with expiration date of Feb. 25, 2010. There are 26 specific conditions. The most important specific conditions are:

20. For retention and dry detention ponds only: The retention and/or dry detention pond is intended to become dry within 72 hours after a rainfall event. A system that is regularly wet will be considered as not in compliance with this permit and possible modification to the system may be required.

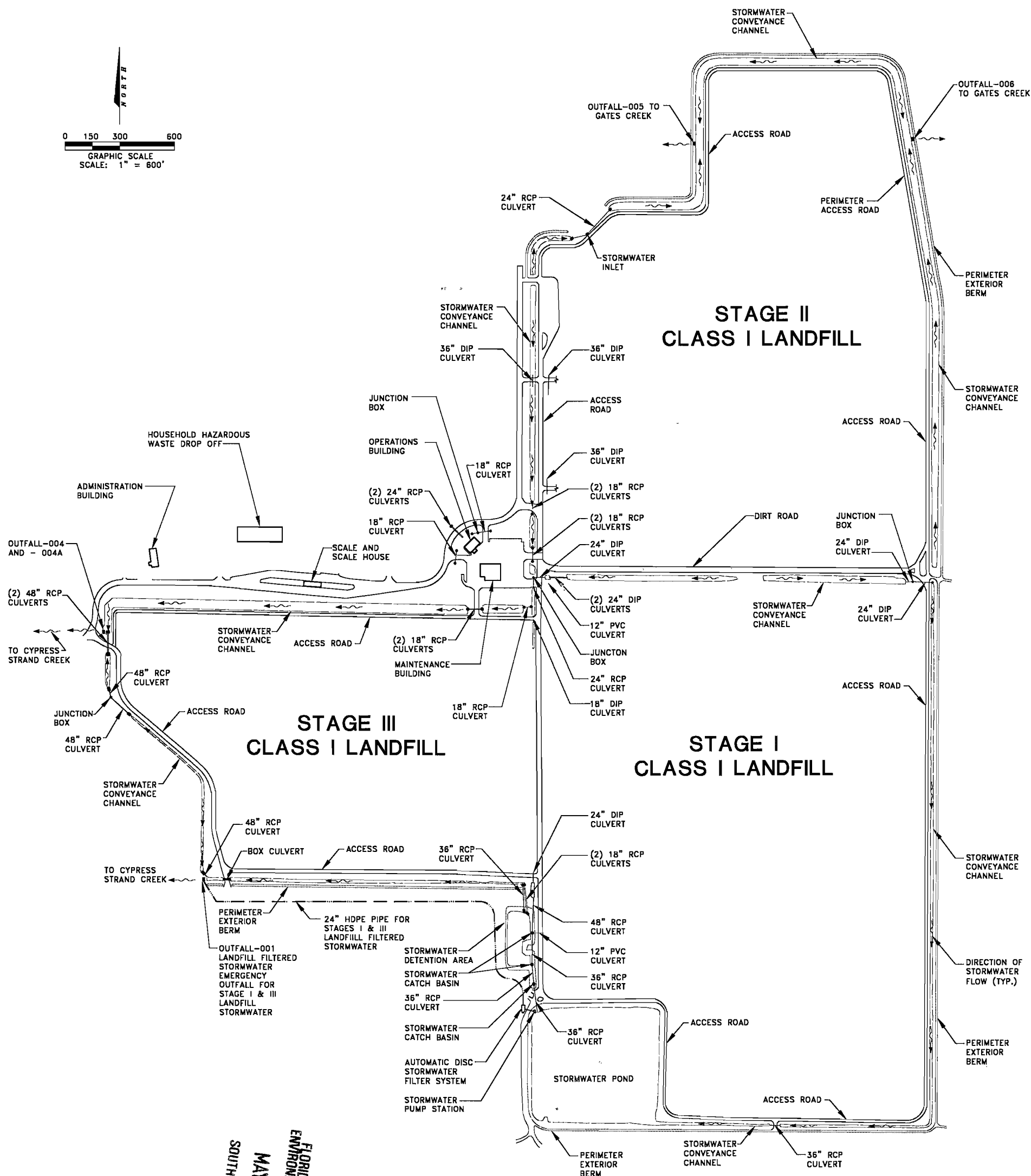
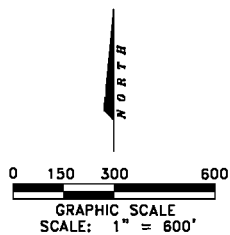
24. The Operation and Maintenance Facility shall submit inspection reports in the form required by the Department, FDEP Form #62-343.900(6), Inspection Certification, For effluent filtration or exfiltration: 18 months after operation is authorized and every 18 months thereafter.

2. NPDES Multi-Sector Generic Permit (MSGP)

This permit was effective December 26, 2009 with an expiration date of December 25, 2013. The facility ID is FLR05F797-002. The requirements for this permit are included in the "Stormwater Pollution Prevention Plan for the Lena Road Landfill" prepared by PBS&J, dated April 2004.

3. Lena Road Class I Landfill Operation Permit #39884-010-SO/01

This permit was issued June 13, 2005 with an expiration date of June 13, 2010. Specific Condition 9 of the permit describes the surface water sampling requirement.



FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 13 2010
SOUTHWEST DISTRICT
TAMPA

REVISED: 1-12-10

Stage I System

The Stage I stormwater perimeter swale was created by constructing two berms. The inner berm, called the landfill berm, is constructed around the area filled with solid waste, and the outer berm, called the stormwater berm, was constructed around the inner berm to hold stormwater runoff from the landfill in the swale until the stormwater could be filtered and discharge to Cypress Strand. The stormwater swale drains to an 8-acre, 40 acre-feet stormwater detention pond. The pond is located at the southwest corner of the Stage I Landfill. Stormwater enters the perimeter swale via direct rainfall, sheet flow down the outside slopes of the landfill, and from stormwater discharge structures. Stormwater collected in terrace swales on the landfill is diverted to inlets on the terrace swales which are connected to stormwater pipes. The stormwater pipes discharge stormwater at the bottom of the landfill into the perimeter swale through the discharge structures. The Stage I system consists of a channel-wet pond detention system with in-line turbo disk sand effluent filtration system. The filter system was manufactured by Miller Leaman and consists of two skid units (Model 2SV) with 22 pods on each unit with a capacity of 500 gallons per minute, or 1000 gallons per minute total. The channel-wet pond detention system is designed to provide for the first one inch of runoff over the 154-acre contributing project area. The water quality treatment volume for Stage I is 558,875 cubic feet (12.83 ac-ft), and the system provides for 975,105 cubic feet (22.39 ac-ft). Two pumps located at the northwest corner of the pond provide the treatment volume for the wet pond in Stage I. The water quality treatment is provided between the lead pump (elevation 32.77 feet) and the all pumps off elevation of 30.77 feet. The pumps discharge through a 12" ductile iron pipe to parallel filtration system. The treated water leaves the filtration system through a 12" HDPE pipe to a junction manhole. A 24" HDPE pipe leaves the manhole and discharges via a mitered end section in the southwest corner of Stage III, to the Outfall 001/Cypress Strand. Attenuation for the 100-year/24 hour storm event is provided by a weir housed in the pump station. When the water in the pond reaches elevation 34.3 feet, the water will discharge through the 24' HDPE pipe that is connected to the junction manhole.

Stage II System

The Stage II storm water management system is independent of Stages I and III. The system consists of a perimeter swale constructed with under drains and drop inlets for the discharge of stormwater from the swale. Emergency Outfall Weirs 005 and 006 discharge storm water from the Stage II stormwater swale to Gates Creek. The stormwater swale was created by constructing two berms. The inner berm, called the landfill berm, is constructed around the area designated to be filled with solid waste, and the outer berm, called the stormwater berm, was constructed around the inner berm to hold stormwater runoff from the landfill in the swale until the stormwater could be filter by the under drain and discharged to Gates Creek. Because the Stage II Landfill is inactive and there is no solid waste, there is no runoff from the Stage II Landfill into the perimeter swale. There will be no runoff until the Stage II Landfill is filled with solid waste. Rain falling on the Stage II Landfill is trapped within the landfill perimeter berm and allowed to evaporate. If the stormwater does not evaporate fast enough, Manatee County pumps the stormwater over the landfill berm into the stormwater swale. Storm water entering the stormwater swale due to direct rainfall or from pumping accumulated storm water inside the Stage II landfill, is filter through the under drain system and discharged to Gates Creek.

Stage III System

The Stage III system consists of a perimeter channel-pond dry detention with effluent filtration system, which will receive runoff from 74 acres of project area. The pond is designed to provide for the first one-half inch of runoff over the contributing area. The water quality treatment volume required for Stage III is 134,310 cubic feet (3.08 ac-ft) and the system provides for 146,573 cubic feet (3.36 acres). The water quality treatment is provided between the pond bottom (elevation 31.0 feet) and the weir elevation of 32.4 feet. The water will bleed down through an under drain located in the northwest corner of Stage III and will recover in 72 hours. Attenuation for the 100-year/24 hour storm event is provided by three outfall structures, D-001, D-004 and D-004A. D-001 consists of two identical modified FDOT Type "E" inlets. Two sides of the inlets have weirs set at elevation 32.4 feet and the front of the structure has a weir set at elevation 33.4 feet. The inlets discharge through two 42" RCPs to a double mitered end section at the southwest corner of Stage III. Outfall D-004 consists of two FDOT Type "E" inlets in the northwest corner of Stage III and has the same weir set up as Outfall D-001. The inlets discharge through two 27" x 42" HERCP to Outfall D-004. Outfall D-004A is an existing inlet structure with the gate constructed at elevation 35.5. D-004A discharges through a 24" RCP to Outfall D-004. The existing stormwater pond in the southeast corner of Stage III was excavated to elevation 31.0 feet. The top of bank was constructed to elevation 41.0 feet. The weir at the east end of the southern east-west ditch (southeast corner of Stage III) was modified and the top of the bank constructed to elevation 40.0 feet to disconnect Stage I and Stage III stormwater. Forty-five linear feet of 54" inch RCP at the southwest corner of Stage III connects the north and west ditch to the south ditch.

c. Maintenance Plan

This maintenance plan applies to the stormwater management system for the Stage I, II and III Landfills. The storm water management system consists of a series of swales, inlets and pipes that divert storm water from the non-working areas of the landfill to the stormwater pond. The swales discharge into pipes and/or other swales, or directly into the stormwater pond. Runoff from the detention pond ultimately discharges into the Cypress Strand Creek or the Gates Creek via the on-site wetlands.

Stormwater perimeter ditches and the filter facility are inspected daily for sediment, wash outs, litter, vegetation and non-performance. In the event of a side-slope wash out, the slope is repaired within 3 working days. Litter fences are installed along the top bank of each swale around the active landfill to minimize litter. Excessive vegetation is removed from the swale system and stormwater pond. Sediment is removed from the swale and hauled to the working face.

Stormwater runoff from the areas that have at least a 6-inch compacted soil cover (free of waste) over the waste materials can be directed to flow into the stormwater management system. Stormwater runoff that has been in contact with waste materials is classified as leachate and cannot be diverted into the storm water management system. Stormwater runoff from the upper portion of the landfill travels via sheet flow into collection terraces located along the side slopes

of the landfill. Stormwater runoff flows within the collection terraces and is conveyed, via stormwater structures, and as shown on the Fill Sequence Drawings, down the landfill and into swales that are located along the perimeter of the landfill. The perimeter swales convey stormwater runoff to a stormwater management pond. Stormwater runoff collected in the pond is allowed to percolate. As the water in the pond rises, it is pumped to the automatic disc filter system.

The following procedures have been implemented at the landfill to minimize maintenance requirements and to ensure efficient performance of the stormwater system operation:

- No excavated cover material is stockpiled in such a manner as to direct sediment-laden runoff outside the project site property limits or into any adjacent stormwater collection facility.
- All drainage ditches are inspected periodically for erosion and reshaped and resodded as required.
- Erosion and siltation control devices are cleaned and repaired when clogged or damaged.
- Temporary erosion control features such as silt fencing or hay bales are removed after installation of permanent erosion controls have been completed and any permanent erosion control features damaged by such removal are repaired.
- After vegetation has been established, all swales, channels, and detention ponds are mowed regularly; minimum-mowing frequency is once per year.
- The plant types in the littoral zone are checked periodically and any intruding vegetation is removed if required.
- Drainage sumps are cleaned out at least once per year and the storm sewer lines checked for plugging.
- The area in front of the control structure is checked at least quarterly to remove any excess plants or debris that could cause the structure to plug.

11.0 Equipment/Operation Features

a. Sufficient Equipment

The County has sufficient equipment to provide flexible landfill operations. Attachment L-3 provides a list of the current landfill heavy equipment for daily operations.

All landfill equipment that will be in operation on that day is serviced with special attention to any maintenance or minor repair needs. If the repair work required is more than minor in nature, it is sent to the landfill garage. The equipment is primarily serviced by Manatee County Fleet Services that operates a repair center at the Landfill Facility.

The following procedures are used in fueling equipment each day:

1. Check the following fluids to ensure they are at the manufacturer's recommended level:
 - pivot shaft oil
 - engine oil
 - hydraulic oil
 - fuel
 - transmission oil
 - radiator water
 - battery water level
2. Check and clean the following filters:
 - air cleaner
 - interior/exterior air conditioner filters
3. Pressure wash with water and/or air:
 - radiator core
 - transmission oil coolers
 - hydraulic oil coolers
4. Clean all air intake openings such as door panels, steps, hood, and air-breather intake.
5. Visually check for water, fuel and oil leaks in the final drive, radiator hoses, hydraulic hoses, fuel lines, injector pumps, fuel filters, etc.
6. Check tire inflation and/or track adjustment, chain tension and alignment on scrapers.
7. Grease all fittings at recommended intervals.

8. Complete the Daily Equipment Maintenance Report.

Fuel for the landfill equipment is pumped from a fuel tank, located as shown on Figure E-5. The tank is an above ground, double walled, steel tank with a total capacity of 20,000 gallons, and is split into two compartments. One 5,000-gallon compartment is for gasoline, and a 15,000-gallon compartment for diesel fuel. The tank is on a concrete slab, and protected by bollards. The tank is inspected weekly. Fuel and fluids (engine oil, transmission oil, hydraulic oil, or radiator fluid) are added to the equipment in the maintenance building as needed. If repairs on the equipment are necessary, the equipment is sent to the County's central maintenance shop, located off-site, or to the dealer's authorized maintenance facility.

b. Reserve Equipment

Table K-5 Attachment K-3 indicates the County possesses sufficient equipment to operate the landfill. In the event the dozer is out of service, the compactors can be used to spread refuse over the active face. In addition, the County can rent backup equipment from its approved Bid List or from County sources within 24 hours if necessary.

c. Communication Equipment

All equipment operators and traffic controllers are equipped with hand-held radios. This radio transmission service links the field personnel to the office and management. Telephones are available in the office, maintenance garage and Scalehouse.

d. Dust Control

Internal access roads are sprayed with water to control dust. Vegetation on filled areas assists in controlling dust from this area.

e. Fire Protection

Further details regarding the fire protection can be found in Section K.2.b.

f. Litter Control Devices

See Section K.7.i.

g. Signs

Signs are used around the site to direct traffic to the active face, white goods area, tire area, lead-acid battery drop-off, clean debris, yard waste, mulch site, speed limits, disposal rates and hours of operation, and prohibitions.

h. Shelter/Sanitation/First Aid Features

Shelter and sanitation facilities for the landfill staff are provided at the scale house and landfill office. First aid kits are provided in the cab of all heavy equipment vehicles.

First aid kits are located in the Landfill Administration Office and are maintained and inspected regularly. The kits will contain, at a minimum, the following:

sterile gauze pads	band aids (regular and non-stick)	eye wash
rolls of gauze bandage	adhesive tape	
bandage scissors	peroxide	
roll of sterile cotton gauze	safety pins	
tweezers	rubbing alcohol	
CPR mouth barrier	gloves	

In the case of accidental poisoning:

Step 1: Carefully remove poison from contact with person.

Eyes: Flush with lukewarm water, NOT HOT WATER, in a gentle stream for 10-15 minutes with eyelids open. Pour water from a container held 2-4 inches above the eye. **DO NOT RUB THE EYES.**

Skin: REMOVE any clothing that has come in contact with the poison. Flush poison off with large amounts of water poured from a container held 2-4 inches above the affected skin area for 10-15 minutes.

Mouth: REMOVE any poison from the mouth. Rinse the mouth out with water. If unable to rinse, gently rub out mouth with a clean cloth. Check mouth for any burns, cuts, unusual coloring, swelling or irritations.

Lungs: Get to fresh air as soon as possible. Loosen clothing if exposed to gases or fumes. Initiate mouth-to-mouth resuscitation if necessary.

Step 2: Give water when potential poisons have been swallowed. DO NOT give water if the person is unconscious, having convulsions or cannot swallow.

Equipment/Operation Features

Step 3: **NEVER** make the person vomit **unless** the poison center or a physician directs you to do so.

Step 4: **KEEP CALM. DO NOT DELAY IN SEEKING HELP!**

12.0 All-Weather Access Roads

The main haul road in the landfill is paved. Vehicles leaving the main haul road en route to the working face travel across an interior road. The interior road base is constructed of C&D material and covered with a sand-shell mixture. The road is routinely maintained to provide waste hauler access to the work face. As discussed in K.2.b., during severe wet weather, small vehicles are directed to the wet weather disposal area for tipping.

13.0 Additional Record Keeping

Required landfill records are reported to the Department on a monthly, quarterly, semi-annually, annual, biennial basis. All records are maintained at the landfill for a minimum of ten years or for the design period as specified below. The design period is projected to end in the year 2071 (unless long-term care is decreased).

a. Permit Application Development

All reports used to develop permit applications and operation records will be maintained for the design period. Records such as geotechnical investigations, foundation analyses, demonstration reports, and previous permits and regulations are examples of records to be maintained.

b. Monitoring Records

All water quality, gas, and leachate monitoring records are required to be maintained for at least ten years.

In accordance with various Environmental Protection Agency (EPA), Southwest Florida Water Management District (SWFWMD), and the Department of Environmental Protection (DEP) rules, regulations and permits, the Landfill must conduct various field monitoring /maintenance activities and submit reports on a scheduled basis. The following information is intended as an overview of required activities and reports and is also addressed in individual sub-sections regarding the activity or program.

Groundwater

The County Laboratory inspects and samples 18 groundwater monitoring wells (GW-1 through GW-18) for the Stage I and III Landfills. The results are submitted semi-annually to the Department. The wells consist of seventeen monitoring wells and one background monitoring well. When the Stage II Landfill becomes active, the County Laboratory will inspect and sample eleven additional monitoring wells (GW-18 through GW-28). The County will continue to inspect and sample GW-1 and GW-2, which are in the foot print of the Stage II Landfill until the wells are abandoned.

A review of the analyses, comparisons of the data, and comments on any substantial differences in parameters is to be submitted to the Department every 2 and one-half years or as required in the permit.

Leachate

Flow meters which record leachate directed to the Southeast Waste Water Treatment Plant are inspected daily. The leachate quantity is reported monthly. A leachate analyses is completed and reported annually.

Department of Environmental Protection Reports

Prepare monthly groundwater report.

Prepare annual compaction and fill volumes.

Prepare groundwater report semi-annually.

Prepare leachate analysis report annual.

Prepare monthly water balance reports.

Prepare monthly report on the landfill gas readings taken at each landfill gas wellhead and flare

Prepare quarterly report of the landfill gas readings at gas monitoring probes and ambient points

Prepare quarterly report of the landfill gas surface emissions monitoring

c. Annual Estimate of the Remaining Life of Constructed Landfill

Manatee County will annually estimate the remaining solid waste disposal capacity in cubic yards and the remaining landfill life in years. The estimate will be based on the geometry of the filled landfill, final contours, scale house records for waste received and the filling rate of the landfill. The estimate will be submitted annually to FDEP by the date specified in the permit.

d. Archiving and Retrieving Records

All records pertaining to the operation of the facility will be retained throughout the design life of the landfill. All monitoring records, calibration and maintenance records and reports required by the landfill operation permit will be retained for at least ten years.

14.0 Special Waste Handling

a. Motor Vehicles

Motor vehicles are not presently accepted for disposal or temporary storage at Lena Road Landfill.

b. Shredded Waste

Shredded municipal waste is not accepted for disposal at Lend Road Landfill. Shredded tires may be accepted if not recycled.

c. Asbestos

Asbestos containing materials from sources covered under the National Emission Standards for Asbestos, 40 CFR Part 61, Subpart M are accepted at Lena Road Landfill, with prior approval of the County. These materials will be placed in the landfill by appointment only, covered with a minimum of one foot of cover soil, and the location will be recorded in accordance with 40 CFR Part 61.154. A record of the location of asbestos-containing waste will be maintained.

d. Contaminated Soil

Soils contaminated with non-hazardous waste and petroleum-contaminated soil, which has been treated pursuant to Chapter 62-775, F.A.C., will be accepted at the discretion of the County.

e. Biological Waste

Biological waste is not accepted.



Jeb Bush
Governor

Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

February 14, 2002

Mr. Gus DiFonzo
Solid Waste Manager
Manatee County Public Works
4410 66th Street West
Bradenton, FL 34210

**Re: Screened Solid Waste (SSW) for Initial Cover
Lena Road Landfill
Permit #: 39884-001-SO, Manatee County**

Dear Mr. DiFonzo:

The Department has no objection to the stockpiling of SSW for initial cover in the designated area of Stage III and use of the SSW for initial cover as described in Mr. Joe Miller's January 10, 2002 letter and as shown on its attached sketch, subject to the following conditions:

1. A sample of the SSW shall be screened periodically and upon request by the Department to confirm that 100% passes a 2" screen, 85% passes ¾" screen, and 70% passes a ¼" screen; and
2. The SSW shall be applied in a 6 inch compacted layer.

If any inspections disclose problems with use of the SSW as initial cover, such as failure to maintain normal operations and prevent ponding and leachate discharge outside the active disposal area, approval may be discontinued. If you have any questions you may call me at (813) 744-6100, extension 382.

Sincerely,

Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management

KBF/ab

cc: Daniel Gray, Manatee County
Mike Gore, Manatee County
Joe Miller, P.E., PBS&J
Robert Butera, P.E., FDEP Tampa

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Jeb Bush
Governor

Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

August 27, 2002

Mr. Gus DiFonzo
Solid Waste Manager
Manatee County Public Works
4410 66th Street West
Bradenton, FL 34210

Re: Ground-up C&D Debris for Initial Cover
Lena Road Landfill
Permit #: 39884-001-SO, Manatee County

Dear Mr. DiFonzo:

The Department has no objection to the use of ground-up construction and demolition debris for initial cover subject to the following conditions:

1. Ground-up construction and demolition debris, unscreened, and applied in a six (6) inch compacted layer, may be used as initial cover within the bermed working area.
2. 90% of the unscreened ground-up debris shall pass a 2" screen and 50% shall pass a 1/4" screen.
3. At least one sample shall be tested weekly to verify particle size distribution.

If any inspections disclose problems with use of the ground-up C&D debris as initial cover, such as failure to meet the characteristics of initial cover as defined in Chapter 62-701, F.A.C., approval may be discontinued. If you have any questions you may call me at (813) 744-6100, extension 382.

Sincerely,

Kim B. Ford, P.E.
Solid Waste Section
Division of Waste Management

KBF/ab

Cc: Daniel Gray, Manatee County
Mike Gore, Manatee County
Joe Miller, P.E., PBS&J
Susan Pelz, P.E., FDEP Tampa

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Attachment K-2

**Household Hazardous Waste Collection
And Storage Facility**

**Lena Road Landfill
3333 Lena Road
Bradenton, FL 34202**

Revised May 10, 2010

Prepared by:

**Manatee County Government
Utility Operations Department
Solid Waste Division
3333 Lena Road
Bradenton, FL 34211**

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Figures

K-2-1 Facility Floor Plan

K-2-2 Cross Section of Facility

1.0 Definitions

Conditionally Exempt Small Quantity Generators (CESQG): (40 CFR 261.5) A generator who produces no more than 100 kg (220 lbs) of hazardous waste or no more than 1 kg of acutely hazardous waste per month.

Contingency Plan: A document setting out an organized, planned, and coordinated course of action.

Hazardous Material: A substance or material including a hazardous substance, which has been determined by the Secretary of Transportation capable of posing an unreasonable risk to health, safety, and property during transportation.

Household Hazardous Waste Collection and Storage Facility: A facility established by the Manatee County Board of County Commissioners to provide hazardous waste disposal services to households.

Household: Single and multiple dwellings and other residential sources within Manatee County.

Personal Protective Equipment: Equipment used to protect individuals from chemical, physical and biological hazards.

Training: Instruction in the use of equipment, personal protective equipment, site safety and handling.

2.0 History

The Manatee County Household Hazardous Waste Collection and Storage Facility opened in May 1993 within the Stage III Landfill. This facility was removed as solid waste filled the Stage III Landfill.

The recently completed Administration Facilities includes a household hazardous waste collection and storage facility. The facility floor plan is shown on Figure K-2-1, and a cross section is shown on Figure K-2-2. The building includes forced air ventilation, dry chemical fire suppression system, and storage for hazardous waste. The building is engineered to comply with EPA, NAPA, and OSHA standards and regulations for storing hazardous chemicals and wastes. The building is also corrosion resistant and features secondary containment for the prevention of spills or leaks. The facility has a concrete slab and is under a roof as shown on the figures. The materials processed and the method of processing remains essentially the same at the new facility.

3.0 Facility Program

The Manatee County Household Hazardous Waste Collection Facility (HHW Facility) is located at 3333 Lena Road, Bradenton, Florida. The Facility has a secured storage building specifically designed for the storage of hazardous materials and/or wastes. The major components of the HHW Facility are as follows:

- Security System: The entire site is fenced with a six (6) foot high chain link fence topped with a triple strand of barbed wire. Four gates provide ingress and egress to the facility. When not in use, the facility is locked and secured. A double security exists in that the main access road into the County Landfill has a gate and is secured when the Landfill is not in operation.
- Containment and Storage System: The storage building is specifically designed for hazardous materials featuring secondary containment in the event of a spill. The building is equipped with forced air ventilation and dry chemical fire suppression systems. The building has separate storage bays. A heavy-duty locked aluminum storage cabinet anchored to a concrete slab serves as the ammunition locker and does not have a dry chemical fire suppression system.
- The hazardous materials storage is under roof along with covered containment areas for storage of fluorescent bulb closed storage rack, and the waste oil tank. The containment areas are submerged and surrounded by cement reinforced containment walls.
- The storage buildings sit flush with an impervious, slightly sloped, reinforced containment area. The Facility is located inside the confines of the Manatee County Solid Waste Management Landfill Facility.

The facility is open to Manatee County residents on the third Saturday of each month from 9:00 a.m. to 3:00 p.m. Wastes that are classed as medical or radioactive are not accepted. There is not a disposal weight limit during the collections and disposal is provided free of charge to County residents. The cost of the program is funded by landfill disposal tipping fees.

A semi-annual event is held at several sites throughout Manatee County in the spring and fall of the year. Siting Locations of the event is are at the HHW Lena Road Landfill Facility and at the Utilities Department Complex, 4501 44th Street West, Bradenton, Florida, Palmetto Fairgrounds, 1303 17th St. W. Palmetto, Florida and various other County locations. All businesses participating in the collection program are referred directly to the County's contracted hazardous waste disposal vendor, who is on site, for collection and payment arrangements. Milk run collection information is provided to the commercial generator categories under the same rate schedule as that of Manatee County.

Monthly collections are being held at a temporary site location in Stage II in the new Hazardous Waste Facility located at of the Landfill. The Hazardous Waste contractor is on site at the collection to assist with unloading. The contractor bulks and lab packs any of the waste material received during the collection. Partial containers are stored in the Hazardous Waste storage building until the following monthly collection. The certified Hazardous Waste Technician reviews all paperwork and has the responsibility of approving and signing outgoing manifests.

Materials are accepted from County residents during non-operating hours by appointment only after determination by the HHW technician that the resident is unable to attend during the scheduled collection days. In addition, collection services at the residence are available for those persons who are unable to attend the event due to circumstance of health, handicap disabled or age.

Manatee County has a permanent Household Hazardous Waste program for the collection of materials at the facility. Monthly collections are conducted for the residential citizens and annual or semi-annual events for the CESQGs. These events are advertised in the County's utility billing and the local newspapers. General Household Hazardous Waste program information is available on the County's website at www.mymanatee.org/hhw.

Monthly collection events are operated by the Household Hazardous Waste Technician and two-three trained assistants. The Hazardous Waste contractor is also on site with staff and equipment to bulk and lab pack materials collected during the collection. All partial containers are stored within the Hazardous Waste storage building at the Lena Road Landfill until the following monthly collection.

4.0 Containment

4.1 Containment

- Antifreeze and aerosol cans are stored in drums along with partial drums of paint adjacent to the outside containment areas on concrete slabs covered with plastic sheeting prior to removal by the contracted vendor.
- Other wastes such as small flammables and pesticides are contained in the storage building. Paint is stored in a lined 40 yard roll off container. Crates are located on a concrete slab that is covered with and lined with plastic sheeting prior to bulking into drums. The full drums are removed the same day as paint bulking is done by the contractor.
- Storm water shall be prevented from accumulating within in-service containment structures.

5.0 Waste Acceptance Criteria

5.1 Household Waste

Household waste is accepted only during the monthly collection events *unless* circumstances of the generator prohibit such a collection time. The waste must fall within the categories permitted by the contracted collection/disposal vendor and not be of a radioactive, bio-hazardous or medical nature. A residential disposer must also have generated the waste.

5.2 CESQG Waste

CESQG waste is collected at our annual or semi-annual events by arrangement directly between the contracted collection/disposal vendor and the generator.

6.0 Personnel

6.1 Training

Facility personnel must successfully complete a 40-hour OSHA training program that teaches performance of duties in a way that ensures the facility is operated in a manner that protects them and the public from potential health and safety hazards at the site and is protective of the environment.

The instructor providing the training includes appropriate aspects of hazardous waste/material management including selection of protective clothing and equipment and emergency response. At a minimum, the training program is designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including where applicable:

- Contact List for departments to respond to fire and/or explosions, discharges to the land surface; incidents
- Shutdown of operations

Facility personnel shall take part in annual eight (8) hour refresher training.

Facility personnel has on staff at least one person who has no less than 40 hours training in appropriate aspects of hazardous waste/material management whenever waste is being received and whenever any hazardous material is being bulked or otherwise treated.

7.0 Records

The following documents and records shall be maintained at the Facility offices:

- A record of all personnel engaged in work, either full-time or temporary.
- Facility personnel who have completed a record of training.

8.0 Personnel Training Requirements

All County personnel participating in the HHW collection programs shall be trained to the appropriate level for their participation. All trained County personnel are specifically trained as Hazardous Waste Collection Staff. The HHW technician is responsible for enforcing all safety policies. The following guidelines outline the training requirements to be completed by personnel so they may safely work with hazardous materials during the collection programs. This training will, therefore, reduce the potential for hazardous material-related accidents.

8.1 Un-loaders/Paint Sorters

Training for this level is limited to on-the-job instruction. Personnel trained will have minimal contact with the waste, but will work under the direction of the certified Household Hazardous Waste Technician. After initial screening of the waste, personnel will unload the waste from the vehicles into carts. They place paint in the appropriate area for future bulking. One gallon and 5 gallon buckets are stacked in a lined 40 yard roll off container. Quarts and pints are placed into plastic lined crates.

8.2 Facility Staff

Training for this level of participation includes both classroom instruction and on-the-job training. Staff assists with opening and closing the Facility, screening incoming materials, and assisting with spills, releases, or any other emergency. Specific training includes, but is not limited to:

- HAZWOPER Operational Level (29 CFR 1910.120)
- On-the-job training in accepting, identifying, segregating, and sorting waste
- Hazardous waste rules and regulations

8.3 Hazardous Waste Operations and Emergency Response, 29 CFR.1910.120

The objective of this training is to provide personnel with the knowledge and skills necessary to safely and successfully respond to any on-site spills and/or releases. A five level classification system is used to provide appropriate training to indicate the scope of their authorized response activities:

- First Responder Awareness Level
- First Responder Operations Level
- Hazardous Materials Technician

Personnel trained in accordance with this Section shall receive annual refresher training of sufficient content and duration to maintain their competency.

9.0 Personal Protection Equipment Procedures

Personal Protective Equipment (PPE) is used to limit exposure to various hazardous materials and wastes at the Hazardous Waste Collection and Storage Facility. PPE is necessary when handling hazardous materials to prevent skin contact with harmful substances. Whenever removing and/or working with hazardous materials or waste, personnel are required to wear, at a minimum, the following protective equipment.

9.1 Unloaders/Paint Sorters

- Safety glasses
- Protective gloves
- Protective apron (optional)

9.2 Facility Staff

- Safety glasses
- Protective gloves
- Respirator with organic vapor cartridge on high efficiency particulate air filter (HEPA), if necessary, as determined by the waste material being handled.
- Steel-toed boot or safety shoes
- Protective apron

In the event of a spill or release of a hazardous material or waste, the following protective equipment is on site:

- Full-faced air purifying respirators

When specialized training is required to properly utilize personal protective equipment, this training must be provided to the employee prior to its use.

10.0 Spill/Release Procedures

The Facility Site Supervisor and/or Assistant shall be properly trained in hazardous material emergency response to efficiently mitigate, contain, and clean up any accidental spill/release that might occur at the Facility. At all times, the safety of personnel and program participants are the primary concern.

The following will be considered emergencies at the Facility:

- Fire or smoke is noticed
- An explosion occurs
- A leak or spill is discovered
- Medical emergencies, including heat induced injuries
- Discovery of explosive devices

When a spill/release or any other emergency occurs, the following guidelines will be followed:

- Cease operations/perform initial size up
- Make mental note of nature, extent, source, and amount of any released product
- Evaluate potential harm to human health and the environment
- Scene control. Keep all unauthorized persons away from the scene
- Protect individuals directing them, if not contaminated, away from the scene
- If flammable materials are involved, check for all ignition sources
- Take measures to contain release or fire from spreading to other hazardous areas as quickly as possible
- Notify 911 if warranted
- Notify Facility Manager/Director of the Solid Waste Management Facility, if necessary
- Notify State Warning Point if reportable quantity
- Perform basic first aid to stabilize any victims until EMS arrives
- Clean up any spills using compatible materials
- Place waste in proper container for disposal through the County's Hazardous Waste Transporter

Under no circumstances will the health and safety of County staff be placed in harm's way in the attempt to handle suspected explosives. If explosives are discovered, evacuate the immediate area, cease traffic flow, and notify the Manatee County Sheriff's Department Haz-Mat Team.

If a reportable quantity of a hazardous material has been spilled or released, a follow-up written report must follow within fifteen working days and be filed with the State Emergency Response Center.

An eyewash station and shower is permanently installed on site. In the event of materials being splashed into staff's eyes, minimum eyewash of fifteen minutes shall take place.

11.0 Equipment

Following is a partial list of the equipment on site:

Forklift with drum grabber	
Fire extinguishers	Assorted tools
Funnels	Utility carts
Shovels and brooms	55-gallon drums
3 and 5 gallon buckets	Traffic cones
Absorbent	Assorted tape
Neutralizing agents	Two-way radio communication
Eyewash station and shower	

12.0 Safety

Safety is the primary concern of all personnel participating at the HHW Facility. Appropriate staff is instructed in how to handle emergencies as well as site safety. The collection program is maintained in a neat and organized manner at all times. Good housekeeping practices are followed. The unloading area will be kept clean and free of excess materials. It is the responsibility of all Facility staff to follow these guidelines. No smoking signs are posted. Smoking is prohibited at the Facility.

Facility staff will assist participants by unloading vehicles, answering questions about proper disposal methods and handing out informational literature as necessary. Only hazardous waste generated by residential customers will be accepted during the HHW disposal programs. In the event a participant arrives to dispose of waste generated from a business, the CESQG hazardous waste disposal program will be explained and contractor contact information provided.

Following are guidelines to follow in processing the participants' waste.

12.1 Safety Procedures

Facility staff will, at all times, act in a safe manner. Work practices are carried out to minimize or eliminate the possibility of an injury-related accident. Proper ergonomics are followed. All personnel use correct lifting techniques in order to prevent injury to the body. Containers are removed from vehicles one at a time into the utility carts.

Appropriate Personal Protective Equipment (PPE) is worn when handling hazardous waste. Close attention is given to staff during the summer months to reduce the risk of heat related injuries. All Facility staff monitor themselves for any signs or symptoms of heat stress and act accordingly.

12.2 Removal from Vehicles

Traffic is directed from the scale house and/or by signs on the entrance road of the Landfill to the HHW Facility site. Signs to a stopping point direct all incoming cars where participants will be greeted by trained County staff. An initial spotting of the chemicals is performed before removal of chemicals from the vehicle. The participants are questioned on the contents of any unknown materials or unmarked containers. If any unacceptable or unknowns are spotted, personnel will immediately notify the Facility Site Supervisor or Assistant.

The waste from the vehicles will then be unloaded into carts by the Facility staff. Participants remain in or at their vehicles. This reduces the risks of spills or injuries. Facility staff evaluates the contents as they unload. If any leaking containers are spotted, the container will be placed into an additional container. The participant will be informed of the leak. It is not the responsibility of contractor or facility staff to clean up the leak or spill in the participant's vehicle beyond the initial containment.

13.0 Waste Segregation

County and contractor personnel transport the waste from the vehicles to the preliminary sorting areas. Cardboard boxes are flattened then placed in a dumpster designated for cardboard recycling. Any packaging, similar debris, and/or household trash will be removed and placed in the dumpsters designated for trash. The HHW technician and contractors examine all materials received. The waste is then sorted, bulked and lab packed into the appropriate shipping containers for removal. Usually used motor oil, pesticides, paints, and flammables represent the majority of the waste received.

13.1 Locker Storage

Each chemical storage unit is clearly labeled with DOT placards.

Wastes are stored according to their primary hazard. The basic categories of wastes are as follows:

- Flammables
- Pesticides
- Poisons
- Corrosives

The HHW technician shall have the final decision on what wastes to accept or not accept, classification, and any other decision regarding the waste.

13.2 Waste Bulking

Only the HHW technician determines which wastes should be bulked. All labels are read before bulking any wastes together to ensure compatibility. Safety is the major factor in bulking. No bulking shall take place in inclement weather.

Containers of compatible waste are opened and drained directly into fifty-five gallon drums. When the drum is full or bulking is discontinued for the work period, the lid shall be securely replaced. A small space for vapor expansion shall be left at the drumhead space.

Drums are required to have the proper markings adhered to them. The markings are placed so that they are clearly visible. The HHW marking contains the following information:

- The material contents
- The accumulation start date

The proper marking procedure is applied at the beginning of the bulking procedure.

13.0 Waste Segregation

The following are bulked as grouped below:

- Latex based paints,
- Oil based paints,
- Antifreeze,
- Motor oil and transmission fluid.

The wastes are compatible for bulking, and are only bulked if clearly identified by sight, smell, container, label and source. Any wastes that are not clearly identifiable are not bulked, and the unknown wastes are sent with contractor.

Paint is stored in a lined 40 yard roll off container or lined crates located on a concrete pad covered with a plastic sheet. Paint is bulked into a 55-gallon steel drum, and generally removed the same day or within 24-hours. If paint is spilled, it is contained on the plastic sheet by absorbent pads or absorbent.

Antifreeze is bulked into a 55-gallon drum. If antifreeze is spilled it is contained on the plastic sheet by absorbent pads or absorbent.

Motor oil and transmission fluid is being poured into a 20 gallon tank then pumped (or poured using a funnel) into a 500-gallon storage tank or in 375 or 275 gallon portable tanks. The bulking is done outside, under a main roof of the Hazardous Waste Facility within a containment area.

13.3 Unknowns

Unknowns are accepted. These items are materials that cannot be identified by either original labels or by participant knowledge. The following procedures are adhered to:

- Unknowns will be sent out with the contractor.
- Place material into appropriate storage building according to suspected hazards.

13.4 Electronic Waste

Electronic waste such as TVs, computer monitors, microwave ovens, telephones, keyboards, VCRs, radios, etc. are received at the Household Hazardous Waste Collection in the e-scrap staging area as shown on Figure K-2-1. The contractor is on site during the collection event and materials are sorted, palletized, shrink wrapped or put in Gaylord boxes then removed the day of the collection. A contracted e-scrap recycler removes the e-scrap for processing and recycling. Broken glass and components from broken units is swept-up on the concrete slab, and placed into a plastic container. If there is more pallets than what will fit in the contractor's trucks, the pallets of material are stored under the roof of the Household Hazardous Waste Facility until the contractor comes to pick them up.

14.0 Contingency Plan and Emergency Procedures

The following procedures serve as the Facility's guideline for Contingency Plan. Specific information may be located in the Manatee County Household Hazardous Waste Collection and Storage Facility Contingency Plan.

14.1 Purpose and Implementation of Contingency Plan

The contingency plan should be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

The provision of the plan should be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents that could threaten human health or the environment.

14.2 Content of Contingency Plan

The contingency plan describes the actions facility personnel should take to protect the public from potential health and safety hazards in response to fire, explosion or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility.

The plan lists names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinator (as described later). This list should be kept up to date. Where more than one person is listed, one should be named as primary emergency coordinator and others should be listed in the order in which they will assume responsibility as alternates.

The plan includes a list of all emergency equipment at the facility (i.e., fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), and decontamination equipment), where this equipment is required. This list should be kept up to date. In addition, the plan should include the location and physical description of each item on the list, and a brief outline of its capabilities.

The plan should include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan should describe signal(s) to begin evacuation, evacuation routes, and alternate evacuation routes in cases where the primary routes could be blocked by releases of hazardous waste or fires.

Contingency Plan and Emergency Procedures

14.3 Copies of Contingency Plan

A copy of the contingency plan and all revisions to the plan should be maintained at the facility, submitted to local police and fire departments, hospitals, and State and local emergency response teams that would be called up to provide emergency services.

14.4 Changes of Contingency Plan

The contingency plan should be reviewed, and immediately changed if necessary, whenever:

- The plan fails in an emergency
- The facility changes in its design, construction, operation, maintenance, or other circumstances in a way that increases the potential for fires, explosions, or release of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency.
- The list of emergency coordinators or emergency equipment changes

14.5 Emergency Coordinator

At all times, there should be at least one employee either on the facility premises, or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator should be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the locations and characteristics of waste handled the location of all records within the facility, and the facility layout. In addition, this person should have the authority to commit the resources needed to carry out the contingency plan.

The emergency coordinator's responsibilities vary, depending on factors such as type and variety of waste(s) handled by the facility, and type and complexity of coordinator is responsible for.

14.6 Emergency Procedures

Whenever there is an imminent or actual emergency situation, the emergency coordinator (or his/her designee when the emergency coordinator is on call) should immediately:

- Activate internal facility alarms or communication systems, where applicable, to notify all facility alarms or communication systems.
- Notify appropriate State or local agencies with designated response roles if their help is needed.

Contingency Plan and Emergency Procedures

Whenever there is a release, fire, or explosion, the emergency coordinator should immediately identify the character, exact source, amount, and the extent of any released materials. He or she may do this by observation or review of facility records, or if necessary, by chemical analysis.

Concurrently, the emergency coordinator should assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment should consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or chemical agents used to control fire, or heat-induced explosions).

If the emergency coordinator determines that the facility has had a release, fire, or explosion that could threaten human health, or the environment, outside the facility, he/she should report his findings as noted below:

- If the assessment indicates that evacuation of local areas may be advisable, the proper authorities should be immediately notified. The emergency coordinator should be available to help appropriate officials decide whether local areas should be evacuated.
- The government official designated as the on-scene coordinator for the area or the State should be notified immediately. The report should include:
 - Name and telephone number of reporter
 - Name and address of the facility
 - Time and type of incident (e.g., release, fire, explosion)
 - Name and quantity of material(s) involved, to the extent known
 - The possible hazards to human health, or the environment outside the facility.

During the emergency, the emergency coordinator shall take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other areas of the facility. These measures should include, where applicable, stopping processes and operations, collecting and containing release waste, and removing or isolating containers.

During an emergency, the emergency coordinator shall monitor for leaks, pressure buildup, gas generation, or ruptures in containers and/or equipment, wherever this is appropriate.

Immediately after an emergency, the emergency coordinator should provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material contaminated by a release, fire, or explosion at the facility.

15.0 Operations

15.1 Maintenance and Operation of Facility

The facility shall be maintained and operated to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water that could threaten human health or the environment.

All facility communications, alarm system and spill control equipment, where required, shall be tested and maintained in accordance with manufacturer's recommendations and as necessary to assure its proper operation in time of emergency.

Facility personnel shall maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spills control equipment, and decontamination equipment to any area of facility operation in an emergency.

Whenever hazardous waste facility is staffed, all personnel involved in the operation shall have immediate access to an emergency communication device, either directly or through visual or voice contact with another employee.

Normal operational procedures require one member of personnel on site. This member shall, while in the facility, have immediate access to a two-way radio capable of summoning external emergency assistance. Telephones and/or radios shall not be placed in areas where the atmosphere may become explosive due to the presence of flammable vapors, dusts, or gases.

15.2 Accumulation Time

The Household Hazardous Waste Facility will be accumulating hazardous waste on site, and shall store the material as follows:

- The waste will be placed in containers. A container is a storage building or a DOT shippable drum.
- The amount of waste accumulated will not place the facility in violation of any regulations required on a Federal, State, or Local level.
- While being accumulated on-site, each container is labeled with a description of the contents and date.

The household hazardous waste collected for treatment or disposal shall not be accumulated on site for more than 210 days. Once the capacity limit is reached, all hazardous waste collected shall be shipped to a permitted hazardous waste facility for treatment or disposal. The operator may request FDEP approval of a longer accumulation time period for specific wastes that are accumulated slowly.

15.3 Management of Containers

If a container is not in good condition or if it begins to leak, the operator shall pack the container and its contents in a larger container, seal the container and place it in the proper storage building bay.

The operator shall use containers made of or lined with materials that will not react with, and are otherwise compatible with the waste to be stored, so that the ability of the container to contain the waste is not impaired.

A container shall always be closed during storage except when it is necessary to add or remove waste. Also a container holding waste should not be opened, handled, or stored in a manner that may rupture the container or cause it to leak.

The operator shall inspect areas where containers are stored, at least weekly, looking for leaks and for deterioration caused by corrosion or other factors.

15.4 Special Requirements for Ignitable or Reactive Waste

Containers holding ignitable or reactive waste shall be located within the transfer/containment slab or within the proper hazardous waste storage building bay. An overhead fire suppression system is located in the storage buildings.

The operator shall take precautions to prevent accidental ignition of ignitable waste. This waste shall be separated and protected from sources of ignition including but not limited to: open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., from heat-producing chemical reactions), and radiant heat. The facility is a posted no smoking area.

Reactive wastes shall receive special handling as described in this section, and storage as needed to prevent unintentional reactions.

15.5 Handling Requirements for Ignitable, Reactive, or Incompatible Wastes

Repackaging or treatment, including bulking or neutralizing of ignitable, reactive, or incompatible waste is not done at this facility. A contracted transport/disposal vendor removes hazardous waste stored in the storage building.

15.6 Material Redistribution Guidelines

In the event Manatee County decides to establish a Material Redistribution Program in the future, the following shall serve as the *basic* program guideline for facility personnel.

15.6.1 Selection of Materials for Redistribution to the Public

Materials selected for exchange programs should include but not be limited to meet the following minimum criteria:

- Original containers only
- Original label with ingredients, instructions, and warnings must be present and readable
- Contents should be visually inspected and should look like correct material in new condition
- Containers should be at least three-quarters full

The following items will be excluded from redistribution programs:

- ammunition
- pesticides
- Reactive materials
- Cancelled or banned products
- Poisons

Each item selected for the redistribution program should be approved by the facility manager or his/her designee.

15.6.2 Storage

Materials designated for redistribution should be stored in a separate area of the facility. This area will be clearly marked and secured from unauthorized access.

At a minimum, secondary containment sufficient to contain the entire contents of the largest two containers in storage should be provided.

15.6.3 Customers

All customers should be at least 18 years of age and shall be allowed to ☐shop☐ only in the designated area.

15.6.4 Documentation

The redistribution program will develop and use a waiver/inventory form, pre-approved in format by the County Attorney's Office that includes the following elements:

- Customer's printed name and signature
- Date
- Name and quantity of each material received
- Liability statement ("hold harmless" statement)

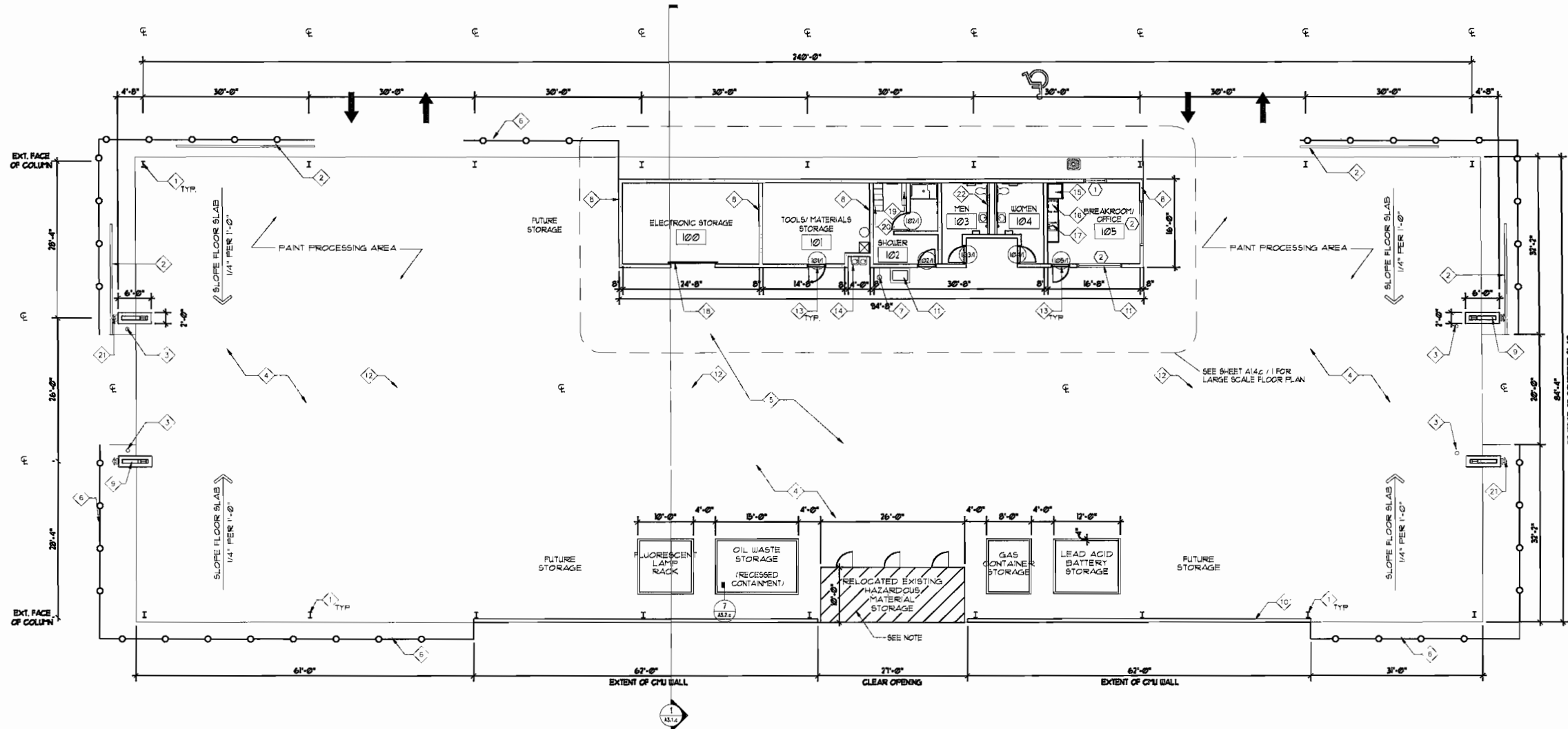
The form shall be kept on file in the offices of the facility manager or his/her designee.

16.0 Preparedness and Prevention

16.1 Arrangements with Local Authorities

The Facility Manager has arrangements with the fire department and emergency response teams for assistance in an emergency. The Facility Manager has familiarized these agencies with the potential need for services, layout of the facility, properties of the facility, types and properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to roads inside the facility, and possible evacuation routes.

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DRAWING NOTES

1

COLUMNS FOR METAL BUILDING STRUCTURE (TYP.)

2

75'-0" WIDE ROLLING GATE WITH OVER-HEAD TRACK (TYP.)

3

8" PIPE BOLLARDS

4

CONCRETE SLAB

5

PAINTED STRIPES ON CONCRETE SLAB

6

8'-0" HIGH CHAIN LINK FENCE

7

EMERGENCY SHOWER / EYE WASH COMBINATION

8

8" CMU WALLS

9

2'-0" x 6'-0" CONC. PILASTERS (SEE ELEVATION SHEET A2.1.c)

10

8" CMU - SCREEN WALL

11

UTILITY TUB/SINK

12

TRENCH DRAIN

13

THRESHOLDS

14

HI-LO ELECTRIC WATER COOLERS

15

REFRIGERATOR (N/C)

16

MICROWAVE (N/C)

17

SINK

18

OVER-HEAD DOOR

19

BENCH

20

LOCKERS

21

WALL SCONES (TYP.)

22

4" CMU WALLS - INTERIOR WALLS

NOTE:
CONTRACTOR SHALL COORDINATE WITH OWNER THE RELOCATION OF AN EXISTING HAZARDOUS MATERIAL STORAGE (PREFABRICATED BUILDING). THE EXISTING HAZARDOUS MATERIAL STORAGE SHALL BE PLACED IN ITS NEW LOCATION PRIOR TO INSTALLATION OF METAL BUILDING ROOF AND/OR STRUCTURAL MEMBERS THAT MAY INTERFERE WITH THE PLACEMENT OF THE STORAGE BUILDING.

LEGEND

CMU WALLS

INT FRAME WALLS, NON-RATED

DRAWING NOTES - SEE THIS SHEET

DOOR KEY - SEE DOOR SCHEDULE, SHEET A6.1.c

WINDOW KEY - SEE WINDOW SCHEDULE, SHEET A6.1.c

ROOM TAG - SEE FINISH SCHEDULE, SHEET A6.1.c

DETAIL KEY - SEE SHEET AS INDICATED

WALL TYPES - SEE SHEET A5.1.c

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 18 2010
SOUTHWEST DISTRICT
TAMPA

FIG. K-2-1
NEW FACILITY FLOOR PLAN
HOUSEHOLD HAZARDOUS WASTE
COLLECTION AND STORAGE FACILITY
OPERATION PLAN



5300 WEST CYPRESS ST
SUITE 300
TAMPA, FLORIDA 33607
Ph (813) 282-7275

CLIENT
MANATEE COUNTY
PROJECT MANAGEMENT
DEPARTMENT
1026 26TH AVENUE EAST
BRADENTON, FLORIDA 34206



PROJECT NAME:
LENA ROAD LANDFILL
FACILITIES PROJECT - PHASE II
MANATEE COUNTY PROJECT NO: 60083

COMMUNITY DROP-OFF
FLOOR PLAN

ORIGINAL:
REVISIONS:
1
2
3
4
5

NOT VALID FOR CONSTRUCTION
UNLESS SIGNED IN THIS BLOCK

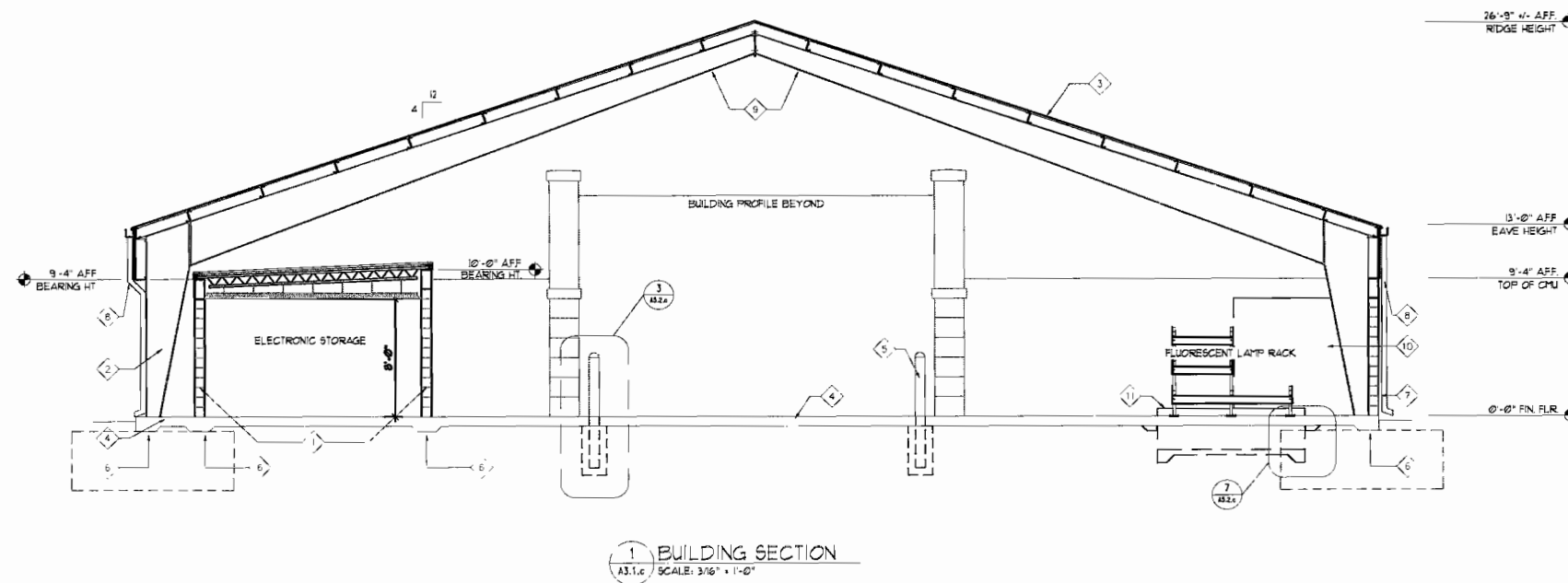
PBS&J NO 120498.13
DATE 11/25/02
DRAWN SC
CHECKED GS
OC
SHEET
A1.1.c

100% CONSTRUCTION DOCUMENTS

U:\OldH_S\ENVCADD\WASTEMAN\Manatee\Lenar\Community Drop-off\A3.1.D.dwg May 12, 2010 - 3:29pm

DRAWING NOTES

- 1 8" CMU WALLS
- 2 TYPICAL RIGID FRAME WITH TAPERED COLUMNS
- 3 STANDING SEAM METAL ROOF
- 4 CONCRETE SLAB (SEE STRUCTURAL DRAWINGS)
- 5 8" PIPE BOLLARDS
- 6 SEE STRUCTURAL DRAWINGS FOR FOUNDATION FOOTING REQUIREMENTS
- 7 METAL WALL PANELS
- 8 ALUMINUM GUTTER AND DOWNSPOUT
- 9 PRE-ENGINEERED METAL BUILDING TRUSS
- 10 RELOCATED EXISTING HAZARDOUS MATERIAL STORAGE (BEYOND)
- 11 RECESSED OIL STORAGE CONTAINMENT AREA (BEYOND)



FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 13 2010
SOUTHWEST DISTRICT
TAMPA

FIG. K-2-2
NEW FACILITY - SECTION

HOUSEHOLD HAZARDOUS WASTE
COLLECTION AND STORAGE FACILITY
OPERATION PLAN



5300 WEST CYPRESS ST
SUITE 300
TAMPA, FLORIDA 33607
Ph (813) 282-7275

CLIENT

MANATEE COUNTY
PROJECT MANAGEMENT
DEPARTMENT

1026 26TH AVENUE EAST
BRADENTON, FLORIDA 34206



PROJECT NAME:

LENA ROAD LANDFILL
FACILITIES PROJECT - PHASE II

MANATEE COUNTY PROJECT NO:

60083

COMMUNITY DROP-OFF
BUILDING SECTION

ORIGINAL:

REVISIONS:

1
2
3
4
5

PBS&J NO 120498.13
DATE 11/25/02
DRAWN SC
CHECKED GS
QC
SHEET

NOT VALID FOR CONSTRUCTION
UNLESS SIGNED IN THIS BLOCK

A3.1.c

100% CONSTRUCTION DOCUMENTS

LENA ROAD LANDFILL EQUIPMENT REPLACEMENT SCHEDULE

	MODEL/YEAR	ASSET #	CAT SERIAL NUMBER	DELIVERY DATE AMOUNT PAID	BUY BACK DATE BUY BACK AMOUNT	WARRANTY EXPIRES	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
1	Compactor 06 Cat 836H	50124	OBXD00420	9/26/2006/\$848,000	9/26/10 - \$200,000	9/26/10 or 7500 Hrs		975,000			1,060,213
2	Compactor 06 Cat 836H	50378	OBXD00426	10/30/2006/\$848,000	10/30/11 - \$200,000	10/30/11 or 7500 Hrs			1,060,213		
3	Compactor 08 Cat 836H	52582	OBXD00684	9/3/08/\$863,000	9/3/2011 - \$280,000	9/3/11 or 7500 Hrs	863,000			1,060,213	
4	Dozer 07 Cat D7 II	50640	OAEC01608	2/12/2007/\$397,000	2/12/2010 - \$160,000	2/12/10 or 7500 Hrs		479,000			
5	Dozer 07 Cat D7 II	50641	OAEC01609	2/27/2007/\$397,000	2/27/2010 - \$160,000	2/27/10 or 7500 Hrs		479,000			
6	Dozer 07 Cat D7 II	50643	OAEC01610	3/2/07/\$397,000	3/2/2010 - \$160,000	3/2/10 or 7500 Hrs		479,000			
7	Dozer 07 Cat D7 II	50642	OAEC01611	3/8/07/\$397,000	3/8/2010 - \$160,000	3/8/10 or 7500 Hrs		479,000			
8	Excavator 04 Cat 345BL	47296	OAGS02530	10/14/2004/\$320,000	10/14/09 - \$120,000	10/14/09 or 7500 Hrs				472,000	
9	Excavator 06 Cat 345CL	50365	PJW01406	10/5/2006/\$429,000	10/5/11 - \$165,000	11/14/11 or 7500 Hrs					
10	Scraper 03 Cat 623G	46268	OCES00463	1/16/2004/\$550,000	1/16/2009 - \$125,000	1/16/09 or 7500 Hrs					
11	Dozer 06 Cat D6TLGP	51116	OWCG00342	7/23/07/\$343,000		7/23/12 or 7500 Hrs				343,000	
13	Dump Truck 06 Cat 740 Ejector	49857	OB1R00254	8/17/2006/\$580,000		8/17/11 or 7500 Hrs				700,000	
14	Dump Truck 08 Cat 740 Ejector	52386	OB1R00453	7/21/08/\$595,397		7/21/13 or 7500 Hrs					
15	Dump Truck 09 Cat 740 Ejector	53618	OB1R00465	5/14/09/\$515,000		5/14/14 or 7500 Hrs	515,000				
16	Loader 05 Cat 950G	47493	AXX01429	6/22/2005/\$180,000		6/22/09 or 7500 Hrs				241,000	
17	Loader 07 Cat 950H	50843	KSK01381	5/15/07/\$241,000		5/15/12 or 7500 Hrs					
18	Loader 09 Cat 950G	53641	KS5K02393	6/10/09/\$256,436		6/10/14 or 6,000 Hrs	257,000				
19	Water Wagon 01 Cat 613C	42442	8LJ02122	7/13/2001/\$215,000							
20	Water Wagon 07 Cat 613CII	51835	8LJ03393	1/3/08/\$331,000		1/3/13 or 7000 Hrs					331,000
21	Grader 02 Cat 143H	44155	1AL01321	9/20/2002/\$173,000		9/20/2007 or 5000 Hrs					
22	Vibrating Roller 07 Saki	50574		3/9/2007/\$76,000		3/19/10 or 3000 Hrs					
23	02 John Deere 7810	44484	AAAA	12/10/2002/\$82,000						80,000	
24	02 Schulte 21' Flex Deck	45322	AAAA	6/24/2003/\$16,000						16,000	
25	06 Massey Ferguson 6495	49048	AAAA	3/17/2006/\$80,000							
26	06 Alamo Eagle 20' Flex Deck	49770	AAAA	7/19/2006/\$18,400							
27	07 Kubota M7040HDC	51225	AAAA	8/29/07 \$43,000							
28	06 6' Finish Rotary Cutter Deck	49707	AAAA	6/20/2006/\$3,500							
29	99 Bush Hog 15' Flex Deck	40672		11/17/1999/\$11,000							
30	Refueler 02 International 4300	44483		12/9/2002							
31	04 Roll-Off Truck/Containers	46828		7/13/2004/\$139,000							
32	Tarpomatic 04 28T	47295	Changed date	10/4/2004/\$75,000				90,000		90,000	
33	Tarpomatic 06 28T	49499		4/19/2006/\$82,000							90,000
34	Pump 04 6" 6V-DDST-4-2011	47366		12/13/2004/\$25,000							28,000
35	Pump 06 6" 6V-DDST-4-2011	48865		2/14/2006/\$28,000							
36	Air Compressor 99 2545E10	39965		2000/\$13,000					13,000		
37	Skag Mower 99 #STT61B-22KA	38619	Budget Cut	3/16/1999/\$7,200				16,000			
38	Grasshopper Mower 08 928D	52367		7/16/08/\$13,500							
39	Forklift 96 JCB 930B	34465		8/26/1996/\$33,000					65,000		
40	Trailer 01 Crosley 8.5x25	42631		9/28/2001\$8,000						7,800	
41	Broyhill Litter Vacuum	46320	Budget Cut*****	2/4/2004/\$8,000				35,000			
TOTAL COST REPLACEMENT							1,635,000	3,032,000	1,138,213	3,010,013	1,509,213
Equipment in red - on buy backs. ⚡Original buy back date for #50124 was 9/26/09, #50378 was 10/30/09, both in the amount of \$250,000. ****Replace together. **** Replace together. ***Replace together. Compactor prices include CAES system. *****Replace with riding vacuum. REV 11/4/09							CC: UD - Tina Fletcher, Bev Chiotti, FMD - Peggy Curtin, Sandy Kirkby Landfill - Mike Gore, Bryan White, Bob Bennett, Anthony Detweiler, Fleet - Mike Brennen, Ron Kennedy				

LENA ROAD LANDFILL EQUIPMENT REPLACEMENT SCHEDULE

[illegible]

Part L: Water Quality and Leachate Monitoring Requirements

1.0 Water Quality and Leachate Monitoring Plan

The water quality and leachate monitoring plan meets the following requirements:

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 18 2010
SOUTHWEST DISTRICT
TAMPA

- a. Based on the information obtained in the hydrogeological investigation and previous permit, this water quality and leachate monitoring plan is signed, dated and sealed by the PG or PE as given on the cover page who prepared it; (62-701.510(2)(a), F.A.C.)
- b. Water Quality Monitoring Quality Assurance
 - 1) All fieldwork done in connection with the facility's Water Quality Monitoring Plan shall be conducted in accordance with the Standard Operating Procedures (SOPs) described in DEP-SOP-001-01 dated March 31, 2008 as referenced in Rule 62-160.210(1), F.A.C. All laboratory analyses done in connection with the facility's Water Quality Monitoring Plan shall be conducted by firms that are certified by the Department of Health Environmental Laboratory Certification Program under Chapter 64E-1, F.A.C., where such certification is required by Rule 62-160.300(1), F.A.C., and in accordance with the schedule referenced in Rule 62-160.300(2), F.A.C. The SOPs utilized and the laboratory's list of certified test methods and analytes must specifically address the types of sampling and analytical work that are required by the permit and shall be implemented by all persons performing sample collection or analysis related to this permit. Alternate field procedures and laboratory methods may be used if approved according to the requirements of Rules 62-160.220 and 62-160.330, F.A.C., respectively.
- c. Ground Water Monitoring Wells
 - Ground Water Monitoring Well Locations - The existing Stage I and III Landfill ground water monitor wells are listed in Table L-1, and the locations shown on Figure L-1. The ground water monitoring wells proposed for the Stage II Landfill are also listed in Table L-1 and the locations shown on Figure L-2. The Stage II Landfill wells and piezometers will be installed approximately six months before the start of filling in the Stage II Landfill. The wells are spaced approximately 1000 feet apart on the upstream side of the landfill and 500 feet apart on the downstream side.
 - All wells shall be clearly labeled and easily visible at all times. The permittee keeps all wells locked to prevent unauthorized access.

Part L: Water Quality and Leachate Monitoring Requirements

Table L-1
Ground Water Monitoring Wells

Existing Stage I and III Landfill Ground Water Monitoring Wells

<u>Well Number</u>	<u>WACS Test site</u>		<u>Well Designation</u>
	<u>ID Number</u>	<u>Aquifer</u>	
GW-1	21593	Surficial	Detection
GW-2	21594	Surficial	Detection
GW-3	21595	Surficial	Detection
GW-4	21596	Surficial	Detection
GW-5	21597	Surficial	Detection
GW-6	21598	Surficial	Detection
GW-7	21599	Surficial	Detection
GW-8	21600	Surficial	Detection
GW-9	21601	Surficial	Detection
GW-10	21602	Surficial	Detection
GW-11	21603	Surficial	Detection
GW-12	21604	Surficial	Detection
GW-13	21605	Surficial	Detection
GW-14	21606	Surficial	Detection
GW-15	21607	Surficial	Detection
GW-16	21608	Surficial	Detection
GW-17	21610	Surficial	Detection
BGW-1	21610	Surficial	Background

Proposed Stage II Landfill Ground Water Monitoring Wells

GW-18	Surficial	Detection
GW-19	Surficial	Detection
GW-20	Surficial	Detection
GW-21	Surficial	Detection
GW-22	Surficial	Detection
GW-23	Surficial	Detection
GW-24	Surficial	Detection
GW-25	Surficial	Detection
GW-26	Surficial	Detection
GW-27	Surficial	Detection
GW-28	Surficial	Detection

BGW – Background Groundwater Monitoring Well

GW – Groundwater Monitoring Well

Note 1. Groundwater monitoring wells are located outside of the slurry wall.

Note 2. GW-1 and GW-2 shall be abandoned after installation of the Stage II ground water monitoring system.

Part L: Water Quality and Leachate Monitoring Requirements

Table L-2
Hydraulic Gradient Monitoring Points

Existing Stage I and III Landfill Monitoring Points

<u>Interior Monitoring Point</u>	<u>Exterior Monitoring Point</u>
P-1	GW-1
P-2	GW-2
P-3	GW-3
P-4	GW-4
P-5	GW-5
P-6	GW-6
P-7	GW-7
P-8	GW-8
P-9	GW-9
P-10	GW-10
P-11	GW-11
P-12	GW-12
P-13	GW-13
P-14	GW-14
P-15	GW-15
P-16	GW-16
P-17	GW-17

Proposed Stage II Landfill Monitoring Points

P-18	GW-18
P-19	GW-19
P-20	GW-20
P-21	GW-21
P-22	GW-22
P-23	GW-23
P-24	GW-24
P-25	GW-25
P-26	GW-26
P-27	GW-27
P-28	GW-28

P – Piezometer

GW – Groundwater Monitoring Well

Note 1. Piezometers are located inside of the slurry wall, and groundwater monitoring wells are located outside of the slurry wall.

Note 2. GW-1, GW-2, PZ-1 and PZ-2 shall be abandoned after the Stage II Landfill monitoring system is installed.

Part L: Water Quality and Leachate Monitoring Requirements

- Hydraulic Gradient Monitoring points are located on Figure L-1. The hydraulic gradient across the slurry wall shall be measured at the monitoring points listed in Table L-2. These points shall be monitored monthly for water levels to an accuracy of 0.01 feet. Results of the monthly monitoring shall be submitted by the 15th day of the following month. An inward gradient shall be maintained across the slurry wall. If an outward gradient exists, steps for correcting the gradient shall be included with the related monthly data. Damaged gradient monitoring points shall be replaced within thirty (30) days to ensure continuous monthly monitoring at all points.
 - Well Abandonment - All wells and piezometers not a part of the approved Water Quality Monitoring Plan shall be plugged and abandoned in accordance with F.A.C. Rule 62-532.440, and the Southwest Florida Water Management District (SWFWMD). The permittee shall submit a written report to the Department documenting verification of the well abandonment within ninety (90) days of abandonment. Documentation of abandonment shall include a map showing piezometer/well locations and SWFWMD abandonment records. A written request for exemption to the abandonment of a well must be submitted to the FDEP's Solid Waste Section for approval.
- d. Surface Water Monitoring - The surface water monitoring stations are given in Table L-3, and the locations are shown on Figure L-1.

Table L-3
Surface Water Monitoring Points

<u>Surface Water</u>	<u>WACS Test site ID #</u>	<u>Sample Type</u>	<u>Location</u>
SW1	1663	Downstream	Cypress Strand
SW2	1665	Upstream	Cypress Strand

- e. Leachate Sampling Locations - Leachate shall be sampled from each lift station that receives flow from waste-filled areas. This includes lift stations No. 1, No. 2 and No. 3 as shown on Figure L-1. When solid waste is placed in the Stage II Landfill, leachate samples will be taken from Pump Station 4.
- f. Initial and Routine Sampling Frequency and Requirements
- 1) Ground Water Monitoring Well Construction - Prior to construction of any new wells, the permittee shall request and receive Department approval of a minor permit modification, unless otherwise approved in writing by the Department. New wells and piezometers will be installed as shown on Figure L-2.

Part L: Water Quality and Leachate Monitoring Requirements

- Documentation for each well installed shall be submitted on FDEP Form No. 62-522.900(3) Monitor Well Completion Report.
 - Within one (1) week of well completion and development, each new well shall be sampled for the parameters listed in F.A.C. Rules 62-701.510(8)(a) and (d), to establish initial ground water quality for each new well.
 - A surveyed drawing shall be submitted in accordance with F.A.C. Rule 62-701.510(3)(d)(1), showing the location of all monitoring wells (active and abandoned) horizontally located in degrees, minutes and seconds of latitude and longitude and the elevation of the top of the well casing to the nearest 0.01 foot, National Geodetic Vertical Datum. The surveyed drawing shall include the monitor well identification numbers, locations and elevations of all permanent benchmarks and/or corner monument markers at the site. The survey shall be conducted by a Florida Registered Surveyor.
- 2) Leachate Sampling – A leachate sample shall be collected prior to pumping from Leachate Pump Stations No. 1, No.2 and No.3. When waste is placed in the Stage II Landfill, Pump station No.4 shall also be sampled. The leachate samples shall be analyzed annually for the following monitoring parameters:

Leachate shall be sampled in accordance with Rule 62-701.510(6) (c), F.A.C., for analysis of the following parameters:

Field Parameters

Specific Conductivity
pH
Dissolved Oxygen
Colors & Sheens
(by observation)

Laboratory Parameters

Total Ammonia - N
Bicarbonate
Chlorides
Iron
Mercury
Nitrate
Sodium
Total Dissolved Solids (TDS)
Parameters in 40 CFR Part 258, Appendix II

If the annual leachate influent analysis indicates that a contaminant listed in 40 CFR Part 261.24 exceeds the regulatory level listed therein, the permittee shall initiate monthly sampling and analysis of the parameters listed in a) and shall notify the Department in writing. If in any three (3) consecutive months no listed contaminant is found to exceed the regulatory level, the permittee may discontinue the monthly sampling and analysis and return to a routine sampling schedule.

Part L: Water Quality and Leachate Monitoring Requirements

- 3) Ground Water Sampling - All detection and background wells shall be sampled in accordance with F.A.C. 62-701.510(6)(c) and analyzed every six (6) months for the ground water monitoring parameters listed as follows:

Field Parameters

Static Water Level
before purging
Specific Conductivity
pH
Dissolved Oxygen
Turbidity
Temperature
Colors & Sheens
(By observation)

Laboratory Parameters

Total Ammonia - N
Chlorides
Iron
Mercury
Nitrate
Sodium
Total Dissolved Solids (TDS)
Those parameters listed in 40 CFR
Part 258, Appendix I

Water levels shall be measured in all site wells listed in Table M-1. Additional samples, wells, and parameters may be required based upon subsequent analysis. Method detection limits must meet, or be lower than that parameter's Maximum Contaminant Level in order to demonstrate compliance with Class G-II Ground Water Standards referenced in Chapter 62-550, F.A.C. Compliance with ground water standards shall be based on unfiltered samples. At GW-11, the water table may be found above the top of screen at the time of a scheduled sampling event. GW-11 sampling should be delayed until the water level in the well is below the top of screen.

- 4) Surface water monitoring stations shall be sampled in accordance with F.A.C. Rule 62-701.510(6) (e), every six (6) months, for the following parameters:

Field Parameters

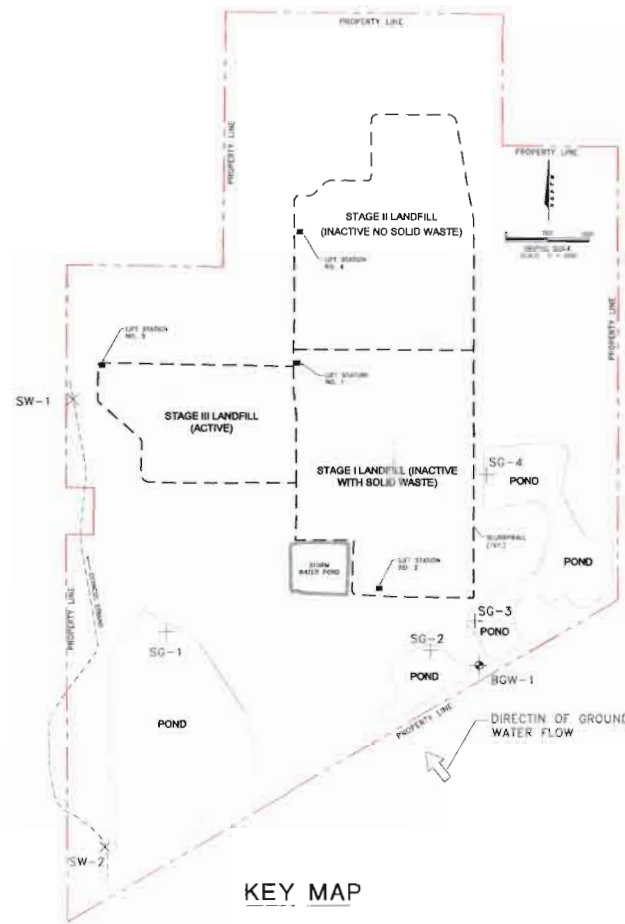
Specific Conductivity
pH
Dissolved Oxygen
Turbidity
Temperature
Colors & Sheens
(by observation)

Laboratory Parameters

Unionized Ammonia
Nitrate
Total Nitrogen
Total Phosphates
Total Dissolved Solids (TDS)
Total Suspended Solids (TSS)
Chlorophyll A
Fecal Coliform
Biochemical Oxygen Demand (BOD₅)
Chemical Oxygen Demand (COD)
Total Organic Carbon (TOC)
Total Hardness
Copper
Iron
Mercury
Zinc
Those parameters listed in 40 CFR
Part 258, Appendix I

Part L: Water Quality and Leachate Monitoring Requirements

- g. Verification/Evaluation Monitoring - If at any time monitoring parameters are detected at concentrations significantly above background water quality, or exceed the Department's water quality standards or criteria at the edge of the zone of discharge, the permittee has thirty (30) days within receipt of the laboratory data to resample the monitor well(s) to verify the original analysis. Should the permittee choose not to resample, the Department will consider the water quality analysis representative of current ground water conditions at the facility, and evaluation monitoring/corrective action as described in F.A.C. Rule 62-701.510(7) may be required.
- h. Water Quality and Leachate Reporting Requirements
 - 1) Semi-annual Report Requirements - All ground water, surface water, and leachate monitoring analyses shall be reported on the Department Form 62-522.900(2), Ground Water Monitoring Report. The permittee shall submit to the Department the results of the ground water and surface water quality analyses by July 15th and January 15th of each year for the semi-annual periods January-June and July-December, respectively. The permittee shall submit to the Department the results of the leachate quality analyses by January 15th of each year. The items listed in F.A.C. Rule 62-701.510(9) (a), including, but not limited to, a ground water contour map representing conditions at the time of ground water sampling shall be submitted with each set of analytical results. All exceedances of water quality standards shall be noted. The results shall be sent to: Solid Waste Section, Florida Department of Environmental Protection, Southwest District Office, 13051 North Telecom Parkway, Temple Terrace, Florida 33637-0926.
 - 2) Water quality data will be submitted to the Department in an electronic format consistent with the requirements for importing into Department databases.
 - 3) Water Quality Monitoring Plan Evaluation - Every two and one-half years, the permittee shall submit to the Department by the dates listed in the Permit an evaluation of the Water Quality and Leachate Monitoring Plan as described in F.A.C. 62-701.510(9). The evaluation shall include the applicable information as required by F.A.C. 62-701.510(9), and shall include an evaluation of the adequacy of the water quality monitoring frequency and sampling locations based upon site conditions.



LIFT STATION
NO. 3

GW-8

PZ-7

GW-7

GW-6

PZ-6

GW-5

PZ-5

GW-4

PZ-4

GW-3

PZ-3

LIFT STATION
NO. 1

GW-2

PZ-2

GW-1

PZ-1

GW-9

GW-10

PZ-10

**STAGE III LANDFILL
(ACTIVE)**

PZ-11

GW-11

GW-12

STORMWATER
POND

GW-13

PZ-13

LIFT STATION
NO. 2

PZ-14

GW-14

PZ-15

GW-15

PZ-16

GW-16

PZ-17

GW-17

PZ-18

GW-18

PZ-19

GW-19

PZ-20

GW-20

PZ-21

GW-21

PZ-22

GW-22

PZ-23

GW-23

PZ-24

GW-24

PZ-25

GW-25

PZ-26

GW-26

PZ-27

GW-27

PZ-28

GW-28

**STAGE II LANDFILL
(INACTIVE NO SOLID WASTE)**

**STAGE I LANDFILL
(INACTIVE WITH SOLID WASTE)**

* TO BE INSTALLED PRIOR
TO PLACING SOLID
WASTE IN THE STAGE II
LANDFILL



LEGEND:

- GW-18 ♦ MONITORING WELL LOCATIONS
- GP-18 ○ PIEZOMETER LOCATIONS
- STAGE BOUNDARY
- LEACHATE LIFT STATIONS
- SW-1 × SURFACE WATER SAMPLING POINT
(SEE KEY MAP)
- SG-3 + STAFF GAUGE LOCATIONS
(SEE KEY MAP)
- PROPERTY BOUNDARY
(SEE KEY MAP)

NOTE:

1. SEE L-2 FOR MONITORING WELL AND PIEZOMETER INSTALLATION DETAILS.
2. PZ-1 THROUGH PZ-17 AND BGW-1, GW-1 THROUGH GW-17 ARE EXISTING. PZ-18 THROUGH PZ-28 AND GW-18 THROUGH GW-28 SHALL BE INSTALLED PRIOR TO FILLING IN STAGE II LANDFILL.
3. AFTER INSTALLATION OF THE STAGE II LANDFILL MONITORING WELLS AND PIEZOMETERS, GW-1, GW-2, PZ-1 AND PZ-2 SHALL BE ABANDONED.

L-1



482 South Keller Road
ORLANDO, FL 32810-6101
TEL: (407) 647-7275
FAX: (407) 647-0624
WWW.PBSJ.COM
POST: BUCKLEY, SCHUB & JERNIGAN, Inc.
P.O. BOX 1000
500 West Cypress Street Suite 200
Orlando, FL 32807
FBI's Certificate of Authorization No. 24

CLIENT
**BOARD OF COUNTY COMMISSIONERS
MANATEE COUNTY
FLORIDA**

PROJECT
**LENA ROAD CLASS I LANDFILL
PERMIT RENEWAL 2009**

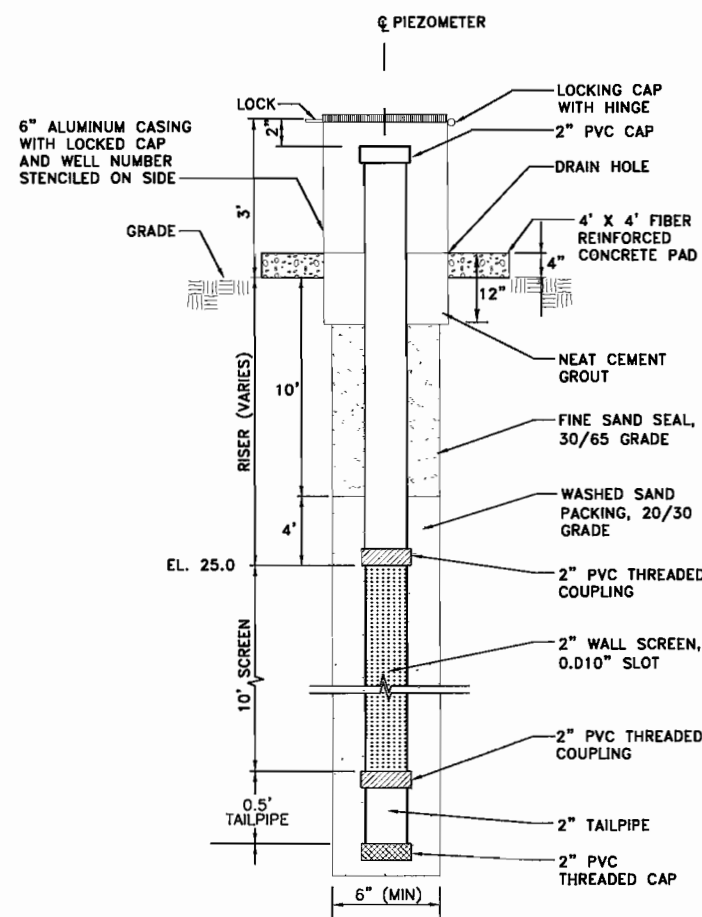
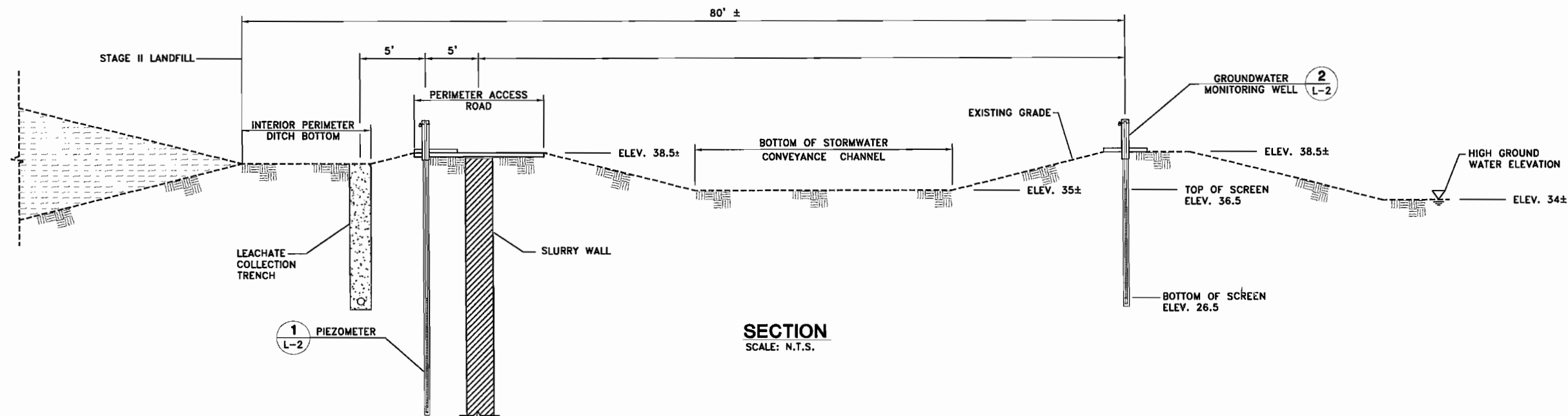
TASK
**WATER QUALITY AND ELEVATION
MONITORING NETWORK**

ORIGINAL NOV. 2009
REVISIONS:
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10.
11.
12.

Name: Joseph L. Miller
Florida P.E. No.: 39177
Address: PBSJ
482 S. Keller Road
Orlando, FL 32810-6101
Signature _____ Date _____

JOB NO. 100308517
DRAWN RGC
DESIGN RGC/JLM
CHECKED JLM
O.C. DED
SHEET 1/2



CONSTRUCTION NOTES:

- ALL WORK SHALL BE DONE BY A FLORIDA CERTIFIED WATER WELL DRILLER.
- NEW MONITORING WELLS AND PIEZOMETERS SHALL BE INSTALLED PER ASTM D-5092 (1995) E1-STANDARD PRACTICE FOR DESIGN AND INSTALLATION OF GROUND WATER MONITORING WELLS IN GRANULAR AQUIFERS, AND THE FOLLOWING DOCUMENTATION SUBMITTED TO FDEP WITH COPIES TO THE OWNER AND ENGINEER.
 - FDEP FORM 62-520.900(3) MONITORING WELL COMPLETION REPORT
 - A SURVEY DRAWING SHALL BE SUBMITTED IN ACCORDANCE WITH F.A.C. RULE 62-701.510(3) (D) (1). SHOWING THE LOCATION OF ALL MONITORING WELLS (ACTIVE AND ABANDONED) HORIZONTALLY LOCATED IN DEGREES, MINUTES AND SECONDS OF LATITUDE AND LONGITUDE, AND THE ELEVATION OF THE TOP OF THE WELL CASING TO THE NEAREST 0.01 FOOT, NATIONAL GEODETIC VERTICAL DATUM. THE SURVEYED DRAWING SHALL INCLUDE THE MONITOR WELL IDENTIFICATION NUMBERS, LOCATIONS AND ELEVATIONS OF ALL PERMANENT BENCHMARKS AND /OR CORNER MONUMENT MARKER AT THE SITE. THE SURVEY SHALL BE CONDUCTED BY A FLORIDA REGISTERED SURVEYOR.
- ALL REPORTS SHALL BE SENT TO: JOHN MORRIS, P.G. SOLID WASTE SECTION, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SOUTHWEST DISTRICT OFFICE, 13051 NORTH TELECOM PARKWAY, TEMPLE TERRACE, FL 33637-0926; AND ALSO TO: SOLID WASTE SECTION, DEPARTMENT OF ENVIRONMENTAL PROTECTION, 3900 COMMONWEALTH BOULEVARD, M.S. 4565, TALLAHASSEE, FL 32399-3000.

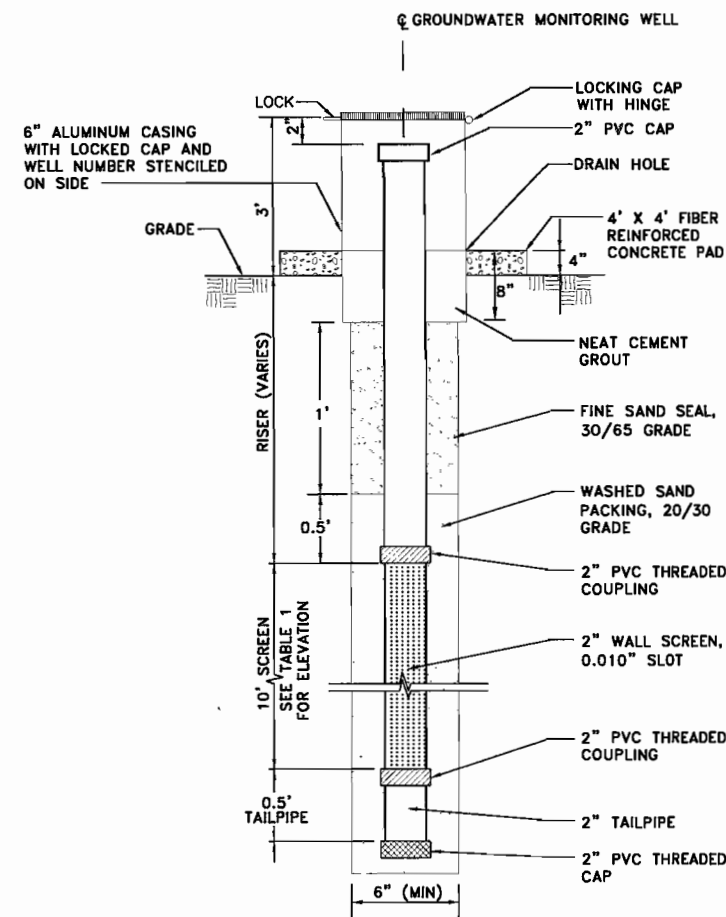


TABLE 1

WELL	ELEVATION OF SCREEN INTERVAL (FEET-NGVD)
GW-18	26.5-36.5
GW-19	26.5-36.5
GW-20	26.5-36.5
GW-21	26.5-36.5
GW-22	26.5-36.5
GW-23	26.5-36.5
GW-24	26.5-36.5
GW-25	26.5-36.5
GW-26	26.5-36.5
GW-27	26.5-36.5
GW-28	26.5-36.5

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PART M SPECIAL WASTE HANDLING REQUIREMENTS

- 1 Procedures for managing motor vehicles can be found in Part K Operation Plan – K 14.a.
- 2 Procedures for landfilling shredded waste can be found in Part K Operation Plan – K 14.b.
- 3 Procedures for asbestos waste disposal can be found in Part K Operation Plan K 14.c.
- 4 Procedures for disposal or management of contaminated soil can be found in Part K Operation Plan K 14.d.
- 5 Procedures for disposal of biological wastes can be found in Part K Operation Plan K 14.e.

Part N: Gas Management System Requirements

1. Design of the Gas Management System

The landfill gas management system for the Stage I Landfill is covered by Permit No. 39884-011-SF/01 dated October 19, 2006 with an expiration date of October 19, 2011. This permit includes the flare. The Stage I Landfill gas collection system and flare has been constructed and is in operation. The Stage III Landfill gas management system is covered by Permit No. 39884-016-SC/08 dated October 22, 2008 with an expiration date of October 19, 2011. The first phase of the Stage III landfill gas collection system was constructed and connected to the flare. The system is scheduled for expansion as the landfill is filled with solid waste. The landfill gas management system was designed to:

- a. Prevent concentrations of combustible gases from exceeding 25% of the LEL in structures and 100% of the LEL at the property boundary;
- b. For site-specific conditions;
- c. Reduce gas pressure in the interior of the landfill; and,
- d. Not to interfere with the liner, leachate control system or final cover.

2. Landfill Gas Migration Monitoring

See Part K Operation Plan Section 9.0 Gas Monitoring for the landfill gas migration monitoring system.

3. Gas Remediation Plan and Odor Remediation Plan

3.1 Gas Monitoring

- 3.1.1 Landfill gas shall be monitored in accordance with Part K - Lena Road Landfill Operation Plan, Section 9.0 – Gas Monitoring, and as required by F.A.C. 62-701.500 (9). The landfill gas control system shall be operated, monitored and maintained in accordance with the 1999 “Manatee County, Lena Road Landfill Operation and Maintenance Manual for Landfill Gas & Environmental Products, Inc. Triton CF – 3000 Candle Flare (300-3000 SCFM)” or subsequent revisions or replacement manuals necessary for continued compliance.
- 3.1.2 The results of the quarterly monitoring as required by F.A.C. 62-701.530(2) (c), shall be submitted by the following dates each year:

Quarter 1 - April 15 th	Quarter 3 - October 15 th
Quarter 2 - July 15 th	Quarter 4 - January 15 th
- 3.1.3 The locations of the gas ambient monitoring points and soil monitoring probes are shown on Figure K-8 and listed on Figure K-9 which can be found in Part K Operation Plan. The

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Part N: Gas Management System Requirements

points and probes shall be sampled at least quarterly for the Lower Explosive Limit (LEL) of methane, as described in F.A.C. 62-701.530(2).

- 3.1.4 Soil monitoring probes are to be clearly labeled and easily visible at all times. Sampling shall be conducted in the headspace of the monitoring probe without purging the gas before collecting the sample. If a probe is damaged or lost, the Department notified and the probe shall be replaced within 30 days.

3.2 Gas Remediation Plan

If combustible gas concentrations exceed 25% of the Lower Explosive Limits (LEL) inside structures both on and off the landfill site, or are greater than 100% at the property limit, the owner or operator shall:

- Immediately take all necessary steps to ensure protection of human health and notify the Department; and,
- Within seven days of detection, submit to the Department for approval a gas remediation plan for gas releases. The plan shall describe the nature and extent of the problem and the proposed remedy. The remedy may include some or all of the gas management system design contained in 62-701.530 (1). The remedy shall be completed within 60 days of the detection unless otherwise approved by the Department.

3.3 Odor Remediation Plan

The facility shall be operated to control objectionable odors in accordance with Rule 62-296.320(2), F.A.C. If gas concentrations cause objectionable odors beyond the landfill property, the owner or operator shall:

- On days when the landfill is receiving solid waste, the landfill manager, or his designated representative, shall drive around the perimeter of the landfill and smell for odors;
- Keep a log of the date, time and location of any odor complaints reported by landfill staff or from residents;
- Visit the location of the odor complaint and confirm the odor;
- Check to see that the flare is in operation;
- Check the flare operation record to see if the flare has been out of operation and when and for how long;
- Check the landfill surface emissions and penetrations to see if there is a gas leak from the landfill;
- Check to see if any wells are closed;
- Adjust the well heads to increase vacuum to well heads in the location of any suspected gas leaks;
- Implement a routine odor monitoring program to determine the timing and extent of any off-site odors; and,

Part N: Gas Management System Requirements

- If the monitoring program confirms the existence of objectionable odors, submit to the Department for approval an odor remediation plan for the gas releases. The plan shall describe the nature and extent of the problem and the proposed remedy. The remedy shall be initiated within 30 days of approval.

4. Landfill Gas Recovery Facility

- a. The information required in Rules 62-701.320(7) and 62-701.330(3) F.A.C. is included as applicable in this application.
- b. The information required in Rule 62-701.600(4), FAC Closure Requirements is not relevant.
- c. The landfill gas generation estimate for the Lena Road Class I Landfill was submitted with the Stage III Landfill Gas Collection System Construction Permit Application dated January 31, 2008. Condensate is drained back into the landfill and collected by the leachate collection system.
- d. Condensate is not sampled and analyzed separately from the leachate.
- e. It is anticipated that the landfill gas collection and flaring system will operate for 30 years during the long-term care period which begins after the landfill closure certification is accepted by the Department.
- f. The landfill gas collection and flaring system construction and long-term care costs are included in the Landfill Closure and Long-Term Care Cost Estimate.

Part O: Landfill Closure Requirements

O 1. CLOSURE PERMIT REQUIREMENTS

a. Submittal of Application for Closure

An application for final closure with the Closure Plan will be submitted to the Department at least 90 days prior to final receipt of wastes.

b. Closure Plan

This Closure Plan is in accordance with Section 62-701.600, F.A.C.

The Closure Plan includes:

- (1) Closure design
- (2) Closure operation plan
- (3) Long-term care Plan
- (4) A demonstration that proof of financial responsibility for long-term care will be provided

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O2 CLOSURE DESIGN PLAN

The landfill closure is shown on the Final Landfill Closure Drawings dated January 2005, which are included with this permit application submitted November 11, 2009. A complete list of drawings is given on the cover page.

- a. Plan Sheet showing Phases of site closing - The closure-phasing plan is shown on Final Closure Drawing C-2.
- b. Drawing showing existing topography and proposed final grades - The existing topography and proposed final grades are shown on Final Closure Drawing C-2.
- c. Provisions to close units when they reach approved design dimensions - The landfill closure-phasing schedule is shown on Final Closure Drawing C-2.
- d. Final elevations before settlement - The final design elevations before settlement are shown on Final Closure Drawing C-2.
- e. Side slope design - The landfill side slope between terraces is 5H:1V. Including terraces, the overall side slope from the toe of the solid waste to the crest of the landfill is 6H:1V. This is much flatter than the 3H:1V maximum side slopes permitted by the FDEP regulations. The side slope and foundation analysis for the overall stability of the landfill was submitted with Part J, and showed that the landfill was stable. The closure design calls for a textured geomembrane on the side slopes covered by a bonded composite geonet with at least an 8-ounce geotextile. The angle of friction between the protective cover soil of sand and the geotextile is at least 26°. By the infinite slope method of analysis, the factor of

Part O: Landfill Closure Requirements

safety for the cover soil sliding on a 5H:1V (11.31°) plane between the soil and the geotextile is 2.45 (F.S. = $\tan 26^\circ / \tan 11.31^\circ$).

f. Final Cover Installation Plans

- (1) The CQA plan for installing and testing final cover is included in Appendix A of Part P in the Application submitted on November 11, 2009.
- (2) Schedule for Installing Final Cover After Final Receipt of Waste - The schedule for installing final cover after final receipt of waste is shown on Final Closure Drawing C-2.
- (3) Description of drought-resistant species to be used in the vegetation cover - Bahia Sod is the drought-resistant species to be used in the vegetation cover.
- (4) Top gradient design to maximize runoff and minimize erosion - The top gradient is 4.2% to maximize runoff and minimize erosion.
- (5) Provisions for cover material to be used for final cover maintenance - A 100 cubic yard cover soil stockpile will be kept at the location shown on Final Closure Drawing C-2 to provide cover soil material for final cover maintenance.

g. Final Cover Design Requirements

A typical section of the final cover is shown on Final Closure Drawing C-5 in the Typical Final Cap Detail. The final cover will consist of:

- A 6-inch thick bedding for the geomembrane barrier layer. The bedding will consist of soil, which is primarily sand with at least 100% passing a ½ inch sieve. The intermediate cover may be used as bedding if it meets this gradation and is free of all vegetation, roots and other debris that may puncture the geomembrane.
- A geomembrane barrier layer, which will be a 40-mil LLDPE geomembrane liner. The geomembrane will be textured on the side slopes, and smooth on all slopes flatter than 5H:1V. The LLDPE geomembrane used in the barrier layer will be a semi-crystalline thermoplastic with at least 40 mils average thickness as defined by method GRI GM13, with a maximum water vapor transmission rate of 2.4 g/(m²×day), have a chemical and physical resistance to materials it may come in contact with and withstand exposure to the natural environmental stresses and forces throughout the installation, seaming process and settlement of the waste during the closure and long-term care period.
- A double composite geonet with an 8-oz non-woven geotextile for protection of the barrier geomembrane and drainage of the protective soil layer.
- A 24-inch protective soil layer, which will consist primarily of sand with 100% passing the ½ inch sieve.
- Bahia sod will be placed over the protective soil as a drought-resistant species for the vegetative cover.

Part O: Landfill Closure Requirements

- h. Proposed Method of Stormwater Control - Collecting runoff in terraces at approximately El. 55, El. 75, El. 95 and El. 110 will control stormwater. The terrace will be sloped to stormwater inlets approximately 300 feet apart. The stormwater inlets will transfer the runoff to polyethylene stormwater pipes that will safely carry the stormwater to the toe of the landfill without erosion. At the end of the stormwater pipe there will be an energy dissipator to transfer the runoff to the perimeter stormwater swale without erosion. The location for the stormwater inlets and pipes are shown on Final Closure Drawing C-2 Final Grading and Drainage Plan. Typical sections and details for the storm water control system are shown on Drawings C-3, C-4 and C-5.
- i. Proposed method of Access Control - The landfill property is fenced as a method of access control. After final closure is complete, the fence will be maintained and the gate locked as a method of access control.
- j. Description of the Proposed or Existing Gas Management System, which Complies with Rule 62-701.530, FAC - There is a landfill gas collection system and flare for the Landfill. This system will be expanded as the landfill is filled. The landfill gas collection system is shown on Final Closure Drawings C-6, C-7 and C-8.

O 3. CLOSURE OPERATION PLAN (62-701.600(4) FAC)

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

The owner or operator is responsible for the closure procedures as follows:

1. Send out the notice that landfill will close.
2. Apply for final closure of the landfill at least 90 days before the date when wastes will no longer be accepted. The application shall be on Form 62-701.900(1). If the landfill is in operation under a Department permit, the owner or operator shall request a modification of the permit in lieu of submitting a closure permit application. The application or request shall include a closure plan.
3. Prepare a request for proposals from contractors to construct the landfill closure as permitted by FDEP.
4. Award a contract to construct the closure.
5. The contractor will:
 - Clear vegetation from the landfill surface where the cap will be installed
 - Regrade and fill depression on the landfill surface to get the slopes as shown on the final closure drawing and eliminate any depressions that may pond water
 - Proof roll the landfill surface and correct grades as needed
 - Install any remaining landfill gas extraction wells required by the closure
 - Place the 6-inch bedding for the geomembrane
 - Place the geomembrane
 - Place the bonded composite geonet

Part O: Landfill Closure Requirements

- Install the landfill gas laterals and connect the landfill gas extraction wells to the header.
 - Place the stormwater inlets, downcommer pipes and energy dissipators
 - Place the 24-inch layer of protective soil cover
 - Place the sod
 - Prepare the record construction drawings with the final landfill topography
- b. The closure procedures required by 62-701.610 FAC, shall be as follows:
- The Department shall specify in the closure permit which particular closing steps or operations must be inspected and approved by the Department before proceeding with subsequent closure actions
 - After closure is completed, the owner or operator shall prepare a final survey or aerial mapping of the closed landfill.
 - A certification of closure construction completion, signed, dated and sealed by a professional engineer independent of the contractor, shall be provided to the Department upon completion of closure. All substantial deviations from the permitted closure plan shall be noted.
 - After closure operations are inspected and approved by the Department, the landfill owner or operator shall file a declaration to the public in the deed records in the office of the county clerk in the county in which the landfill is located. The declaration shall include a legal description of the property on which the landfill is located and a site plan specifying the area actually filled with solid waste. The declaration shall also include a notice that any future owner or user of the site should consult with the Department prior to planning or initiating any activity involving the disturbance of the landfill cover, monitoring systems or other control structures. A certified copy of the documentation shall be filed with the Department.
 - Upon receipt of the documents required, which are the survey, closure certification and declaration to the public, the Department shall within 30 days acknowledge by letter to the facility operator that notice of termination of operation and closing of the facility has been received. If the entire landfill has been closed, the date of this letter shall be the official date of landfill closing for the purpose of determining the long-term care period. If only a portion of the landfill has been closed, the long-term care period will begin upon the closing of the entire landfill, unless the portion, which has been closed, can be monitored and maintained separately from the rest of the landfill. The date of this letter shall be the official date of landfill closing for the purpose of determining the long-term care period.

Part O: Landfill Closure Requirements

Time schedule for completion of closing and long-term care - The time schedule for closure of each stage of the landfill is included on the Landfill Closure Phasing Plan on Final Closure Drawing C-2. Stage II, the final landfill stage, is projected to be full in 2038. Due to the size and complexity of the closure, the final closure work will take two years. The closure should be completed by January 2043, and the 30-year long-term care and monitoring will continue until 2073.

- c. Describe proposed method for demonstrating financial responsibility - The proposed method for demonstrating financial responsibility is given in Part R of this application.
- d. Development and Implementation of the Water Quality Monitoring Plan Required in Rule 62-701.510 FAC - The Water Quality Monitoring Plan is included in Part O of this application.
- e. Development and implementation of gas management system required in Rule 62-701.530 FAC is described in Part N of this application.

O.4. CERTIFICATION OF CLOSURE CONSTRUCTION COMPLETION

- 1. Survey monuments - The final elevation of this landfill is more than 20 feet above the natural land surface, so no survey monuments are required. This is submitted as "N/A".
- 2. Final survey report - A final survey will be submitted per 62-701.600(6)(b), FAC.
- 3. Declaration to the public - After the Department approves the closure, the landfill owner shall file a declaration to the public in the deed records in the office of the county clerk of the county in which the landfill is located per 62-701.610(5), FAC.
- 4. Official date of closing - The official date of closing shall be determined per 62-701.610(6). Upon receipt of the documents required in 62-701.610, FAC subsections (3), (4) and (5) the Department shall within 30 days acknowledge by letter to the facility operator that notice of termination of operations and closing of the facility has been received. The date of this letter will be the official date of closing.
- 5. Justification for and Detailed Description of Procedures to be followed for Temporary Closure of the Landfill - The landfill owner has no intentions to temporarily close the landfill.

Part O: Landfill Closure Requirements

ATTACHMENTS

The Closure Plan Drawings and CQA Plan were included in the permit application submitted November 11, 2009. There are no changes.

Part P Other Closure Procedures (62-701.610, FAC)

1. **Use of closed landfill area** – This landfill is not closed. The Manatee County has no plans to use the closed landfill area. After closure, if the Manatee County decides to use the closed landfill area, the Manatee County shall seek consultation with the Department per 62-701.610(1), FAC.
2. **Relocation of wastes** – This section applies to closed landfills. Manatee County does not plan to relocate waste after the landfill is closed. If after closure Manatee County decides to relocate waste, Manatee County will request permission from the Department to relocate waste per 62-701.610(2), FAC.

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Part Q: Long Term Care Requirement (62-701.620, FAC)

1. **Maintaining the Gas Collection and Monitoring System** – After closure the facility operator shall maintain the gas collection and monitoring system for the long-term care period of the landfill per 62-701.620 (5), FAC.
2. **Stabilization Report Requirements** – Every five years after issuance of a permit for long-term care, the permittee shall submit a report to the Department that addresses stabilization with the information required in 62-701.620 (6), FAC.
3. **Right-of Access** – The landfill owner or operator shall possess or acquire a sufficient interest in, or a right to use, the property for which a permit is issued, including the access route onto the property to carry out the requirements of this rule. The permittee shall retain the right of entry to the landfill property for the long-term care period, after termination of solid waste operations, for inspection, monitoring and maintenance of the site per 62-701.620 (7), FAC.
4. **Replacement of monitoring devices** - If a monitoring well or other device required by the monitoring plan is destroyed or fails to operate for any reason, the landfill owner or operator shall, immediately upon discovery, notify the Department in writing. All inoperative monitoring devices shall be replaced with functioning devices within 60 days of the discovery of the malfunctioning unit unless the landfill owner or operator is notified otherwise in writing by the Department per 62-701.620 (8), FAC.
5. **Completion of Long-term Care** - Following completion of the long-term care period for each solid waste management unit, the owner or operator shall notify the Department that a certification, signed and sealed by a professional engineer, verifying that long-term care has been completed in accordance with the closure plan, has been placed in the operating record per 62-701.620 (9), FAC.

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PART R FINANCIAL ASSURANCE REQUIREMENTS

1 COST ESTIMATES

The closure and long-term care cost estimate was submitted to the Department in a letter addressed to Steve Morgan dated February 10, 2010.

2 ANNUAL COST ADJUSTMENTS

Annual cost adjustments for closure and long-term care are submitted to the Department based on inflation and changes in the closing, long-term care and corrective action plans in accordance with 62-701.630. The annual cost adjustment will be submitted by the date given in the permit.

3 FUNDING MECHANISM

Manatee County uses the "Financial Test" method for providing proof of financial assurance.

4 DELAYING PROVIDING DOCUMENTATION

This is not applicable since manatee does not propose delaying providing documentation.

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There is no additional information for
Part S
Certification by Applicant
And
Engineer or Public Officer

The certification is included in Part A
on Application Page 39

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FLORIDA JETCLEAN

HIGH PRESSURE WATER JETTING
VIDEO PIPELINE INSPECTION
NO DIG POINT REPAIRS
WWW.FLORIDAJETCLEAN.COM

19019 FERN MEADOW LOOP
LUTZ, FL 33558
TEL: 800-226-8013 FAX: 813-926-4616
FLORIDAJETCLEAN@TAMPABAY.FL.COM

PBS&J Manatee County – Lena Road Landfill 2009 LCS Maintenance

**Work Performed
May 2009**

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MAY 13 2010
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TAMPA

Conducted By:
Florida Jetclean
800-226-8013

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19019 FERN MEADOW LOOP
LUTZ, FL 33558
TEL: 800-226-8013 FAX: 813-926-4616
FLORIDAJETCLEAN@TAMPABAY.RR.COM

DATE : 11/4/2009
TO : Joe Miller – PBS&J
FROM : Ralph Calistri (floridajetclean@tampabay.rr.com)
SUBJECT : Manatee County – Lena Road Landfill – 2009 LCS Jetcleaning

Florida Jetclean completed the high-pressure water-jetting of the leachate collection piping at the above landfill on 5/29/2009. The jetting log (below) documents the pipes that were addressed, as well as the jetting distances that were achieved in each pipe.

STAGE 1:

MH 1 to MH 2	1,042'	Entire pipe
MH 3 to MH 2	1,025'	Entire pipe
MH 3 to MH 4	790'	Entire pipe
MH 4 to MH 5	1,090'	Entire pipe
MH 1 to MH 11	927'	Entire pipe (2,075') through overlap
MH 11 to MH 1	1,313'	Entire pipe (2,075') through overlap
MH 11 to MH 10	175'	Entire pipe
MH 7 to MH 6	586'	Entire pipe
MH 7 to MH 8	702'	Entire pipe
LS 2 to MH 5	28'	Entire pipe
LS 1 to MH 10	13'	Entire pipe
MH 8 to MH 10	1,313'	Entire pipe (2,071') through overlap
MH 10 to MH 8	824'	Entire pipe (2,071') through overlap
MH 5 to MH 6	311'	Entire pipe

STAGE 2:

MH J to MH K	65'	Entire pipe
MH K to MH KA1	475'	Entire pipe
MH K1 to MH KA1	409'	Entire Pipe
MH K1 to MH L1	75'	Entire pipe
MH L1 to MH H1	348'	Entire pipe
MH G Lateral to MH G1 Lateral	1,110'	Entire pipe
MH H to MH J	359'	Entire Pipe
MH G to MH H	362'	Entire pipe
MH F to MH G	335'	Entire pipe
MH F Lateral to MH F1 Lateral	1,313'	Entire pipe (2,087') through overlap
MH F1 Lateral to MH F Lateral	927'	Entire pipe (2,087') through overlap
MH E Lateral to MH E1 Lateral	1,313'	Entire pipe (2,117') through overlap
MH E1 Lateral to MH E Lateral	927'	Entire pipe (2,117') through overlap
MH F to MH E1A	171'	Entire pipe

MH E to MH E1A	160'	Entire pipe
MH D to MH E	280'	Entire pipe
MH D Lateral to MH D1 Lateral	1,313'	Entire pipe (2,117') through overlap
MH D1 Lateral to MH D Lateral	927'	Entire pipe (2,117') through overlap
MH C Lateral to MH C1 Lateral	1,313'	Entire pipe (2,117') through overlap
MH C1 Lateral to MH C Lateral	927'	Entire pipe (2,117') through overlap
MH C to MH D	324'	Entire pipe
MH B Lateral to MH B1 Lateral	1,313'	Entire pipe (2,117') through overlap
MH B1 Lateral to MH B Lateral	927'	Entire pipe (2,117') through overlap
MH B to MH C	340'	Entire pipe
MH A Lateral to MH A1 Lateral	1,313'	Entire pipe (2,116') through overlap
MH A1 Lateral to MH A Lateral	927'	Entire pipe (2,116') through overlap
MH A to MH B	295'	Entire pipe
MH G1 to MH H1	395'	Entire pipe
MH G1 to MH G2	495'	Entire pipe
MH G2 to MH G2A	97'	Entire pipe
MH G2A to MH G2B	200'	Entire pipe
MH G2B to MH G2C	164'	Entire pipe
MH G2C to G3	59'	Entire Pipe
MH G3 to F1	114'	Entire Pipe
MH F1 to E1	330'	Entire Pipe
MH D1 to MH C1	329'	Entire pipe
MH D1 to MH E1	329'	Entire pipe
MH E1 to LS 4	20'	Entire Pipe
MH C1 to MH B1	329'	Entire pipe
MH B1 to MH A1	290'	Entire pipe

STAGE 3:

MH 30 to MH 12	88'	Entire pipe
MH 30 to MH 29	445'	Entire pipe
MH 28 to MH 29	467'	Entire pipe
MH 27 to MH 28	475'	Entire Pipe
MH 26 to MH 27	462'	Entire pipe
MH 26 to MH 25	276'	Entire pipe
MH 24 to MH 25	167'	Entire pipe
MH 25 to LS 3	60'	Entire Pipe
MH 24 to LS 3	105'	Entire Pipe
MH 24 to MH 23	267'	Entire pipe
MH 23 to MH 22	329'	Entire pipe
MH 22 to MH 21	355'	Entire pipe
MH 21 to MH 20	332'	Entire pipe
MH 20 to MH 19	166'	Entire Pipe
MH 19 to MH 19A	37'	Entire pipe
MH 19A to MH 18	412'	Entire pipe
MH 18 to MH 17	450'	Entire Pipe
MH 17 to MH 16	441'	Entire pipe

MH 16 to MH 15	402'	Entire pipe
MH 13 to MH 15	581'	Entire pipe (900') through overlap
MH 15 to MH 13	440'	Entire pipe (900') through overlap
MH 13 to MH 12	476'	Entire pipe

All pipes were jetted in their entirety, and are clean and blockage free upon completion. The system appears to flow and drain properly, and appears to be functioning as designed.

Please call us with questions or concerns.

Thank you,

Ralph Calistri - Florida Jetclean

**Lena Road Class I Landfill Operation Permit Renewal
Pending Permit No.: 39884-018-SO/01, Manatee County
WACS I.D. No.: SWD-41-44795**

Appendix A

May 11, 2010

SUMMARY OF VIDEO INSPECTION

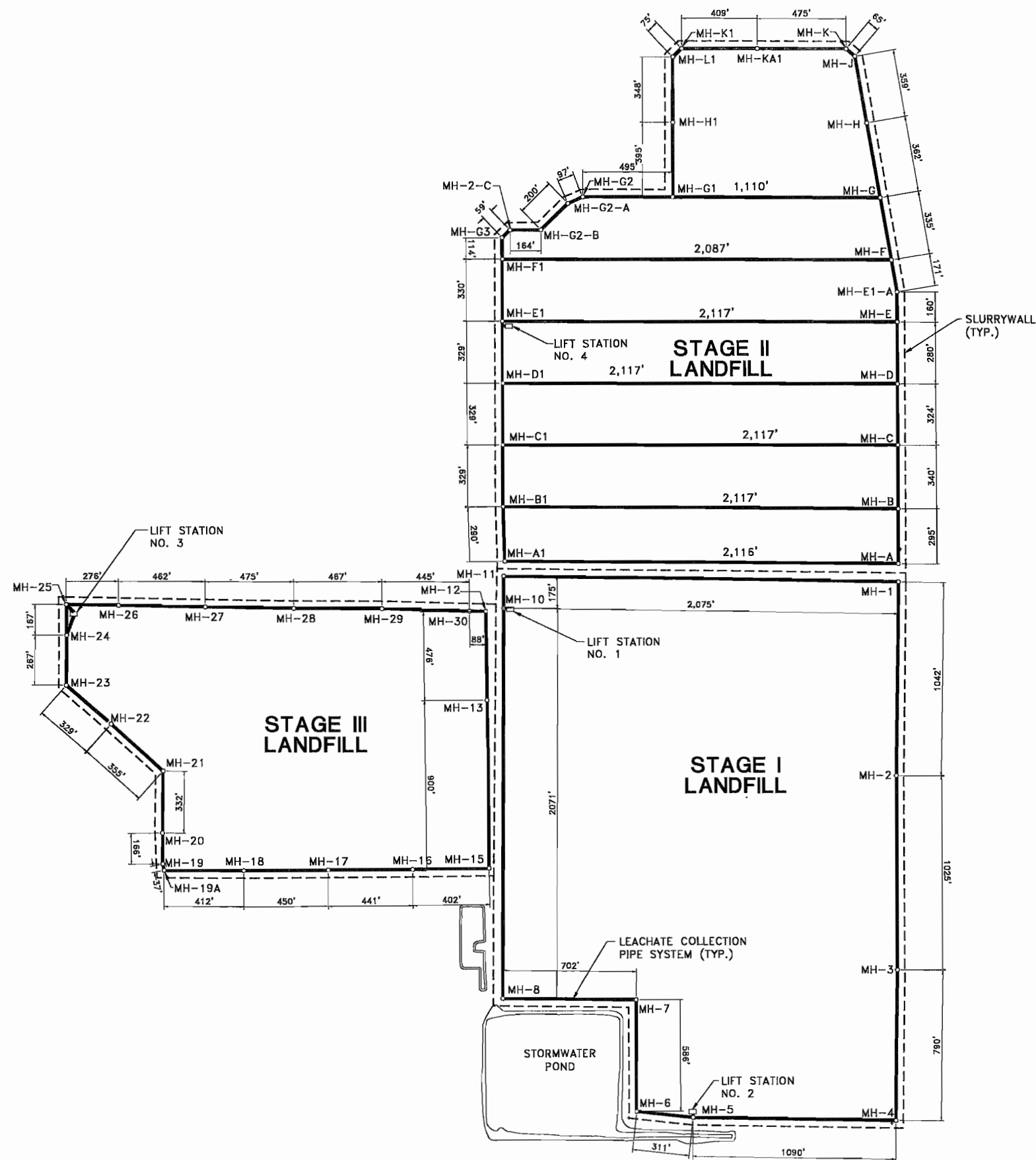
Manatee County Utilities Department using Pump Station #4, which is the pump station for the Stage II Landfill, pumped the water from the Stage II Landfill to below the invert of the leachate collection system. The purpose for removing the water was to demonstrate that the Stage II Landfill could be dewatered, and to expose the invert of the leachate collection system for video inspection.

On April 23, 29 and 30, 2010, Manatee County Sewer Collections video inspected 7,200 feet of Stage II Landfill leachate collection pipe using a truck equipped with a multi-conductor closed caption camera. The pipe sections inspected are listed below. The locations are shown on the drawing included in this appendix entitled: "Leachate Collection System Maintenance Cleaning – 2009."

The video inspection indicated no deterioration in the leachate collection pipe, and confirmed the results of the high-pressure water jetting of the leachate collection piping done by Florida JetClean in May 2009.

The video inspection was recorded on a DVD for each section of pipe inspected. One copy of the following DVDs was included with the response to RFI #1 dated May 11, 2010.

1. Landfill B-B1 900' Disk
2. Landfill B1-B 900' Disk
3. Landfill C-C1 900' Disk
4. Landfill C1-C 900' Disk
5. Landfill D-D1 900' Disk
6. Landfill D1-D 900' Disk
7. Landfill E-E1 900' Disk
8. Landfill E1-E 900' Disk



- LEGEND:
- MH-2 ○ LEACHATE COLLECTION MANHOLE
 - LIFT STATION
 - LEACHATE COLLECTION LINE
 - - - SLURRY WALL
 - MH-D MH-E
 - 280' DISTANCE AS MEASURED BY FLORIDA JETCLEAN USING A MEASURING WHEEL

LEACHATE COLLECTION SYSTEM MAINTENANCE WORK
PERFORMED BY FLORIDA JETCLEAN.

REPORT TITLED: "PBS&J - MANATEE COUNTY -
LENA ROAD LF - 2009 LCS MAINTENANCE"
DATED: 11-04-2009



482 South Keller Road
ORLANDO, FL 32810-6101
TEL. (407) 647-7275
FAX. (407) 647-0624
WWW.PBSJ.COM

POST BUCKLEY, SCHUH & JERNIGAN, Inc.
2101 N.W. 107th Ave., Miami, FL 33172-2507
FPR Certificate of Authorization No. 24

CLIENT

BOARD OF COUNTY COMMISSIONERS

MANATEE COUNTY

FLORIDA

PROJECT

LENA ROAD LANDFILL

PERMIT RENEWAL 2009

TASK

LEACHATE COLLECTION SYSTEM

MAINTENANCE CLEANING - 2009

ORIGINAL NOV. 2009

REVISIONS:

1. _____
2. _____
3. _____
4. _____
5. _____

6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

Name: Joseph L. Miller
Florida P.E. No.: 39177
Address: PBS&J
482 S. Keller Road
Orlando, FL 32810-6101

Signature _____ Date _____

JOB NO. 100008517

DRAWN RG

DESIGN RG/JLM

CHECKED JLM

Q.C. DED

SHEET / #

**MANATEE COUNTY - LENA ROAD LANDFILL
SUMMARY OF SLURRY WALL GROUNDWATER GRADIENT (IN FEET)
FOR READINGS WITH LESS THAN ONE FOOT OF INWARD GRADIENT.**

PZ - GW NUMBER	YEAR 2005					YEAR 2006											
	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06	Oct-06	Nov-06	Dec-06
1							0.77	0.45	0.11	0.01				0.73		0.97	0.62
2																	
3																	
4																	
5																	
6								0.73									
7	0.84																
8																	
9																	
10																	
11																	
12	0.67								0.38	0.38							0.05
13																	
14																	
15																	
16																	
17																	

PZ - GW NUMBER	YEAR 2007											
	Jan-07	Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07
1	0.56		0.52		0.05	0.32	0.47					0.65
2					0.87							
3												
4												
5												
6												
7												
8												
9												
10												
11												
12	0.92	0.98	0.62	0.54	0.22	0.81						
13												
14												
15												
16					0.15	0.04	0.97	0.90			0.85	0.90
17												

PZ - GW NUMBER	YEAR 2008											
	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08
1	0.78	0.38	0.40		0.21							
2						0.45						
3												
4												
5												
6												
7												
8												
9												
10												
11												
12		0.91	0.08			0.97						0.99
13					0.40							
14												
15												
16												
17												

PZ - GW NUMBER	YEAR 2009											
	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09
1			0.83	0.99		0.52						
2						0.05						
3												
4												
5												
6												
7												
8												
9												
10												
11												
12	0.75	0.50	0.11	0.03								
13												
14												
15												
16												
17												

NOTE: The monthly slurry wall gradient values are given in feet. These values were obtained from the **Manatee County - Lena Road Landfill Monthly Groundwater Gradient Report** shown to the right of the **Data Entry Table** and highlighted in grey.

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
MAY 18 2010
SOUTHWEST DISTRICT
TAMPA

(BLANK)

**Manatee County Lena Road Landfill
Groundwater Gradient
January 2005**

DATA ENTRY TABLE

Inside Slurry Wall

Outside Slurry Wall

Piezometer	Riser Elevation	Groundwater Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
STAGE I						
PZ-1	42.55	29.07	inward	MW-5	39.88	31.50
PZ-2	42.47	29.95	inward	MW-2	41.13	31.80
PZ-3A	44.90	29.13	inward	MW-1	42.58	33.56
PZ-4A	47.73	29.93	inward	CW-4	37.48	35.16
PZ-5	43.94	30.23	inward	CW-5A	41.18	38.83
PZ-6	44.73	30.98	inward	SG-1		33.60
PZ-7	47.76	30.00	inward	MW-6	39.29	33.48
PZ-19	45.87	28.62	inward	PZ-11	38.94	33.53

Dry 32.80

STAGE II						
PZ-8	37.63	33.45	outward	LRII-5	36.75	30.15
PZ-9	39.20	33.51	outward	LRII-4	33.85	27.09
PZ-10	37.05	33.48	outward	LRII-2	36.48	30.18
PZ-11	38.94	33.53	outward	LRII-1	37.97	32.47

STAGE III						
PZ-12A	38.48	28.60	inward	GC-2	38.15	32.87
PZ-13	35.36	26.27	inward	GC-3	35.02	29.43
PZ-14A	34.58	21.09	inward	GC-4A	34.96	30.16
PZ-15C	40.46	20.78	inward	PZ-15A	39.79	31.03
PZ-16B	40.22	21.16	inward	PZ-16A	39.05	28.95
PZ-17	40.57	28.47	inward	SG-2		29.10
PZ-18	40.16	28.97	inward	SG-3		33.50

Dry 28.90

Dry 33.50

Additional In-House Monitoring Data

Stage I						
PZ-2	42.47	29.95	inward	MW-3	42.32	33.58
Stage II						
PZ-9	39.20	33.51	outward	LRII-3	33.47	26.62
Stage III						
PZ-15C	40.46	20.78	inward	GC-1A	31.75	28.12
PZ-16B	40.22	21.16	inward	GC-5	36.46	29.22
PZ-17	40.57	28.47	inward	GC-6	39.02	30.72

Notes: The table is arranged so any piezometer can be compared to its corresponding monitoring point. For example, PZ-1 is located on the opposite side of the slurry wall from MW-5. Thus data from PZ-1 are compared to data from MW-5.

Report includes riser elevations determined by certified survey conducted by County Staff (Aug. 10, 1999).
Riser elevations for MW-1, MW-3, PZ-9, PZ-11 and PZ-19 were resurveyed on November 13, 2002.
PZ-12A and GC-4A were resurveyed in April 2003.

Data Collection: January 7, 2005

	Field Reading		Field Reading	
PZ-1	13.48	MW-5	8.38	
PZ-2	12.52	MW-2	9.33	
PZ-3A	15.77	MW-1	9.02	
PZ-4A	17.80	CW-4	2.32	
PZ-5	13.71	CW-5A	2.35	
PZ-6	13.75	SG-1	33.60	
PZ-7	17.76	MW-6	5.81	
PZ-19	17.25	PZ-11	5.41	
PZ-8	4.18	LRII-5	6.60	
PZ-9	5.69	LRII-4	6.76	
PZ-10	3.57	LRII-2	6.30	
PZ-11	5.41	LRII-1	5.50	
PZ-12	9.88	GC-2	5.28	
PZ-13	9.09	GC-3	5.59	
PZ-14A	13.49	GC-4A	4.80	
PZ-15C	19.68	PZ-15A	8.76	
PZ-16B	19.06	PZ-16A	10.10	
PZ-17	12.10	SG-2	29.10	
PZ-18	11.19	SG-3	33.45	

Delta

2.43
1.85
4.43
5.23
8.60
2.62
3.48
4.91

(3.30)
(6.42)
(3.30)
(1.06)

4.27
3.16
9.07
10.25
7.79
0.63
4.53

PZ-2	12.52	MW-3	8.74	
PZ-9	5.69	LRII-3	6.85	
PZ-15C	19.68	GC-1A	3.63	
PZ-16B	19.06	GC-5	7.24	
PZ-17	12.10	GC-6	8.30	

3.63

(6.89)

7.34
8.06
2.25

Manatee County Lena Road Landfill
Groundwater Gradient
February 2005

DATA ENTRY TABLE

Inside Slurry Wall

Outside Slurry Wall

Piezometer	Riser Elevation	Groundwater Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
STAGE I						
PZ-1	42.55	29.16	<i>inward</i>	MW-5	39.88	31.35
PZ-2	42.47	29.96	<i>inward</i>	MW-2	41.13	31.78
PZ-3A	44.90	29.15	<i>inward</i>	MW-1	42.58	33.79
PZ-4A	47.73	29.95	<i>inward</i>	CW-4	37.48	35.22
PZ-5	43.94	30.24	<i>inward</i>	CW-5A	41.18	38.84
PZ-6	44.73	31.10	<i>inward</i>	SG-1		33.83
PZ-7	47.76	30.01	<i>inward</i>	MW-6	39.29	33.30
PZ-19	45.87	28.71	<i>inward</i>	PZ-11	38.94	33.22

Dry 32.80

STAGE II						
PZ-8	37.63	33.20	<i>outward</i>	LR11-5	36.75	29.70
PZ-9	39.20	33.26	<i>outward</i>	LR11-4	33.85	26.55
PZ-10	37.05	33.13	<i>outward</i>	LR11-2	36.48	29.33
PZ-11	38.94	33.22	<i>outward</i>	LR11-1	37.97	31.85

STAGE III						
PZ-12A	38.48	28.44	<i>inward</i>	GC-2	38.15	31.98
PZ-13	35.36	26.00	<i>inward</i>	GC-3	35.02	29.23
PZ-14A	34.58	20.79	<i>inward</i>	GC-4A	34.96	29.88
PZ-15C	40.46	20.66	<i>inward</i>	PZ-15A	39.79	31.77
PZ-16B	40.22	21.13	<i>inward</i>	PZ-16A	39.05	28.94
PZ-17	40.57	28.38	<i>inward</i>	SG-2		29.40
PZ-18	40.16	28.79	<i>inward</i>	SG-3		33.50

Dry 28.90
Dry 33.50

Additional In-House Monitoring Data						
Stage I						
PZ-2	42.47	29.96	<i>inward</i>	MW-3	42.32	33.55
Stage II						
PZ-9	39.20	33.26	<i>outward</i>	LR11-3	33.47	26.10
Stage III						
PZ-15C	40.46	20.66	<i>inward</i>	GC-1A	31.75	27.96
PZ-16B	40.22	21.13	<i>inward</i>	GC-5	36.46	28.77
PZ-17	40.57	28.38	<i>inward</i>	GC-6	39.02	30.57

Notes: The table is arranged so any piezometer can be compared to its corresponding monitoring point. For example, PZ-1 is located on the opposite side of the slurry wall from MW-5. Thus data from PZ-1 are compared to data from MW-5.

Report includes riser elevations determined by certified survey conducted by County Staff (Aug. 10, 1999).
Riser elevations for MW-1, MW-3, PZ-9, PZ-11 and PZ-19 were resurveyed on November 13, 2002.
PZ-12A and GC-4A were resurveyed in April 2003.

Data Collection: February 17, 2005

Field Reading		Field Reading		
PZ-1	13.39	MW-5	8.53	
PZ-2	12.51	MW-2	9.35	
PZ-3A	15.75	MW-1	8.79	
PZ-4A	17.78	CW-4	2.26	
PZ-5	13.70	CW-5A	2.34	
PZ-6	13.63	SG-1	33.83	
PZ-7	17.75	MW-6	5.99	
PZ-19	17.16	PZ-11	5.72	
PZ-8	4.43	LR11-5	7.05	(3.50)
PZ-9	5.94	LR11-4	7.30	(6.71)
PZ-10	3.92	LR11-2	7.15	(3.80)
PZ-11	5.72	LR11-1	6.12	(1.37)
PZ-12	10.04	GC-2	6.17	3.54
PZ-13	9.36	GC-3	5.79	3.23
PZ-14A	13.79	GC-4A	5.08	9.09
PZ-15C	19.80	PZ-15A	8.02	11.11
PZ-16B	19.09	PZ-16A	10.11	7.81
PZ-17	12.19	SG-2	29.40	1.02
PZ-18	11.37	SG-3	33.50	4.71

PZ-2	12.51	MW-3	8.77	3.59
PZ-9	5.94	LR11-3	7.37	(7.16)
PZ-15C	19.80	GC-1A	3.79	7.30
PZ-16B	19.09	GC-5	7.69	7.64
PZ-17	12.19	GC-6	8.45	2.19

Manatee County Lena Road Landfill
Groundwater Gradient
March 2005

DATA ENTRY TABLE

Inside Slurry Wall

Outside Slurry Wall

Piezometer	Riser Elevation	Groundwater Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
STAGE I						
PZ-1	42.55	29.21	inward	MW-5	39.88	32.20
PZ-2	42.47	29.92	inward	MW-2	41.13	33.00
PZ-3A	44.90	29.17	inward	MW-1	42.58	35.07
PZ-4A	47.73	29.98	inward	CW-4	37.48	35.84
PZ-5	43.94	31.29	inward	CW-5A	41.18	39.46
PZ-6	44.73	31.03	inward	SG-1		36.14
PZ-7	47.76	30.11	inward	MW-6	39.29	36.63
PZ-19	45.87	28.73	inward	PZ-11	38.94	34.35

Dry 32.80

STAGE II						
PZ-8	37.63	34.55	outward	LRII-5	36.75	33.24
PZ-9	39.20	34.45	outward	LRII-4	33.85	29.04
PZ-10	37.05	34.44	outward	LRII-2	36.48	33.17
PZ-11	38.94	34.35	inward	LRII-1	37.97	34.78

STAGE III						
PZ-12A	38.48	29.45	inward	GC-2	38.15	34.30
PZ-13	35.36	26.94	inward	GC-3	35.02	30.78
PZ-14A	34.58	24.39	inward	GC-4A	34.96	31.99
PZ-15C	40.46	24.94	inward	PZ-15A	39.79	32.41
PZ-16B	40.22	25.52	inward	PZ-16A	39.05	30.15
PZ-17	40.57	28.62	inward	SG-2		30.50
PZ-18	40.16	29.43	inward	SG-3		33.90

Dry 28.90

Dry 33.50

Additional In-House Monitoring Data						
Stage I						
PZ-2	42.47	29.92	inward	MW-3	42.32	34.73
Stage II						
PZ-9	39.20	34.45	outward	LRII-3	33.47	28.86
Stage III						
PZ-15C	40.46	24.94	inward	GC-1A	31.75	29.58
PZ-16B	40.22	25.52	inward	GC-5	36.46	30.54
PZ-17	40.57	28.62	inward	GC-6	39.02	33.21

Notes:

The table is arranged so any piezometer can be compared to its corresponding monitoring point. For example, PZ-1 is located on the opposite side of the slurry wall from MW-5. Thus data from PZ-1 are compared to data from MW-5.

Report includes riser elevations determined by certified survey conducted by County Staff (Aug. 10, 1999).

Riser elevations for MW-1, MW-3, PZ-9, PZ-11 and PZ-19 were resurveyed on November 13, 2002.

PZ-12A and GC-4A were resurveyed in April 2003.

Data Collection: March 17, 2005

	Field Reading		Field Reading	
PZ-1	13.34	MW-5	7.68	
PZ-2	12.55	MW-2	8.13	
PZ-3A	15.73	MW-1	7.51	
PZ-4A	17.75	CW-4	1.64	
PZ-5	12.65	CW-5A	1.72	
PZ-6	13.70	SG-1	36.14	
PZ-7	17.65	MW-6	2.66	
PZ-19	17.14	PZ-11	4.59	
PZ-8	3.08	LRII-5	3.51	
PZ-9	4.75	LRII-4	4.81	
PZ-10	2.61	LRII-2	3.31	
PZ-11	4.59	LRII-1	3.19	
PZ-12	9.03	GC-2	3.85	
PZ-13	8.42	GC-3	4.24	
PZ-14A	10.19	GC-4A	2.97	
PZ-15C	15.52	PZ-15A	7.38	
PZ-16B	14.70	PZ-16A	8.90	
PZ-17	11.95	SG-2	30.50	
PZ-18	10.73	SG-3	33.90	

Delta

2.99

3.08

5.90

5.86

8.17

5.11

6.52

5.62

(1.31)

(5.41)

(1.27)

0.43

4.85

3.84

7.60

7.47

4.63

1.88

4.47

PZ-2	12.55	MW-3	7.59	
PZ-9	4.75	LRII-3	4.61	
PZ-15C	15.52	GC-1A	2.17	
PZ-16B	14.70	GC-5	5.92	
PZ-17	11.95	GC-6	5.81	

4.81

(5.59)

4.64

5.02

4.59

Manatee County Lena Road Landfill
Groundwater Gradient
April 2005

DATA ENTRY TABLE

Inside Slurry Wall

Outside Slurry Wall

Piezometer	Riser Elevation	Groundwater Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
STAGE I						
PZ-1	42.55	29.07	inward	MW-5	39.88	31.72
PZ-2	42.47	29.93	inward	MW-2	41.13	32.53
PZ-3A	44.90	29.10	inward	MW-1	42.58	34.43
PZ-4A	47.73	29.85	inward	CW-4	37.48	35.24
PZ-5	43.94	30.20	inward	CW-5A	41.18	38.68
PZ-6	44.73	30.96	inward	SG-1		34.06
PZ-7	47.76	30.00	inward	MW-6	39.29	34.15
PZ-19	45.87	28.64	inward	PZ-11	38.94	32.49

Dry 32.80

STAGE II						
PZ-8	37.63	32.39	outward	LRII-5	36.75	32.24
PZ-9	39.20	32.70	outward	LRII-4	33.85	28.51
PZ-10	37.05	32.69	outward	LRII-2	36.48	31.55
PZ-11	38.94	32.49	inward	LRII-1	37.97	33.68

STAGE III						
PZ-12A	38.48	28.59	inward	GC-2	38.15	33.34
PZ-13	35.36	27.19	inward	GC-3	35.02	29.85
PZ-14A	34.58	21.57	inward	GC-4A	34.96	30.83
PZ-15C	40.46	21.04	inward	PZ-15A	39.79	32.04
PZ-16B	40.22	21.06	inward	PZ-16A	39.05	28.97
PZ-17	40.57	28.53	inward	SG-2		30.82
PZ-18	40.16	28.87	inward	SG-3		33.80

Dry 28.90

Dry 33.50

Additional In-House Monitoring Data

Stage I						
PZ-2	42.47	29.93	inward	MW-3	42.32	34.21
Stage II						
PZ-9	39.20	32.70	outward	LRII-3	33.47	27.98
Stage III						
PZ-15C	40.46	21.04	inward	GC-1A	31.75	27.65
PZ-16B	40.22	21.06	inward	GC-5	36.46	29.36
PZ-17	40.57	28.53	inward	GC-6	39.02	31.09

Notes:

The table is arranged so any piezometer can be compared to its corresponding monitoring point. For example, PZ-1 is located on the opposite side of the slurry wall from MW-5. Thus data from PZ-1 are compared to data from MW-5.

Report includes riser elevations determined by certified survey conducted by County Staff (Aug. 10, 1999).

Riser elevations for MW-1, MW-3, PZ-9, PZ-11 and PZ-19 were resurveyed on November 13, 2002.

PZ-12A and GC-4A were resurveyed in April 2003.

Data Collection: April 15, 2005

Field Reading

Field Reading

Delta

PZ-1	13.48	MW-5	8.16
PZ-2	12.54	MW-2	8.60
PZ-3A	15.80	MW-1	8.15
PZ-4A	17.88	CW-4	2.24
PZ-5	13.74	CW-5A	2.50
PZ-6	13.77	SG-1	34.06
PZ-7	17.76	MW-6	5.14
PZ-19	17.23	PZ-11	6.45
PZ-8	5.24	LRII-5	4.51
PZ-9	6.50	LRII-4	5.34
PZ-10	4.36	LRII-2	4.93
PZ-11	6.45	LRII-1	4.29
PZ-12	9.89	GC-2	4.81
PZ-13	8.17	GC-3	5.17
PZ-14A	13.01	GC-4A	4.13
PZ-15C	19.42	PZ-15A	7.75
PZ-16B	19.16	PZ-16A	10.08
PZ-17	12.04	SG-2	30.82
PZ-18	11.29	SG-3	33.80

2.65
2.60
5.33
5.39
8.48
3.10
4.15
3.85

(0.15)
(4.19)
(1.14)
1.19

4.75
2.66
9.26
11.00
7.91
2.29
4.93

PZ-2	12.54	MW-3	8.11
PZ-9	6.50	LRII-3	5.49
PZ-15C	19.42	GC-1A	4.10
PZ-16B	19.16	GC-5	7.10
PZ-17	12.04	GC-6	7.93

4.28
(4.72)
6.61
8.30
2.56

Manatee County Lena Road Landfill
Groundwater Gradient
May 2005

DATA ENTRY TABLE

Inside Slurry Wall

Outside Slurry Wall

Piezometer	Riser Elevation	Groundwater Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
STAGE I						
PZ-1	42.55	29.07	<i>inward</i>	MW-5	39.88	31.72
PZ-2	42.47	29.93	<i>inward</i>	MW-2	41.13	32.53
PZ-3A	44.90	29.10	<i>inward</i>	MW-1	42.58	34.43
PZ-4A	47.73	29.85	<i>inward</i>	CW-4	37.48	35.24
PZ-5	43.94	30.20	<i>inward</i>	CW-5A	41.18	38.68
PZ-6	44.73	30.96	<i>inward</i>	SG-1		34.06
PZ-7	47.76	30.00	<i>inward</i>	MW-6	39.29	34.15
PZ-19	45.87	28.64	<i>inward</i>	PZ-11	38.94	32.49

Dry 32.80

STAGE II						
PZ-8	37.63	32.39	<i>outward</i>	LRII-5	36.75	32.24
PZ-9	39.20	32.70	<i>outward</i>	LRII-4	33.85	28.51
PZ-10	37.05	32.69	<i>outward</i>	LRII-2	36.48	31.55
PZ-11	38.94	32.49	<i>inward</i>	LRII-1	37.97	33.68

STAGE III						
PZ-12A	38.48	28.59	<i>inward</i>	GC-2	38.15	33.34
PZ-13	35.36	27.19	<i>inward</i>	GC-3	35.02	29.85
PZ-14A	34.58	21.57	<i>inward</i>	GC-4A	34.96	30.83
PZ-15C	40.46	21.04	<i>inward</i>	PZ-15A	39.79	32.04
PZ-16B	40.22	21.06	<i>inward</i>	PZ-16A	39.05	28.97
PZ-17	40.57	28.53	<i>inward</i>	SG-2		30.82
PZ-18	40.16	28.87	<i>inward</i>	SG-3		33.80

Dry 28.90

Dry 33.50

Field Reading		Field Reading		Delta
PZ-1	13.48	MW-5	8.16	2.65
PZ-2	12.54	MW-2	8.60	2.60
PZ-3A	15.80	MW-1	8.15	5.33
PZ-4A	17.88	CW-4	2.24	5.39
PZ-5	13.74	CW-5A	2.50	8.48
PZ-6	13.77	SG-1	34.06	3.10
PZ-7	17.76	MW-6	5.14	4.15
PZ-19	17.23	PZ-11	6.45	3.85
PZ-8	5.24	LRII-5	4.51	(0.15)
PZ-9	6.50	LRII-4	5.34	(4.19)
PZ-10	4.36	LRII-2	4.93	(1.14)
PZ-11	6.45	LRII-1	4.29	1.19
PZ-12	9.89	GC-2	4.81	4.75
PZ-13	8.17	GC-3	5.17	2.66
PZ-14A	13.01	GC-4A	4.13	9.26
PZ-15C	19.42	PZ-15A	7.75	11.00
PZ-16B	19.16	PZ-16A	10.08	7.91
PZ-17	12.04	SG-2	30.82	2.29
PZ-18	11.29	SG-3	33.80	4.93

Additional In-House Monitoring Data						
Stage I						
PZ-2	42.47	29.93	<i>inward</i>	MW-3	42.32	34.21
Stage II						
PZ-9	39.20	32.70	<i>outward</i>	LRII-3	33.47	27.98
Stage III						
PZ-15C	40.46	21.04	<i>inward</i>	GC-1A	31.75	27.65
PZ-16B	40.22	21.06	<i>inward</i>	GC-5	36.46	29.36
PZ-17	40.57	28.53	<i>inward</i>	GC-6	39.02	31.09

PZ-2	12.54	MW-3	8.11	4.28
PZ-9	6.50	LRII-3	5.49	(4.72)
PZ-15C	19.42	GC-1A	4.10	6.61
PZ-16B	19.16	GC-5	7.10	8.30
PZ-17	12.04	GC-6	7.93	2.56

Notes: The table is arranged so any piezometer can be compared to its corresponding monitoring point. For example, PZ-1 is located on the opposite side of the slurry wall from MW-5. Thus data from PZ-1 are compared to data from MW-5.

Report includes riser elevations determined by certified survey conducted by County Staff (Aug. 10, 1999).
Riser elevations for MW-1, MW-3, PZ-9, PZ-11 and PZ-19 were resurveyed on November 13, 2002.
PZ-12A and GC-4A were resurveyed in April 2003.

Data Collection: May 5, 2005

Manatee County Lena Road Landfill
Groundwater Gradient
June 2005

DATA ENTRY TABLE

Inside Slurry Wall

Outside Slurry Wall

Piezometer	Riser Elevation	Groundwater Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
STAGE I						
PZ-1	42.55	29.23	inward	MW-5	39.88	32.45
PZ-2	42.47	29.02	inward	MW-2	41.13	33.23
PZ-3A	44.90	29.20	inward	MW-1	42.58	34.68
PZ-4A	47.73	29.97	inward	CW-4	37.48	35.30
PZ-5	43.94	26.24	inward	CW-5A	41.18	38.79
PZ-6	44.73	31.20	inward	SG-1		34.05
PZ-7	47.76	30.08	inward	MW-6	39.29	34.91
PZ-19	45.87	28.73	inward	PZ-11	38.94	33.29

Dry 32.80

STAGE II						
PZ-8	37.63	33.25	outward	LRII-5	36.75	32.81
PZ-9	39.20	33.48	outward	LRII-4	33.85	29.36
PZ-10	37.05	33.42	outward	LRII-2	36.48	32.08
PZ-11	38.94	33.29	inward	LRII-1	37.97	33.95

STAGE III						
PZ-12A	38.48	28.95	inward	GC-2	38.15	32.36
PZ-13	35.36	29.18	inward	GC-3	35.02	29.93
PZ-14A	34.58	22.93	inward	GC-4A	34.96	30.80
PZ-15C	40.46	21.38	inward	PZ-15A	39.79	32.17
PZ-16B	40.22	21.20	inward	PZ-16A	39.05	28.93
PZ-17	40.57	29.01	inward	SG-2		29.40
PZ-18	40.16	29.23	inward	SG-3		33.36

Dry 28.90

Dry 33.50

Additional In-House Monitoring Data						
Stage I						
PZ-2	42.47	30.02	inward	MW-3	42.32	34.64
Stage II						
PZ-9	39.20	33.48	outward	LRII-3	33.47	27.67
Stage III						
PZ-15C	40.46	21.38	inward	GC-1A	31.75	28.73
PZ-16B	40.22	21.20	inward	GC-5	36.46	29.27
PZ-17	40.57	29.01	inward	GC-6	39.02	31.43

Notes:

The table is arranged so any piezometer can be compared to its corresponding monitoring point. For example, PZ-1 is located on the opposite side of the slurry wall from MW-5. Thus data from PZ-1 are compared to data from MW-5.

Report includes riser elevations determined by certified survey conducted by County Staff (Aug. 10, 1999).

Riser elevations for MW-1, MW-3, PZ-9, PZ-11 and PZ-19 were resurveyed on November 13, 2002.

PZ-12A and GC-4A were resurveyed in April 2003.

Data Collection: June 16, 2005

Field Reading		Field Reading		Delta
PZ	Reading	MW	Reading	
PZ-1	13.32	MW-5	7.43	3.22
PZ-2	13.45	MW-2	7.90	4.21
PZ-3A	15.70	MW-1	7.90	5.48
PZ-4A	17.76	CW-4	2.18	5.33
PZ-5	17.70	CW-5A	2.39	12.55
PZ-6	13.53	SG-1	34.05	2.85
PZ-7	17.68	MW-6	4.38	4.83
PZ-19	17.14	PZ-11	5.65	4.56
PZ-8	4.38	LRII-5	3.94	(0.44)
PZ-9	5.72	LRII-4	4.49	(4.12)
PZ-10	3.63	LRII-2	4.40	(1.34)
PZ-11	5.65	LRII-1	4.02	0.66
PZ-12	9.53	GC-2	5.79	3.41
PZ-13	6.18	GC-3	5.09	0.75
PZ-14A	11.65	GC-4A	4.16	7.87
PZ-15C	19.08	PZ-15A	7.62	10.79
PZ-16B	19.02	PZ-16A	10.12	7.73
PZ-17	11.56	SG-2	29.40	0.39
PZ-18	10.93	SG-3	33.36	4.13

PZ-2	12.45	MW-3	7.68	4.62
PZ-9	5.72	LRII-3	5.80	(5.81)
PZ-15C	19.08	GC-1A	3.02	7.35
PZ-16B	19.02	GC-5	7.19	8.07
PZ-17	11.56	GC-6	7.59	2.42

Manatee County Lena Road Landfill
Groundwater Gradient
July 2005

DATA ENTRY TABLE

Inside Slurry Wall

Outside Slurry Wall

Piezometer	Riser Elevation	Groundwater Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
STAGE I						
PZ-1	42.55	29.09	inward	MW-5	39.88	29.16
PZ-2	42.47	29.98	inward	MW-2	41.13	32.30
PZ-3A	44.90	29.15	inward	MW-1	42.58	34.30
PZ-4A	47.73	29.90	inward	CW-4	37.48	35.49
PZ-5	43.94	30.15	inward	CW-5A	41.18	38.80
PZ-6	44.73	31.06	inward	SG-1		34.15
PZ-7	47.76	30.17	inward	MW-6	39.29	34.96
PZ-19	45.87	28.72	inward	PZ-11	38.94	33.31

Dry 32.80

STAGE II						
PZ-8	37.63	33.35	outward	LRII-5	36.75	33.08
PZ-9	39.20	33.49	outward	LRII-4	33.85	29.62
PZ-10	37.05	33.50	outward	LRII-2	36.48	32.17
PZ-11	38.94	33.31	inward	LRII-1	37.97	33.55

STAGE III						
PZ-12A	38.48	28.98	inward	GC-2	38.15	33.76
PZ-13	35.36	29.39	inward	GC-3	35.02	30.08
PZ-14A	34.58	23.02	inward	GC-4A	34.96	31.18
PZ-15C	40.46	21.37	inward	PZ-15A	39.79	32.58
PZ-16B	40.22	21.12	inward	PZ-16A	39.05	28.95
PZ-17	40.57	28.97	inward	SG-2		29.50
PZ-18	40.16	29.35	inward	SG-3		33.70

Dry 28.90
Dry 33.50

Additional In-House Monitoring Data						
Stage I						
PZ-2	42.47	29.98	inward	MW-3	42.32	34.19
Stage II						
PZ-9	39.20	33.49	outward	LRII-3	33.47	30.27
Stage III						
PZ-15C	40.46	21.37	inward	GC-1A	31.75	27.85
PZ-16B	40.22	21.12	inward	GC-5	36.46	29.56
PZ-17	40.57	28.97	inward	GC-6	39.02	32.04

Notes: The table is arranged so any piezometer can be compared to its corresponding monitoring point. For example, PZ-1 is located on the opposite side of the slurry wall from MW-5. Thus data from PZ-1 are compared to data from MW-5.

Report includes riser elevations determined by certified survey conducted by County Staff (Aug. 10,1999).
Riser elevations for MW-1, MW-3, PZ-9, PZ-11 and PZ-19 were resurveyed on November 13, 2002.
PZ-12A and GC-4A were resurveyed in April 2003.

Data Collection: July 18, 2005

Field Reading		Field Reading		Delta
PZ-1	13.46	MW-5	10.72	0.07
PZ-2	12.49	MW-2	8.83	2.32
PZ-3A	15.75	MW-1	8.28	5.15
PZ-4A	17.83	CW-4	1.99	5.59
PZ-5	13.79	CW-5A	2.38	8.65
PZ-6	13.67	SG-1	34.15	3.09
PZ-7	17.59	MW-6	4.33	4.79
PZ-19	17.15	PZ-11	5.63	4.59
PZ-8	4.28	LRII-5	3.67	(0.27)
PZ-9	5.71	LRII-4	4.23	(3.87)
PZ-10	3.55	LRII-2	4.31	(1.33)
PZ-11	5.63	LRII-1	4.42	0.24
PZ-12	9.50	GC-2	4.39	4.78
PZ-13	5.97	GC-3	4.94	0.69
PZ-14A	11.56	GC-4A	3.78	8.16
PZ-15C	19.09	PZ-15A	7.21	11.21
PZ-16B	19.10	PZ-16A	10.10	7.83
PZ-17	11.60	SG-2	29.50	0.53
PZ-18	10.81	SG-3	33.70	4.35
PZ-2	12.49	MW-3	8.13	4.21
PZ-9	5.71	LRII-3	3.20	(3.22)
PZ-15C	19.09	GC-1A	3.90	6.48
PZ-16B	19.10	GC-5	6.90	8.44
PZ-17	11.60	GC-6	6.98	3.07

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: AUGUST 2005

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.53	inward	GW-1	38.68	32.43
P-2	42.32	28.55	inward	GW-2	40.92	31.79
P-3 *	42.32	28.55	inward	GW-3	39.40	33.92
P-4 *	42.32	28.55	inward	GW-4	40.53	32.88
P-5 *	42.32	28.55	inward	GW-5	39.90	31.99
P-6 *	42.32	28.55	inward	GW-6	38.95	31.19
P-7 *	42.32	28.55	inward	GW-7	39.49	29.39
P-8	40.21	22.46	inward	GW-8	39.75	27.77
P-9	39.97	20.26	inward	GW-9	39.65	29.07
P-10	39.86	20.74	inward	GW-10	38.34	29.69
P-11(PZ-17) **	40.57	28.97	inward	GW-11.(GC-6)**	39.02	32.22
P-12	43.28	29.46	inward	GW-12	42.09	30.13
P-13	44.78	30.31	inward	GW-13	44.79	34.84
P-14	45.09	29.87	inward	GW-14	39.63	35.02
P-15	45.57	30.90	inward	GW-15	42.33	36.47
P-16	44.67	31.09	inward	GW-16	44.41	37.42
P-17	44.28	29.89	inward	GW-17	42.19	34.77

P-1	13.15	GW-1	6.25	2.90
P-2	13.77	GW-2	9.13	3.24
P-3	13.77	GW-3	5.48	5.37
P-4	13.77	GW-4	7.65	4.33
P-5	13.77	GW-5	7.91	3.44
P-6	13.77	GW-6	7.76	2.64
P-7	13.77	GW-7	10.10	0.84
P-8	17.75	GW-8	11.98	5.31
P-9	19.71	GW-9	10.58	8.81
P-10	19.12	GW-10	8.65	8.95
P-11	11.60	GW-11	6.80	3.25
P-12	13.82	GW-12	11.96	0.67
P-13	14.47	GW-13	9.95	4.53
P-14	15.22	GW-14	4.61	5.15
P-15	14.67	GW-15	5.86	5.57
P-16	13.58	GW-16	6.99	6.33
P-17	14.39	GW-17	7.42	4.88

Comments:

* Piezometers P-3, P-4, P-5, P-6 and P-7 could not be installed due to construction in this area.

The reading from P-2 was used to compare water levels to GW-3, GW-4, GW-5, GW-6 and GW-7.

** P-11 and GE-11 could not be installed due to construction in this area.

PZ-17 and GC-6 were left in-place and used to measure the gradient in this area.

Date Data Collected: August 30, 2005

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: SEPTEMBER 2005

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.43	inward	GW-1	38.68	31.65
P-2	42.32	28.46	inward	GW-2	40.92	31.10
P-3 *	42.32	28.46	inward	GW-3	39.40	32.39
P-4 *	42.32	28.46	inward	GW-4	40.53	31.47
P-5 *	42.32	28.46	inward	GW-5	39.90	31.10
P-6 *	42.32	28.46	inward	GW-6	38.95	30.26
P-7 (PZ-13) *	35.36	24.51	inward	GW-7	39.49	28.21
P-8	40.21	21.92	inward	GW-8	39.75	26.98
P-9	39.97	20.22	inward	GW-9	39.65	27.38
P-10	39.86	20.55	inward	GW-10	38.34	28.78
P-11(PZ-17) **	40.57	28.32	inward	GW-11 (GC-6)**	39.02	30.17
P-12	43.28	29.37	inward	GW-12	42.09	30.50
P-13	44.78	30.23	inward	GW-13	44.79	34.61
P-14	45.09	29.78	inward	GW-14	39.63	34.64
P-15	45.57	30.87	inward	GW-15	42.33	36.23
P-16	44.67	31.02	inward	GW-16	44.41	37.00
P-17	44.28	29.83	inward	GW-17	42.19	34.28

P-1	13.25	GW-1	7.03	2.22
P-2	13.86	GW-2	9.82	2.64
P-3	13.86	GW-3	7.01	3.93
P-4	13.86	GW-4	9.06	3.01
P-5	13.86	GW-5	8.80	2.64
P-6	13.86	GW-6	8.69	1.80
P-7	10.85	GW-7	11.28	3.70
P-8	18.29	GW-8	12.77	5.06
P-9	19.75	GW-9	12.27	7.16
P-10	19.31	GW-10	9.56	8.23
P-11	12.25	GW-11	8.85	1.85
P-12	13.91	GW-12	11.59	1.13
P-13	14.55	GW-13	10.18	4.38
P-14	15.31	GW-14	4.99	4.86
P-15	14.70	GW-15	6.10	5.36
P-16	13.65	GW-16	7.41	5.98
P-17	14.45	GW-17	7.91	4.45

Comments:

* Piezometers P-3, P-4, P-5, P-6 and P-7 could not be installed due to construction in this area.

The reading from P-2 was used to compare water levels to GW-3, GW-4, GW-5 and GW-6, and PZ-13 for GW-7.

** P-11 and GW-11 could not be installed due to construction in this area.

PZ-17 and GC-6 were left in-place and used to measure the gradient in this area.

Date Data Collected: September 14, 2005

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: OCTOBER 2005

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.37	inward	GW-1	38.68	31.00
P-2	42.32	28.40	inward	GW-2	40.92	30.44
P-3 *	42.32	28.40	inward	GW-3	39.40	31.72
P-4 (PZ-12A)	38.48	28.19	inward	GW-4	40.53	30.91
P-5 *	38.48	28.19	inward	GW-5	39.90	30.42
P-6 *	35.36	25.69	inward	GW-6	38.95	29.58
P-7 (PZ-13)	35.36	25.69	inward	GW-7	39.49	27.45
P-8	40.21	21.37	inward	GW-8	39.75	26.39
P-9	39.97	20.19	inward	GW-9	39.65	26.53
P-10	39.86	20.52	inward	GW-10	38.34	26.73
P-11(PZ_17) **	40.57	28.21	inward	GW-11 (GC-6)**	39.02	30.14
P-12	43.28	29.36	inward	GW-12	42.09	30.57
P-13	44.78	30.21	inward	GW-13	44.79	34.37
P-14	45.09	29.76	inward	GW-14	39.63	34.61
P-15	45.57	30.88	inward	GW-15	42.33	36.11
P-16	44.67	31.07	inward	GW-16	44.41	36.87
P-17	44.28	29.79	inward	GW-17	42.19	34.17

P-1	13.31	GW-1	7.68	1.63
P-2	13.92	GW-2	10.48	2.04
P-3	13.92	GW-3	7.68	3.32
P-4 (PZ-12A)	10.29	GW-4	9.62	2.72
P-5	10.29	GW-5	9.48	2.23
P-6	9.67	GW-6	9.37	3.89
P-7 (PZ-13)	9.67	GW-7	12.04	1.76
P-8	18.84	GW-8	13.36	5.02
P-9	19.78	GW-9	13.12	6.34
P-10	19.34	GW-10	11.61	6.21
P-11(PZ-17)	12.36	GW-11(GC-6)	8.88	1.93
P-12	13.92	GW-12	11.52	1.21
P-13	14.57	GW-13	10.42	4.16
P-14	15.33	GW-14	5.02	4.85
P-15	14.69	GW-15	6.22	5.23
P-16	13.60	GW-16	7.54	5.80
P-17	14.49	GW-17	8.02	4.38

Comments:

* Piezometers P-3, P-4, P-5, P-6 and P-7 could not be installed due to construction in this area.

The reading from P-2 was used to compare water levels to GW-2 & GW-3; PZ-12A for GW-4 & GW-5; and PZ-13 for GW-6 & GW-7.

** P-11 and GW-11 could not be installed due to construction in this area.

PZ-17 and GC-6 were left in-place and used to measure the gradient in this area.

Date Data Collected: October 17, 2005

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: NOVEMBER 2005

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Gradient Flow	Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation		Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.45	inward	GW-1	38.68	31.53
P-2	42.32	28.50	inward	GW-2	40.92	31.15
P-3 *	42.32	30.36	inward	GW-3	39.40	32.95
P-4 (PZ-12A)	38.48	26.52	inward	GW-4	40.53	32.24
P-5 *	38.48	26.52	inward	GW-5	39.90	31.46
P-6 *	35.36	21.91	inward	GW-6	38.95	31.34
P-7 (PZ-13)	35.36	21.91	inward	GW-7	39.49	28.28
P-8	40.21	17.92	inward	GW-8	39.75	27.28
P-9	39.97	19.84	inward	GW-9	39.65	26.99
P-10	39.86	20.58	inward	GW-10	38.34	27.27
P-11(PZ-17) **	40.57	28.44	inward	GW-11 (GC-6)**	39.02	30.55
P-12	43.28	29.39	inward	GW-12	42.09	30.73
P-13	44.78	30.18	inward	GW-13	44.79	34.47
P-14	45.09	29.79	inward	GW-14	39.63	34.80
P-15	45.57	30.93	inward	GW-15	42.33	36.17
P-16	44.67	31.02	inward	GW-16	44.41	36.94
P-17	44.28	29.85	inward	GW-17	42.19	34.46

P-1	13.23	GW-1	7.15	2.08
P-2	13.82	GW-2	9.77	2.65
P-3	11.96	GW-3	6.45	2.59
P-4 (PZ-12A)	11.96	GW-4	8.29	5.72
P-5	11.96	GW-5	8.44	4.94
P-6	13.45	GW-6	7.61	9.43
P-7 (PZ-13)	13.45	GW-7	11.21	6.37
P-8	22.29	GW-8	12.47	9.36
P-9	20.13	GW-9	12.66	7.15
P-10	19.28	GW-10	11.07	6.69
P-11(PZ-17)	12.13	GW-11(GC-6)	8.47	2.11
P-12	13.89	GW-12	11.36	1.34
P-13	14.60	GW-13	10.32	4.29
P-14	15.30	GW-14	4.83	5.01
P-15	14.64	GW-15	6.16	5.24
P-16	13.65	GW-16	7.47	5.92
P-17	14.43	GW-17	7.73	4.61

Comments:

* Piezometers P-3, P-4, P-5, P-6 and P-7 could not be installed due to construction in this area.

The reading from P-2 was used to compare water levels to GW-2 & GW-3; PZ-12A for GW-4 & GW-5; and PZ-13 for GW-6 & GW-7.

** P-11 and GW-11 could not be installed due to construction in this area.

PZ-17 and GC-6 were left in-place and used to measure the gradient in this area.

Date Data Collected: November 18, 2005

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: DECEMBER 2005

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.36	inward	GW-1	38.68	30.53
P-2	42.32	28.41	inward	GW-2	40.92	30.50
P-3 *	42.32	28.84	inward	GW-3	39.40	32.43
P-4 (PZ-12A)#	38.48	25.00	inward	GW-4	40.53	31.96
P-5 *	38.48	25.00	inward	GW-5	39.90	31.09
P-6 *	35.36	21.88	inward	GW-6	38.95	30.05
P-7 (PZ-13)	35.36	21.57	inward	GW-7	39.49	27.76
P-8	40.21	18.93	inward	GW-8	39.75	26.83
P-9	39.97	19.78	inward	GW-9	39.65	26.86
P-10	39.86	20.80	inward	GW-10	38.34	27.05
P-11(PZ-17) **	40.57	28.17	inward	GW-11 (GC-6)**	39.02	30.35
P-12	43.28	29.34	inward	GW-12	42.09	30.67
P-13	44.78	30.22	inward	GW-13	44.79	33.64
P-14	45.09	29.76	inward	GW-14	39.63	34.49
P-15	45.57	30.89	inward	GW-15	42.33	35.77
P-16	44.67	31.09	inward	GW-16	44.41	36.22
P-17	44.28	29.83	inward	GW-17	42.19	33.81

P-1	13.32	GW-1	8.15	1.17
P-2	13.91	GW-2	10.42	2.09
P-3	13.48	GW-3	6.97	3.59
P-4 (PZ-12A)	13.48	GW-4	8.57	6.96
P-5	13.48	GW-5	8.81	6.09
P-6	13.48	GW-6	8.90	8.17
P-7 (PZ-13)	13.79	GW-7	11.73	6.19
P-8	21.28	GW-8	12.92	7.90
P-9	20.19	GW-9	12.79	7.08
P-10	19.26	GW-10	11.29	6.45
P-11(PZ-17)	12.40	GW-11(GC-6)	8.67	2.18
P-12	13.94	GW-12	11.42	1.33
P-13	14.56	GW-13	11.15	3.42
P-14	15.33	GW-14	5.14	4.73
P-15	14.68	GW-15	6.56	4.88
P-16	13.58	GW-16	8.19	5.13
P-17	14.45	GW-17	8.36	3.98

Comments:

* Piezometers P-3, P-4, P-5, P-6 and P-7 could not be installed due to construction in this area.

The reading from P-2 was used to compare water levels to GW-2 & GW-3; PZ-12A for GW-4 & GW-5; and PZ-13 for GW-6 & GW-7.

** P-11 and GW-11 could not be installed due to construction in this area

PZ-17 and GC-6 were left in-place and used to measure the gradient in this area.

= Obstruction in well; could not get water reading; thick mud on probe which required cleaning.

Date Data Collected: December 21, 2005

Form Revised December 6, 2004

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FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: JANUARY 2006

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.42	inward	GW-1	38.68	30.46
P-2	42.32	28.44	inward	GW-2	40.92	30.45
P-3*	42.32	28.44	inward	GW-3	39.40	32.29
P-4*	42.32	28.44	inward	GW-4	40.53	31.66
P-5 *	42.32	28.44	inward	GW-5	39.90	30.89
P-6 *	35.36	20.71	inward	GW-6	38.95	29.83
P-7 (PZ-13)	35.36	20.71	inward	GW-7	39.49	27.60
P-8	40.21	18.79	inward	GW-8	39.75	26.79
P-9	39.97	19.71	inward	GW-9	39.65	26.82
P-10	39.86	20.53	inward	GW-10	38.34	27.10
P-11(PZ_17) **	40.57	24.80	inward	GW-11 (GC-6)**	39.02	30.35
P-12	43.28	29.36	inward	GW-12	42.09	30.85
P-13	44.78	30.21	inward	GW-13	44.79	33.71
P-14	45.09	28.77	inward	GW-14	39.63	34.47
P-15	45.57	30.93	inward	GW-15	42.33	35.74
P-16	44.67	31.09	inward	GW-16	44.41	36.08
P-17	44.28	28.89	inward	GW-17	42.19	33.82

P-1	13.26	GW-1	8.22	1.04
P-2	13.88	GW-2	10.47	2.01
P-3	13.88	GW-3	7.11	3.85
P-4 (PZ-12A)#	13.88	GW-4	8.87	3.22
P-5	13.88	GW-5	9.01	2.45
P-6	14.65	GW-6	9.12	9.12
P-7 (PZ-13)	14.65	GW-7	11.89	6.89
P-8	21.42	GW-8	12.96	8.00
P-9	20.26	GW-9	12.83	7.11
P-10	19.33	GW-10	11.24	6.57
P-11(PZ-17)	15.67	GW-11(GC-6)	8.67	5.45
P-12	13.92	GW-12	11.24	1.49
P-13	14.57	GW-13	11.08	3.50
P-14	15.32	GW-14	5.16	4.70
P-15	14.64	GW-15	6.59	4.81
P-16	13.58	GW-16	8.35	4.97
P-17	14.39	GW-17	8.37	3.93

Comments:

* Piezometers P-3, P-4, P-5, P-6 and P-7 could not be installed due to construction in this area

The reading from P-2 was used to compare water levels to GW-2, GW-3, GW-4 & GW-5; and PZ-13 for GW-6 & GW-7.

** P-11 and GW-11 could not be installed due to construction in this area.

PZ-17 and GC-6 were left in-place and used to measure the gradient in this area.

Date Data Collected: January 17, 2006

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: FEBRUARY 2006

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.34	inward	GW-1	38.88	30.11
P-2	42.32	28.40	inward	GW-2	40.92	30.10
P-3*	42.32	28.40	inward	GW-3	39.40	32.01
P-4*	42.32	28.40	inward	GW-4	40.53	31.51
P-5 *	42.32	28.40	inward	GW-5	39.90	30.66
P-6 *	35.36	20.35	inward	GW-6	38.95	29.62
P-7 (PZ-13)	35.36	20.35	inward	GW-7	39.49	27.40
P-8	40.21	18.68	inward	GW-8	38.75	26.66
P-9	39.97	19.60	inward	GW-9	38.65	26.91
P-10	39.86	20.45	inward	GW-10	38.34	27.03
P-11(PZ_17) **	40.57	24.60	inward	GW-11 (GC-6)**	39.02	30.22
P-12	43.28	29.36	inward	GW-12	42.09	30.77
P-13	44.78	30.22	inward	GW-13	44.79	33.39
P-14	45.09	29.80	inward	GW-14	39.63	34.46
P-15	45.57	30.89	inward	GW-15	42.33	35.70
P-16	44.67	31.09	inward	GW-16	44.41	36.38
P-17	44.28	29.83	inward	GW-17	42.19	33.64

P-1	13.34	GW-1	8.57	0.77
P-2	13.92	GW-2	10.82	1.70
P-3	13.92	GW-3	7.39	3.61
P-4 (PZ-12A)#	13.92	GW-4	9.02	3.11
P-5	13.92	GW-5	9.24	2.26
P-6	15.01	GW-6	9.33	9.27
P-7 (PZ-13)	15.01	GW-7	12.09	7.05
P-8	21.53	GW-8	13.09	7.98
P-9	20.37	GW-9	12.74	7.31
P-10	19.41	GW-10	11.31	6.58
P-11(PZ-17)	15.97	GW-11(GC-6)	8.80	5.62
P-12	13.92	GW-12	11.32	1.41
P-13	14.56	GW-13	11.40	3.17
P-14	15.29	GW-14	5.17	4.66
P-15	14.68	GW-15	6.63	4.81
P-16	13.58	GW-16	8.03	5.29
P-17	14.45	GW-17	8.55	3.81

Comments:

* Piezometers P-3, P-4, P-5, P-6 and P-7 could not be installed due to construction in this area.

The reading from P-2 was used to compare water levels to GW-2, GW-3, GW-4 & GW-5; and PZ-13 for GW-6 & GW-7.

** P-11 and GW-11 could not be installed due to construction in this area.

PZ-17 and GC-6 were left in-place and used to measure the gradient in this area.

Date Data Collected: February 21, 2006

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: MARCH 2006

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.38	inward	GW-1	38.68	29.83
P-2	42.32	28.44	inward	GW-2	40.92	29.81
P-3 (P-2)*	42.32	28.44	inward	GW-3	39.40	31.46
P-4 (P-2)*	42.32	28.44	inward	GW-4	40.53	30.79
P-5 (P-2)*	42.32	28.44	inward	GW-5	39.90	30.10
P-6 (P-2) *	42.32	28.44	inward	GW-6	38.95	29.17
P-7 (P-8)*	40.21	18.65	inward	GW-7	39.49	27.06
P-8	40.21	18.65	inward	GW-8	39.75	26.30
P-9	39.97	19.56	inward	GW-9	38.65	26.54
P-10	39.86	20.44	inward	GW-10	38.34	26.53
P-11(PZ-17) **	40.57	24.42	inward	GW-11 (GC-6)**	39.02	29.94
P-12	43.28	29.36	inward	GW-12	42.08	30.50
P-13	44.78	30.18	inward	GW-13	44.79	31.94
P-14	45.09	29.78	inward	GW-14	39.63	34.10
P-15	45.57	30.90	inward	GW-15	42.33	35.68
P-16	44.67	31.07	inward	GW-16	44.41	36.18
P-17	44.28	29.90	inward	GW-17	42.19	33.52

P-1	13.30	GW-1	8.85	0.45
P-2	13.88	GW-2	11.11	1.37
P-3	13.88	GW-3	7.94	3.02
P-4 (PZ-12A)#	13.88	GW-4	9.74	2.35
P-5	13.88	GW-5	9.80	1.66
P-6	13.88	GW-6	9.78	0.73
P-7 (PZ-13)	21.56	GW-7	12.43	8.41
P-8	21.56	GW-8	13.45	7.65
P-9	20.41	GW-9	13.11	6.98
P-10	19.42	GW-10	11.81	6.09
P-11(PZ-17)	16.15	GW-11(GC-6)	9.08	5.52
P-12	13.92	GW-12	11.59	1.14
P-13	14.60	GW-13	12.85	1.76
P-14	15.31	GW-14	5.53	4.32
P-15	14.67	GW-15	6.65	4.78
P-16	13.60	GW-16	8.23	5.11
P-17	14.38	GW-17	8.67	3.62

Comments:

* Piezometers P-3, P-4, P-5, P-6 and P-7 could not be installed due to construction in this area.

The reading from P-2 was used to compare water levels to GW-2, GW-3, GW-4, GW-5 & GW-6; and P-8 for GW-7.

** P-11 and GW-11 could not be installed due to construction in this area.

PZ-17 and GC-6 were left in-place and used to measure the gradient in this area.

Date Data Collected: March 20, 2006

Form Revised December 8, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: April 2006

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.27	inward	GW-1	38.68	29.38
P-2	42.32	28.31	inward	GW-2	40.92	29.35
P-3 *	42.32	28.24	inward	GW-3	39.40	30.89
P-4 *	42.32	23.95	inward	GW-4	40.53	30.22
P-5 *	42.32	22.93	inward	GW-5	39.90	29.53
P-6 *	42.32	21.45	inward	GW-6	38.95	28.64
P-7*	42.32	20.62	inward	GW-7	39.49	26.54
P-8	40.21	18.62	inward	GW-8	39.75	25.78
P-9	39.97	19.48	inward	GW-9	39.65	26.25
P-10	39.86	19.33	inward	GW-10	38.34	26.15
P-11**	40.57	23.02	inward	GW-11 **	38.02	30.22
P-12	43.28	29.29	inward	GW-12	42.09	29.67
P-13	44.78	30.20	inward	GW-13	44.79	31.88
P-14	45.09	29.79	inward	GW-14	39.63	33.91
P-15	45.57	30.89	inward	GW-15	42.33	35.42
P-16	44.67	30.99	inward	GW-16	44.41	35.15
P-17	44.28	29.81	inward	GW-17	42.19	33.00

P-1	13.41	GW-1	9.30	0.11
P-2	14.01	GW-2	11.57	1.04
P-3	14.08	GW-3	8.51	2.65
P-4	18.37	GW-4	10.31	6.27
P-5	19.39	GW-5	10.37	6.60
P-6	20.87	GW-6	10.31	7.19
P-7	21.70	GW-7	12.95	5.92
P-8	21.59	GW-8	13.97	7.16
P-9	20.49	GW-9	13.40	6.77
P-10	20.53	GW-10	12.19	6.82
P-11	17.55	GW-11	8.80	7.20
P-12	13.99	GW-12	12.42	0.38
P-13	14.58	GW-13	12.91	1.68
P-14	15.30	GW-14	5.72	4.12
P-15	14.68	GW-15	6.91	4.53
P-16	13.68	GW-16	9.26	4.16
P-17	14.47	GW-17	9.19	3.19

Comments:

* Piezometers P-3, P-4, P-5, P-6 and P-7 were installed but not surveyed. Riser elevations estimated based on P-2.

** P-11 and GW-11 were installed, but not surveyed. Riser elevations were estimated based on dike elevations.

Date Data Collected: April 21, 2006

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: May 2006

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.27	inward	GW-1	38.68	29.28
P-2	42.32	28.49	inward	GW-2	40.92	30.02
P-3 *	42.32	27.95	inward	GW-3	39.40	30.49
P-4 *	42.32	23.97	inward	GW-4	40.53	30.83
P-5 *	42.32	22.90	inward	GW-5	39.90	29.15
P-6 *	42.32	20.46	inward	GW-6	38.95	28.29
P-7*	42.32	20.64	inward	GW-7	39.49	26.13
P-8	40.21	18.62	inward	GW-8	39.75	25.45
P-9	39.97	19.54	inward	GW-9	39.65	25.05
P-10	39.86	19.32	inward	GW-10	38.34	25.80
P-11**	40.57	23.07	inward	GW-11 **	39.02	30.00
P-12	43.28	29.29	inward	GW-12	42.09	29.67
P-13	44.78	30.17	inward	GW-13	44.79	31.97
P-14	45.09	29.90	inward	GW-14	39.63	33.59
P-15	45.57	30.97	inward	GW-15	42.33	35.19
P-16	44.67	31.18	inward	GW-16	44.41	34.41
P-17	44.28	29.94	inward	GW-17	42.19	32.81

P-1	13.41	GW-1	9.40	0.01
P-2	13.83	GW-2	10.90	1.53
P-3	14.37	GW-3	8.91	2.54
P-4	18.35	GW-4	9.70	6.86
P-5	19.42	GW-5	10.75	6.25
P-6	21.86	GW-6	10.66	7.83
P-7	21.68	GW-7	13.36	5.49
P-8	21.59	GW-8	14.30	6.83
P-9	20.43	GW-9	13.60	6.51
P-10	20.54	GW-10	12.54	6.48
P-11	17.50	GW-11	9.02	6.93
P-12	13.99	GW-12	12.42	0.38
P-13	14.61	GW-13	12.82	1.80
P-14	15.19	GW-14	6.04	3.69
P-15	14.60	GW-15	7.14	4.22
P-16	13.49	GW-16	10.00	3.23
P-17	14.34	GW-17	9.38	2.87

Comments:

* Piezometers P-3, P-4, P-5, P-6 and P-7 were installed but not surveyed. Riser elevations estimated based on P-2.

** P-11 and GW-11 were installed, but not surveyed. Riser elevations were estimated based on dike elevations.

Date Data Collected: May 11, 2006

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: June 2006

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.23	inward	GW-1	38.68	30.61
P-2	42.32	28.26	inward	GW-2	40.92	30.19
P-3	40.36	27.67	inward	GW-3	39.40	32.23
P-4	40.78	22.56	inward	GW-4	40.53	33.01
P-5	40.73	21.42	inward	GW-5	39.90	31.24
P-6	40.74	19.99	inward	GW-6	38.95	31.04
P-7	40.60	19.03	inward	GW-7	39.49	29.36
P-8	40.21	18.74	inward	GW-8	39.75	29.57
P-9	39.97	19.82	inward	GW-9	39.65	28.91
P-10	38.86	18.42	inward	GW-10	38.34	30.12
P-11	40.52	22.95	inward	GW-11	38.26	31.05
P-12	43.28	29.34	inward	GW-12	42.09	31.61
P-13	44.78	30.24	inward	GW-13	44.79	32.92
P-14	45.09	29.84	inward	GW-14	39.63	34.54
P-15	45.57	30.90	inward	GW-15	42.33	35.46
P-16	44.67	31.01	inward	GW-16	44.41	34.11
P-17	44.28	29.85	inward	GW-17	42.19	34.19

Comments:

P-1	13.45	GW-1	8.07	1.38
P-2	14.06	GW-2	10.73	1.93
P-3	12.69	GW-3	7.17	4.56
P-4	18.22	GW-4	7.52	10.45
P-5	19.31	GW-5	8.66	9.82
P-6	20.75	GW-6	7.91	11.05
P-7	21.57	GW-7	10.13	10.33
P-8	21.47	GW-8	10.18	10.83
P-9	20.15	GW-9	10.74	9.09
P-10	20.44	GW-10	8.22	10.70
P-11	17.57	GW-11	7.21	8.10
P-12	13.94	GW-12	10.48	2.27
P-13	14.54	GW-13	11.87	2.68
P-14	15.25	GW-14	5.09	4.70
P-15	14.67	GW-15	6.87	4.56
P-16	13.66	GW-16	10.30	3.10
P-17	14.43	GW-17	8.00	4.34

Date Data Collected: June 15, 2006

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: July 2006

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.34	inward	GW-1	38.68	31.33
P-2	42.32	28.48	inward	GW-2	40.92	31.20
P-3	40.36	28.02	inward	GW-3	39.40	33.22
P-4	40.78	22.52	inward	GW-4	40.53	32.85
P-5	40.73	21.32	inward	GW-5	39.90	31.68
P-6	40.74	20.00	inward	GW-6	38.95	31.03
P-7	40.60	19.03	inward	GW-7	39.49	30.22
P-8	40.21	18.77	inward	GW-8	39.75	29.79
P-9	39.97	19.48	inward	GW-9	39.65	28.79
P-10	39.86	19.38	inward	GW-10	38.34	29.96
P-11	40.52	22.90	inward	GW-11	38.26	31.30
P-12	43.28	29.38	inward	GW-12	42.09	31.75
P-13	44.78	30.22	inward	GW-13	44.79	33.46
P-14	45.09	29.78	inward	GW-14	39.63	34.14
P-15	45.57	30.89	inward	GW-15	42.33	35.13
P-16	44.67	31.18	inward	GW-16	44.41	34.47
P-17	44.28	29.91	inward	GW-17	42.19	34.11

P-1	13.34	GW-1	7.35	1.89
P-2	13.83	GW-2	9.72	2.71
P-3	12.34	GW-3	6.18	5.20
P-4	18.26	GW-4	7.68	10.33
P-5	19.41	GW-5	8.22	10.36
P-6	20.74	GW-6	7.92	11.03
P-7	21.57	GW-7	9.27	11.19
P-8	21.44	GW-8	9.96	11.02
P-9	20.48	GW-9	10.86	9.30
P-10	20.50	GW-10	8.38	10.60
P-11	17.62	GW-11	6.96	8.40
P-12	13.90	GW-12	10.34	2.37
P-13	14.56	GW-13	11.33	3.24
P-14	15.31	GW-14	5.49	4.36
P-15	14.68	GW-15	7.20	4.24
P-16	13.49	GW-16	9.94	3.29
P-17	14.37	GW-17	8.08	4.20

Comments:

Date Data Collected: July 18, 2006

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: August 2006

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.44	inward	GW-1	38.68	33.50
P-2	42.32	28.53	inward	GW-2	40.92	33.28
P-3	40.36	28.18	inward	GW-3	39.40	35.38
P-4	40.78	22.67	inward	GW-4	40.53	33.89
P-5	40.73	21.46	inward	GW-5	39.90	33.05
P-6	40.74	20.07	inward	GW-6	38.95	32.41
P-7	40.60	19.11	inward	GW-7	39.49	31.46
P-8	40.21	18.89	inward	GW-8	39.75	30.41
P-9	39.97	19.65	inward	GW-9	39.65	29.95
P-10	39.86	19.38	inward	GW-10	38.34	30.81
P-11	40.52	22.93	inward	GW-11	38.26	32.07
P-12	43.28	29.42	inward	GW-12	42.09	32.44
P-13	44.78	30.21	inward	GW-13	44.79	33.74
P-14	45.09	29.81	inward	GW-14	39.63	34.85
P-15	45.57	30.92	inward	GW-15	42.33	35.81
P-16	44.67	30.97	inward	GW-16	44.41	35.96
P-17	44.28	29.92	inward	GW-17	42.19	35.23

P-1	13.24	GW-1	5.18	4.06
P-2	13.79	GW-2	7.64	4.75
P-3	12.18	GW-3	4.02	7.20
P-4	18.11	GW-4	6.64	11.22
P-5	19.27	GW-5	6.85	11.59
P-6	20.67	GW-6	6.54	12.34
P-7	21.49	GW-7	8.03	12.35
P-8	21.32	GW-8	9.34	11.52
P-9	20.32	GW-9	9.70	10.30
P-10	20.48	GW-10	7.53	11.43
P-11	17.59	GW-11	6.19	9.14
P-12	13.86	GW-12	9.65	3.02
P-13	14.57	GW-13	11.05	3.53
P-14	15.28	GW-14	4.78	5.04
P-15	14.65	GW-15	6.52	4.89
P-16	13.70	GW-16	8.45	4.99
P-17	14.36	GW-17	6.96	5.31

Comments:

Date Data Collected: August 22, 2006

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: September 2006

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.70	inward	GW-1	38.68	30.43
P-2	42.32	28.81	inward	GW-2	40.92	30.37
P-3	40.36	28.15	inward	GW-3	39.40	35.25
P-4	40.78	22.75	inward	GW-4	40.53	33.94
P-5	40.73	21.70	inward	GW-5	39.90	33.03
P-6	40.74	20.19	inward	GW-6	38.95	32.39
P-7	40.60	19.45	inward	GW-7	39.49	30.59
P-8	40.21	19.56	inward	GW-8	39.75	28.93
P-9	39.97	20.35	inward	GW-9	39.65	29.50
P-10	39.86	19.74	inward	GW-10	38.34	30.15
P-11	40.52	23.01	inward	GW-11	38.26	31.98
P-12	43.28	29.60	inward	GW-12	42.09	31.66
P-13	44.78	30.36	inward	GW-13	44.79	33.60
P-14	45.09	30.30	inward	GW-14	39.63	34.72
P-15	45.57	31.02	inward	GW-15	42.33	35.14
P-16	44.67	31.09	inward	GW-16	44.41	36.62
P-17	44.28	29.94	inward	GW-17	42.19	35.52

P-1	12.98	GW-1	8.25	0.73
P-2	13.51	GW-2	10.55	1.58
P-3	12.21	GW-3	4.15	7.10
P-4	18.03	GW-4	6.59	11.19
P-5	19.03	GW-5	6.87	11.33
P-6	20.55	GW-6	6.56	12.20
P-7	21.15	GW-7	8.90	11.14
P-8	20.85	GW-8	10.82	9.37
P-9	19.82	GW-9	10.15	9.15
P-10	20.12	GW-10	8.19	10.41
P-11	17.51	GW-11	6.28	8.97
P-12	13.68	GW-12	10.43	2.06
P-13	14.42	GW-13	11.19	3.24
P-14	14.79	GW-14	4.91	4.42
P-15	14.55	GW-15	7.19	4.12
P-16	13.58	GW-16	7.79	5.53
P-17	14.34	GW-17	6.67	5.58

Comments:

Date Data Collected: September 19, 2006

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: October 2006

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.54	inward	GW-1	38.68	31.10
P-2	42.32	28.55	inward	GW-2	40.92	31.11
P-3	40.36	27.94	inward	GW-3	39.40	32.83
P-4	40.78	22.41	inward	GW-4	40.53	31.94
P-5	40.73	21.21	inward	GW-5	39.90	31.57
P-6	40.74	19.85	inward	GW-6	38.95	30.73
P-7	40.60	18.91	inward	GW-7	39.49	28.70
P-8	40.21	18.70	inward	GW-8	39.75	27.69
P-9	39.97	19.42	inward	GW-9	39.65	28.27
P-10	39.86	19.25	inward	GW-10	38.34	28.71
P-11	40.52	22.84	inward	GW-11	38.26	30.55
P-12	43.28	29.39	inward	GW-12	42.09	30.89
P-13	44.78	30.24	inward	GW-13	44.79	32.13
P-14	45.09	29.76	inward	GW-14	39.63	33.98
P-15	45.57	30.92	inward	GW-15	42.33	35.25
P-16	44.67	30.93	inward	GW-16	44.41	36.24
P-17	44.28	29.89	inward	GW-17	42.19	33.65

Comments:

P-1	13.14	GW-1	7.58	1.56
P-2	13.77	GW-2	9.81	2.56
P-3	12.42	GW-3	6.57	4.89
P-4	18.37	GW-4	8.59	9.53
P-5	19.52	GW-5	8.33	10.36
P-6	20.89	GW-6	8.22	10.88
P-7	21.69	GW-7	10.79	9.79
P-8	21.51	GW-8	12.06	8.99
P-9	20.55	GW-9	11.38	8.85
P-10	20.61	GW-10	9.63	9.46
P-11	17.68	GW-11	7.71	7.71
P-12	13.89	GW-12	11.20	1.50
P-13	14.54	GW-13	12.66	1.89
P-14	15.33	GW-14	5.65	4.22
P-15	14.65	GW-15	7.08	4.33
P-16	13.74	GW-16	8.17	5.31
P-17	14.39	GW-17	8.54	3.76

Date Data Collected: October 12, 2006

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: November 2006

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.47	inward	GW-1	38.68	30.44
P-2	42.32	28.58	inward	GW-2	40.92	30.43
P-3	40.36	27.50	inward	GW-3	39.40	32.19
P-4	40.78	22.91	inward	GW-4	40.53	31.56
P-5	40.73	22.48	inward	GW-5	39.90	31.01
P-6	40.74	22.35	inward	GW-6	38.95	30.29
P-7	40.60	22.09	inward	GW-7	39.49	28.20
P-8	40.21	22.13	inward	GW-8	39.75	27.30
P-9	39.97	21.62	inward	GW-9	39.65	26.83
P-10	39.86	21.37	inward	GW-10	38.34	26.87
P-11	40.52	23.06	inward	GW-11	38.26	30.17
P-12	43.28	29.47	inward	GW-12	42.09	30.76
P-13	44.78	30.38	inward	GW-13	44.79	32.27
P-14	45.09	29.83	inward	GW-14	39.63	34.04
P-15	45.57	30.94	inward	GW-15	42.33	35.24
P-16	44.67	30.99	inward	GW-16	44.41	35.68
P-17	44.28	29.97	inward	GW-17	42.19	33.52

P-1	13.21	GW-1	8.24	0.97
P-2	13.74	GW-2	10.49	1.85
P-3	12.86	GW-3	7.21	4.69
P-4	17.87	GW-4	8.97	8.65
P-5	18.25	GW-5	8.89	8.53
P-6	18.39	GW-6	8.66	7.94
P-7	18.51	GW-7	11.29	6.11
P-8	18.08	GW-8	12.45	5.17
P-9	18.35	GW-9	12.82	5.21
P-10	18.49	GW-10	11.47	5.50
P-11	17.46	GW-11	8.09	7.11
P-12	13.81	GW-12	11.33	1.29
P-13	14.40	GW-13	12.52	1.89
P-14	15.26	GW-14	5.59	4.21
P-15	14.63	GW-15	7.09	4.30
P-16	13.68	GW-16	8.73	4.69
P-17	14.31	GW-17	8.67	3.55

Comments:

Date Data Collected: November 9, 2006

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: December 2006

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.41	inward	GW-1	38.68	30.03
P-2	42.32	28.50	inward	GW-2	40.92	29.98
P-3	40.36	26.13	inward	GW-3	39.40	31.30
P-4	40.78	22.19	inward	GW-4	40.53	30.70
P-5	40.73	21.11	inward	GW-5	39.90	30.15
P-6	40.74	19.85	inward	GW-6	38.95	29.33
P-7	40.60	18.92	inward	GW-7	39.49	27.26
P-8	40.21	18.62	inward	GW-8	39.75	26.26
P-9	39.97	19.54	inward	GW-9	39.65	26.56
P-10	39.86	19.37	inward	GW-10	38.34	26.57
P-11	40.52	22.80	inward	GW-11	38.26	29.57
P-12	43.28	29.45	inward	GW-12	42.09	29.50
P-13	44.78	30.37	inward	GW-13	44.79	32.22
P-14	45.09	29.85	inward	GW-14	39.63	34.03
P-15	45.57	30.97	inward	GW-15	42.33	35.33
P-16	44.67	31.05	inward	GW-16	44.41	35.10
P-17	44.28	29.93	inward	GW-17	42.19	33.46

P-1	13.27	GW-1	8.65	-0.62
P-2	13.82	GW-2	10.94	1.48
P-3	14.23	GW-3	8.10	5.17
P-4	18.59	GW-4	9.83	8.51
P-5	19.62	GW-5	9.75	9.04
P-6	20.89	GW-6	9.62	9.48
P-7	21.68	GW-7	12.23	8.34
P-8	21.59	GW-8	13.49	7.64
P-9	20.43	GW-9	13.09	7.02
P-10	20.49	GW-10	11.77	7.20
P-11	17.72	GW-11	8.69	6.77
P-12	13.83	GW-12	12.59	0.05
P-13	14.41	GW-13	12.57	1.85
P-14	15.24	GW-14	5.60	4.18
P-15	14.60	GW-15	7.00	4.36
P-16	13.62	GW-16	9.31	4.05
P-17	14.35	GW-17	8.73	3.53

Comments:

Date Data Collected: December 20, 2006

Form Revised December 20, 2004

(BLANK)

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: January 2007

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.35	inward	GW-1	38.68	29.91
P-2	42.32	28.41	inward	GW-2	40.92	29.95
P-3	40.36	25.78	inward	GW-3	39.40	31.36
P-4	40.78	22.13	inward	GW-4	40.53	30.89
P-5	40.73	21.66	inward	GW-5	39.90	30.22
P-6	40.74	21.32	inward	GW-6	38.95	29.40
P-7	40.60	21.20	inward	GW-7	38.49	27.46
P-8	40.21	21.20	inward	GW-8	39.75	26.58
P-9	39.97	21.10	inward	GW-9	39.65	26.61
P-10	39.86	20.32	inward	GW-10	38.34	26.60
P-11	40.52	22.67	inward	GW-11	38.26	29.24
P-12	43.28	29.29	inward	GW-12	42.09	30.21
P-13	44.78	30.25	inward	GW-13	44.79	32.10
P-14	45.09	29.78	inward	GW-14	39.63	34.12
P-15	45.57	29.91	inward	GW-15	42.33	35.06
P-16	44.67	31.00	inward	GW-16	44.41	34.81
P-17	44.28	29.85	inward	GW-17	42.19	33.18

P-1	13.33	GW-1	8.77	-0.66
P-2	13.91	GW-2	10.97	1.54
P-3	14.58	GW-3	8.04	5.58
P-4	18.65	GW-4	9.64	8.76
P-5	19.07	GW-5	9.68	8.56
P-6	19.42	GW-6	9.55	8.08
P-7	19.40	GW-7	12.03	6.26
P-8	19.01	GW-8	13.17	5.38
P-9	18.87	GW-9	13.04	5.51
P-10	19.54	GW-10	11.74	6.28
P-11	17.85	GW-11	9.02	6.57
P-12	13.99	GW-12	11.88	0.92
P-13	14.53	GW-13	12.69	1.85
P-14	15.31	GW-14	5.51	4.34
P-15	15.66	GW-15	7.27	5.15
P-16	13.67	GW-16	9.80	3.81
P-17	14.43	GW-17	9.01	3.33

Comments:

Date Data Collected: January 23, 2007

Form Revised December 8, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: February 2007

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.33	inward	GW-1	38.68	30.54
P-2	42.32	28.39	inward	GW-2	40.92	30.55
P-3	40.36	25.80	inward	GW-3	39.40	32.12
P-4	40.78	22.15	inward	GW-4	40.53	31.79
P-5	40.73	21.68	inward	GW-5	39.90	31.15
P-6	40.74	21.33	inward	GW-6	38.95	30.45
P-7	40.60	21.29	inward	GW-7	39.49	28.33
P-8	40.21	21.23	inward	GW-8	39.75	27.34
P-9	39.97	21.28	inward	GW-9	39.65	26.81
P-10	39.86	20.33	inward	GW-10	38.34	27.03
P-11	40.52	22.70	inward	GW-11	38.26	29.43
P-12	43.28	29.32	inward	GW-12	42.09	30.30
P-13	44.78	30.23	inward	GW-13	44.79	32.19
P-14	45.09	29.80	inward	GW-14	39.63	34.06
P-15	45.57	30.90	inward	GW-15	42.33	35.04
P-16	44.67	31.01	inward	GW-16	44.41	34.85
P-17	44.28	29.84	inward	GW-17	42.19	33.33

P-1	13.35	GW-1	8.14	1.21
P-2	13.93	GW-2	10.37	2.16
P-3	14.56	GW-3	7.28	6.32
P-4	18.63	GW-4	8.74	9.64
P-5	19.05	GW-5	8.75	9.47
P-6	19.41	GW-6	8.50	9.12
P-7	19.31	GW-7	11.16	7.04
P-8	18.98	GW-8	12.41	6.11
P-9	18.69	GW-9	12.84	5.53
P-10	19.53	GW-10	11.31	6.70
P-11	17.82	GW-11	8.83	6.73
P-12	13.96	GW-12	11.79	0.98
P-13	14.55	GW-13	12.60	1.96
P-14	15.29	GW-14	5.67	4.26
P-15	14.67	GW-15	7.29	4.14
P-16	13.66	GW-16	9.56	3.84
P-17	14.44	GW-17	8.86	3.49

Comments:

Date Data Collected: February 21, 2007

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: March 2007

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.56	inward	GW-1	38.68	30.08
P-2	42.32	28.62	inward	GW-2	40.92	30.11
P-3	40.36	25.66	inward	GW-3	39.40	31.38
P-4	40.78	22.16	inward	GW-4	40.53	30.93
P-5	40.73	21.75	inward	GW-5	39.90	30.34
P-6	40.74	21.39	inward	GW-6	38.95	29.63
P-7	40.60	21.39	inward	GW-7	39.49	27.39
P-8	40.21	21.36	inward	GW-8	39.75	26.50
P-9	39.97	21.46	inward	GW-9	39.65	26.75
P-10	39.86	20.41	inward	GW-10	38.34	26.47
P-11	40.52	22.77	inward	GW-11	38.26	29.11
P-12	43.28	29.47	inward	GW-12	42.09	30.09
P-13	44.78	30.37	inward	GW-13	44.79	32.39
P-14	45.09	29.86	inward	GW-14	39.63	34.18
P-15	45.57	30.93	inward	GW-15	42.33	35.19
P-16	44.67	31.12	inward	GW-16	44.41	34.67
P-17	44.28	30.05	inward	GW-17	42.19	33.22

P-1	13.12	GW-1	8.60	0.62
P-2	13.70	GW-2	10.81	1.49
P-3	14.70	GW-3	8.02	5.72
P-4	18.62	GW-4	9.60	8.77
P-5	18.98	GW-5	9.56	8.59
P-6	19.35	GW-6	9.32	8.24
P-7	19.21	GW-7	12.10	6.00
P-8	18.85	GW-8	13.25	5.14
P-9	18.51	GW-9	12.90	5.29
P-10	19.45	GW-10	11.87	8.06
P-11	17.75	GW-11	9.15	6.34
P-12	13.81	GW-12	12.00	0.62
P-13	14.41	GW-13	12.40	2.02
P-14	15.23	GW-14	5.45	4.32
P-15	14.64	GW-15	7.14	4.28
P-16	13.55	GW-16	9.74	3.55
P-17	14.23	GW-17	8.97	3.17

Comments:

Date Data Collected: March 16, 2007

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: April 2007

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.30	inward	GW-1	38.68	30.67
P-2	42.32	28.42	inward	GW-2	40.92	30.23
P-3	40.36	26.08	inward	GW-3	39.40	31.98
P-4	40.78	22.24	inward	GW-4	40.53	32.00
P-5	40.73	21.78	inward	GW-5	39.90	31.24
P-6	40.74	21.44	inward	GW-6	38.95	30.96
P-7	40.60	21.43	inward	GW-7	39.49	29.14
P-8	40.21	21.37	inward	GW-8	39.75	29.01
P-9	39.97	21.42	inward	GW-9	39.65	28.09
P-10	39.86	20.45	inward	GW-10	38.34	27.94
P-11	40.52	22.73	inward	GW-11	38.26	30.50
P-12	43.28	29.43	inward	GW-12	42.09	29.97
P-13	44.78	30.38	inward	GW-13	44.79	32.17
P-14	45.09	29.85	inward	GW-14	39.63	34.21
P-15	45.57	30.89	inward	GW-15	42.33	34.98
P-16	44.67	30.99	inward	GW-16	44.41	33.81
P-17	44.28	29.86	inward	GW-17	42.19	33.64

Comments:

P-1	13.38	GW-1	8.01
P-2	13.90	GW-2	10.69
P-3	14.28	GW-3	7.42
P-4	18.54	GW-4	8.53
P-5	18.95	GW-5	8.66
P-6	19.30	GW-6	7.99
P-7	19.17	GW-7	10.35
P-8	18.84	GW-8	10.74
P-9	18.55	GW-9	11.56
P-10	19.41	GW-10	10.40
P-11	17.79	GW-11	7.76
P-12	13.85	GW-12	12.12
P-13	14.40	GW-13	12.62
P-14	15.24	GW-14	5.42
P-15	14.68	GW-15	7.35
P-16	13.68	GW-16	10.60
P-17	14.42	GW-17	8.55

1.37
1.81
5.90
9.76
9.46
9.52
7.71
7.64
6.67
7.49
7.77
0.54
1.79
4.36
4.09
2.82
3.78

Date Data Collected: April 13, 2007

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: May 2007

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.33	inward	GW-1	38.68	29.38
P-2	42.32	28.52	inward	GW-2	40.92	29.39
P-3	40.36	26.26	inward	GW-3	39.40	31.03
P-4	40.78	22.08	inward	GW-4	40.53	29.80
P-5	40.73	21.74	inward	GW-5	39.90	29.31
P-6	40.74	21.42	inward	GW-6	38.95	28.55
P-7	40.60	21.47	inward	GW-7	39.49	26.56
P-8	40.21	21.39	inward	GW-8	39.75	25.50
P-9	39.97	21.45	inward	GW-9	39.65	23.63
P-10	39.86	20.42	inward	GW-10	38.34	24.83
P-11	40.52	22.70	inward	GW-11	38.26	29.11
P-12	43.28	29.41	inward	GW-12	42.09	29.63
P-13	44.78	30.38	inward	GW-13	44.79	34.66
P-14	45.09	29.88	inward	GW-14	39.63	32.22
P-15	45.57	30.98	inward	GW-15	42.33	33.64
P-16	44.67	31.06	inward	GW-16	44.41	31.21
P-17	44.28	29.98	inward	GW-17	42.19	32.02

Comments:

P-1	13.35	GW-1	9.30	0.05
P-2	13.80	GW-2	11.53	0.87
P-3	14.10	GW-3	8.37	4.77
P-4	18.70	GW-4	10.73	7.72
P-5	18.99	GW-5	10.59	7.57
P-6	19.32	GW-6	10.40	7.13
P-7	19.13	GW-7	12.93	5.09
P-8	18.82	GW-8	14.25	4.11
P-9	18.52	GW-9	15.82	2.38
P-10	19.44	GW-10	13.51	4.41
P-11	17.82	GW-11	9.15	6.41
P-12	13.87	GW-12	12.46	0.22
P-13	14.40	GW-13	10.13	4.28
P-14	15.21	GW-14	7.41	2.34
P-15	14.61	GW-15	8.69	2.68
P-16	13.61	GW-16	13.20	0.15
P-17	14.30	GW-17	10.17	2.04

Date Data Collected: May 22, 2007

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: June 2007

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.88	29.40	inward	GW-1	38.68	29.72
P-2	42.32	28.53	inward	GW-2	40.92	29.67
P-3	40.36	25.81	inward	GW-3	39.40	31.59
P-4	40.78	22.15	inward	GW-4	40.53	30.80
P-5	40.73	21.76	inward	GW-5	39.90	30.32
P-6	40.74	21.42	inward	GW-6	38.95	29.89
P-7	40.60	21.45	inward	GW-7	39.49	26.63
P-8	40.21	21.40	inward	GW-8	39.75	27.11
P-9	39.97	21.52	inward	GW-9	39.65	26.47
P-10	39.86	20.49	inward	GW-10	38.34	26.79
P-11	40.52	22.79	inward	GW-11	38.26	29.55
P-12	43.28	29.46	inward	GW-12	42.09	30.27
P-13	44.78	30.39	inward	GW-13	44.79	31.97
P-14	45.09	29.91	inward	GW-14	39.63	32.33
P-15	45.57	31.01	inward	GW-15	42.33	33.38
P-16	44.67	31.11	inward	GW-16	44.41	31.15
P-17	44.28	29.99	inward	GW-17	42.19	32.70

P-1	13.28	GW-1	8.96	0.32
P-2	13.79	GW-2	11.25	1.14
P-3	14.55	GW-3	7.81	5.78
P-4	18.63	GW-4	9.73	8.65
P-5	18.97	GW-5	9.58	8.56
P-6	19.32	GW-6	9.06	8.47
P-7	19.15	GW-7	12.86	5.18
P-8	18.81	GW-8	12.64	5.71
P-9	18.45	GW-9	13.18	4.95
P-10	19.37	GW-10	11.55	6.30
P-11	17.73	GW-11	8.71	6.76
P-12	13.82	GW-12	11.82	0.81
P-13	14.39	GW-13	12.82	1.58
P-14	15.18	GW-14	7.30	2.42
P-15	14.56	GW-15	8.95	2.37
P-16	13.56	GW-16	13.26	0.04
P-17	14.29	GW-17	9.49	2.71

Comments:

Date Data Collected: June 28, 2007

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: July 2007

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.25	inward	GW-1	38.68	29.72
P-2	42.32	28.62	inward	GW-2	40.92	30.42
P-3	40.36	27.91	inward	GW-3	39.40	32.97
P-4	40.78	22.27	inward	GW-4	40.53	32.43
P-5	40.73	21.77	inward	GW-5	39.90	31.30
P-6	40.74	21.43	inward	GW-6	38.95	31.04
P-7	40.60	21.44	inward	GW-7	39.49	29.76
P-8	40.21	21.41	inward	GW-8	39.75	29.25
P-9	39.97	21.51	inward	GW-9	39.65	26.74
P-10	39.86	20.51	inward	GW-10	38.34	29.13
P-11	40.52	22.80	inward	GW-11	38.26	30.31
P-12	43.28	29.46	inward	GW-12	42.09	30.55
P-13	44.76	30.43	inward	GW-13	44.79	32.18
P-14	45.09	29.89	inward	GW-14	39.63	33.09
P-15	45.57	30.99	inward	GW-15	42.33	33.85
P-16	44.67	31.33	inward	GW-16	44.41	32.30
P-17	44.28	29.98	inward	GW-17	42.19	33.40

Comments:

P-1	13.43	GW-1	8.98	0.47
P-2	13.70	GW-2	10.50	1.80
P-3	12.45	GW-3	6.43	5.06
P-4	18.51	GW-4	8.10	10.16
P-5	18.96	GW-5	8.60	9.53
P-6	19.31	GW-6	7.91	9.61
P-7	19.16	GW-7	9.73	8.32
P-8	18.80	GW-8	10.50	7.84
P-9	18.46	GW-9	12.91	5.23
P-10	19.35	GW-10	9.21	8.62
P-11	17.72	GW-11	7.95	7.51
P-12	13.82	GW-12	11.54	1.09
P-13	14.35	GW-13	12.61	1.75
P-14	15.20	GW-14	6.54	3.20
P-15	14.58	GW-15	8.48	2.86
P-16	13.34	GW-16	12.11	0.97
P-17	14.30	GW-17	8.79	3.42

Date Data Collected: July 12, 2007

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: August 2007

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.30	inward	GW-1	38.68	31.33
P-2	42.32	28.61	inward	GW-2	40.92	31.23
P-3	40.36	27.96	inward	GW-3	39.40	33.97
P-4	40.78	22.32	inward	GW-4	40.53	33.04
P-5	40.73	21.78	inward	GW-5	39.90	32.21
P-6	40.74	21.44	inward	GW-6	38.95	31.57
P-7	40.60	21.46	inward	GW-7	39.49	30.75
P-8	40.21	21.42	inward	GW-8	39.75	29.96
P-9	39.97	21.50	inward	GW-9	39.65	28.82
P-10	39.86	20.52	inward	GW-10	38.34	30.80
P-11	40.52	22.83	inward	GW-11	38.26	31.21
P-12	43.28	29.48	inward	GW-12	42.09	30.90
P-13	44.78	30.42	inward	GW-13	44.79	32.38
P-14	45.09	29.87	inward	GW-14	39.63	33.53
P-15	45.57	30.95	inward	GW-15	42.33	34.13
P-16	44.67	32.04	inward	GW-16	44.41	32.94
P-17	44.28	29.94	inward	GW-17	42.19	33.70

P-1	13.38	GW-1	7.35	2.03
P-2	13.71	GW-2	9.69	2.62
P-3	12.40	GW-3	5.43	6.01
P-4	18.46	GW-4	7.49	10.72
P-5	18.95	GW-5	7.69	10.43
P-6	19.30	GW-6	7.38	10.13
P-7	19.14	GW-7	8.74	9.29
P-8	18.79	GW-8	9.79	8.54
P-9	18.47	GW-9	10.83	7.32
P-10	19.34	GW-10	7.54	10.28
P-11	17.69	GW-11	7.05	8.38
P-12	13.80	GW-12	11.19	1.42
P-13	14.36	GW-13	12.41	1.96
P-14	15.22	GW-14	6.10	3.66
P-15	14.62	GW-15	8.20	3.18
P-16	12.63	GW-16	11.47	0.90
P-17	14.34	GW-17	8.49	3.76

Comments:

Date Data Collected: August 7, 2007

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: September 2007

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.72	inward	GW-1	38.68	31.71
P-2	42.32	28.75		GW-2	40.92	31.73
P-3	40.36	28.01	inward	GW-3	39.40	33.97
P-4	40.78	22.35	inward	GW-4	40.53	33.08
P-5	40.73	21.78	inward	GW-5	39.90	32.41
P-6	40.74	21.42	inward	GW-6	38.95	31.57
P-7	40.60	21.46	inward	GW-7	39.49	30.75
P-8	40.21	21.42	inward	GW-8	39.75	29.96
P-9	39.97	21.50	inward	GW-9	39.65	28.71
P-10	39.86	20.52	inward	GW-10	38.34	29.80
P-11	40.52	22.83	inward	GW-11	38.26	30.88
P-12	43.28	29.48	inward	GW-12	42.09	31.61
P-13	44.78	30.42	inward	GW-13	44.79	32.44
P-14	45.09	29.87	inward	GW-14	39.63	33.72
P-15	45.57	30.95	inward	GW-15	42.33	33.95
P-16	44.67	31.09	inward	GW-16	44.41	33.65
P-17	44.28	29.94	inward	GW-17	42.19	33.66

Comments:

P-1	12.96	GW-1	6.97	1.99
P-2	13.57	GW-2	9.19	2.98
P-3	12.35	GW-3	5.43	5.96
P-4	18.43	GW-4	7.45	10.73
P-5	18.95	GW-5	7.49	10.63
P-6	19.32	GW-6	7.38	10.15
P-7	19.14	GW-7	8.74	9.29
P-8	18.79	GW-8	9.79	8.54
P-9	18.47	GW-9	10.94	7.21
P-10	19.34	GW-10	8.44	9.38
P-11	17.69	GW-11	7.38	8.05
P-12	13.80	GW-12	10.48	2.13
P-13	14.36	GW-13	12.35	2.02
P-14	15.22	GW-14	5.91	3.85
P-15	14.62	GW-15	8.38	3.00
P-16	13.58	GW-16	10.76	2.56
P-17	14.34	GW-17	8.53	3.72

Date Data Collected: September 20, 2007

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: October 2007

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.53	inward	GW-1	38.68	31.72
P-2	42.32	28.64	inward	GW-2	40.92	31.67
P-3	40.36	27.96	inward	GW-3	39.40	33.88
P-4	40.78	22.33	inward	GW-4	40.53	33.20
P-5	40.73	21.80	inward	GW-5	39.90	32.23
P-6	40.74	21.49	inward	GW-6	38.95	31.56
P-7	40.60	21.52	inward	GW-7	39.49	30.09
P-8	40.21	21.45	inward	GW-8	39.75	29.73
P-9	39.97	21.56	inward	GW-9	39.65	28.65
P-10	39.86	20.57	inward	GW-10	38.34	29.44
P-11	40.52	22.85	inward	GW-11	38.26	30.81
P-12	43.28	29.41	inward	GW-12	42.09	31.44
P-13	44.78	30.46	inward	GW-13	44.79	32.61
P-14	45.09	29.86	inward	GW-14	39.63	33.51
P-15	45.57	29.95	inward	GW-15	42.33	33.82
P-16	44.67	31.05	inward	GW-16	44.41	33.11
P-17	44.28	29.90	inward	GW-17	42.19	33.58

Comments:

P-1	13.15	GW-1	6.96	2.19
P-2	13.68	GW-2	9.25	3.03
P-3	12.40	GW-3	5.52	5.92
P-4	18.45	GW-4	7.33	10.87
P-5	18.93	GW-5	7.67	10.43
P-6	19.25	GW-6	7.39	10.07
P-7	19.08	GW-7	9.40	8.57
P-8	18.76	GW-8	10.02	8.28
P-9	18.41	GW-9	11.00	7.09
P-10	19.29	GW-10	8.90	8.87
P-11	17.67	GW-11	7.45	7.96
P-12	13.87	GW-12	10.65	2.03
P-13	14.32	GW-13	12.18	2.15
P-14	15.23	GW-14	6.12	3.65
P-15	15.62	GW-15	8.51	3.87
P-16	13.62	GW-16	11.30	2.06
P-17	14.38	GW-17	8.61	3.68

Date Data Collected: October 29, 2007

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: November 2007

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.53	inward	GW-1	38.68	30.61
P-2	42.32	28.65	inward	GW-2	40.92	30.59
P-3	40.36	26.91	inward	GW-3	39.40	32.50
P-4	40.78	22.23	inward	GW-4	40.53	31.68
P-5	40.73	21.78	inward	GW-5	39.90	31.24
P-6	40.74	21.46	inward	GW-6	38.95	30.52
P-7	40.60	21.49	inward	GW-7	39.49	28.53
P-8	40.21	21.42	inward	GW-8	39.75	27.38
P-9	39.97	21.55	inward	GW-9	39.65	26.79
P-10	39.86	20.47	inward	GW-10	38.34	27.18
P-11	40.52	22.79	inward	GW-11	38.26	29.80
P-12	43.28	29.46	inward	GW-12	42.09	30.95
P-13	44.78	30.43	inward	GW-13	44.79	32.50
P-14	45.09	29.91	inward	GW-14	39.83	32.53
P-15	45.57	30.93	inward	GW-15	42.33	33.33
P-16	44.67	31.16	inward	GW-16	44.41	32.01
P-17	44.28	29.92	inward	GW-17	42.19	33.07

Comments:

P-1	13.15	GW-1	8.07	1.08
P-2	13.67	GW-2	10.33	1.94
P-3	13.45	GW-3	6.90	5.59
P-4	18.55	GW-4	8.85	9.45
P-5	18.95	GW-5	8.66	9.46
P-6	19.28	GW-6	8.43	9.06
P-7	19.11	GW-7	10.96	7.04
P-8	18.79	GW-8	12.37	5.96
P-9	18.42	GW-9	12.86	5.24
P-10	19.39	GW-10	11.16	6.71
P-11	17.73	GW-11	8.46	7.01
P-12	13.62	GW-12	11.14	1.49
P-13	14.35	GW-13	12.29	2.07
P-14	15.18	GW-14	7.10	2.62
P-15	14.64	GW-15	9.00	2.40
P-16	13.51	GW-16	12.40	0.85
P-17	14.36	GW-17	9.12	3.15

Date Data Collected: November 15, 2007

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: December 2007

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.40	inward	GW-1	38.68	30.05
P-2	42.32	28.52	inward	GW-2	40.92	30.01
P-3	40.36	26.23	inward	GW-3	39.40	31.73
P-4	40.78	22.17	inward	GW-4	40.53	30.96
P-5	40.73	21.78	inward	GW-5	39.90	30.60
P-6	40.74	21.46	inward	GW-6	38.95	29.91
P-7	40.60	21.49	inward	GW-7	39.49	27.80
P-8	40.21	21.42	inward	GW-8	39.75	26.52
P-9	39.97	21.48	inward	GW-9	39.65	26.34
P-10	39.86	20.47	inward	GW-10	38.34	26.29
P-11	40.52	22.69	inward	GW-11	38.26	28.43
P-12	43.28	29.36	inward	GW-12	42.09	30.58
P-13	44.78	30.36	inward	GW-13	44.79	31.90
P-14	45.09	29.84	inward	GW-14	39.63	32.03
P-15	45.57	30.91	inward	GW-15	42.33	33.00
P-16	44.67	30.99	inward	GW-16	44.41	31.89
P-17	44.28	29.85	inward	GW-17	42.19	32.40

P-1	13.28	GW-1	8.63	0.65
P-2	13.80	GW-2	10.91	1.49
P-3	14.13	GW-3	7.67	5.50
P-4	18.61	GW-4	9.57	8.79
P-5	18.95	GW-5	9.30	8.82
P-6	19.28	GW-6	9.04	8.45
P-7	19.11	GW-7	11.69	6.31
P-8	18.79	GW-8	13.23	5.10
P-9	18.49	GW-9	13.31	4.86
P-10	19.39	GW-10	12.05	5.82
P-11	17.83	GW-11	8.83	6.74
P-12	13.92	GW-12	11.51	1.22
P-13	14.42	GW-13	12.89	1.54
P-14	15.25	GW-14	7.60	2.19
P-15	14.66	GW-15	9.33	2.09
P-16	13.68	GW-16	12.52	0.90
P-17	14.43	GW-17	9.79	2.55

Comments:

Date Data Collected: December 11, 2007

Form Revised December 6, 2004

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FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: January 2008

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.47	inward	GW-1	38.68	30.25
P-2	42.32	28.47	inward	GW-2	40.92	30.08
P-3	40.36	25.82	inward	GW-3	39.40	32.22
P-4	40.78	23.23	inward	GW-4	40.53	31.87
P-5	40.73	22.80	inward	GW-5	39.90	31.12
P-6	40.74	22.63	inward	GW-6	38.95	30.44
P-7	40.60	22.34	inward	GW-7	39.49	28.30
P-8	40.21	22.46	inward	GW-8	39.75	26.80
P-9	39.97	22.28	inward	GW-9	39.65	26.73
P-10	39.86	21.52	inward	GW-10	38.34	26.79
P-11	40.52	23.37	inward	GW-11	38.26	30.67
P-12	43.28	29.40	inward	GW-12	42.09	30.46
P-13	44.78	30.47	inward	GW-13	44.79	31.77
P-14	45.09	29.94	inward	GW-14	39.63	32.47
P-15	45.57	30.97	inward	GW-15	42.33	33.24
P-16	44.67	31.12	inward	GW-16	44.41	33.76
P-17	44.28	29.95	inward	GW-17	42.19	33.06

Comments:

P-1	13.21	GW-1	8.43	0.78
P-2	13.85	GW-2	10.84	1.61
P-3	14.54	GW-3	7.18	6.40
P-4	17.55	GW-4	8.66	8.64
P-5	17.93	GW-5	8.78	8.32
P-6	18.11	GW-6	8.51	7.81
P-7	18.26	GW-7	11.19	5.96
P-8	17.75	GW-8	12.95	4.34
P-9	17.69	GW-9	12.92	4.45
P-10	18.34	GW-10	11.55	5.27
P-11	17.15	GW-11	7.59	7.30
P-12	13.88	GW-12	11.63	1.06
P-13	14.31	GW-13	13.02	1.30
P-14	15.15	GW-14	7.16	2.53
P-15	14.60	GW-15	9.08	2.27
P-16	13.55	GW-16	10.65	2.64
P-17	14.32	GW-17	9.13	3.10

Date Data Collected: January 31, 2008

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: February 2008

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.39	inward	GW-1	38.68	29.77
P-2	42.32	28.49	inward	GW-2	40.92	29.77
P-3	40.36	25.62	inward	GW-3	39.40	31.93
P-4	40.78	22.84	inward	GW-4	40.53	31.38
P-5	40.73	22.67	inward	GW-5	39.90	30.94
P-6	40.74	22.51	inward	GW-6	38.95	30.22
P-7	40.60	22.50	inward	GW-7	39.49	27.95
P-8	40.21	22.44	inward	GW-8	39.75	26.84
P-9	39.97	22.42	inward	GW-9	39.65	26.65
P-10	39.86	21.49	inward	GW-10	38.34	26.59
P-11	40.52	23.07	inward	GW-11	38.26	29.87
P-12	43.28	29.42	inward	GW-12	42.09	30.33
P-13	44.78	30.46	inward	GW-13	44.79	31.68
P-14	45.09	29.90	inward	GW-14	39.63	32.40
P-15	45.57	30.92	inward	GW-15	42.33	33.24
P-16	44.67	31.22	inward	GW-16	44.41	33.58
P-17	44.28	29.95	inward	GW-17	42.19	32.99

P-1	13.29	GW-1	8.91	0.38
P-2	13.83	GW-2	11.15	1.28
P-3	14.74	GW-3	7.47	6.31
P-4	17.94	GW-4	9.17	8.52
P-5	18.06	GW-5	8.96	8.27
P-6	18.23	GW-6	8.73	7.71
P-7	18.10	GW-7	11.54	5.45
P-8	17.77	GW-8	12.91	4.40
P-9	17.55	GW-9	13.00	4.23
P-10	18.37	GW-10	11.75	5.10
P-11	17.45	GW-11	8.39	6.80
P-12	13.86	GW-12	11.76	0.91
P-13	14.32	GW-13	13.11	1.22
P-14	15.19	GW-14	7.23	2.50
P-15	14.65	GW-15	9.09	2.32
P-16	13.45	GW-16	10.83	2.36
P-17	14.33	GW-17	9.20	3.04

Comments:

Date Data Collected: February 19, 2008

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: MARCH 2008

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.43	inward	GW-1	38.68	29.83
P-2	42.32	28.53	inward	GW-2	40.92	29.81
P-3	40.36	25.50	inward	GW-3	39.40	31.77
P-4	40.78	22.86	inward	GW-4	40.53	31.32
P-5	40.73	22.70	inward	GW-5	39.90	30.84
P-6	40.74	22.54	inward	GW-6	38.95	30.00
P-7	40.60	22.54	inward	GW-7	39.49	27.64
P-8	40.21	22.47	inward	GW-8	39.75	26.53
P-9	39.97	22.50	inward	GW-9	39.65	26.60
P-10	39.86	21.40	inward	GW-10	38.34	26.38
P-11	40.52	23.10	inward	GW-11	38.26	29.23
P-12	43.28	29.42	inward	GW-12	42.09	30.19
P-13	44.78	30.46	inward	GW-13	44.79	31.85
P-14	45.09	30.39	inward	GW-14	39.63	32.18
P-15	45.57	30.92	inward	GW-15	42.33	33.20
P-16	44.67	31.29	inward	GW-16	44.41	33.44
P-17	44.28	29.97	inward	GW-17	42.19	32.92

Comments:

P-1	13.25	GW-1	8.85	0.40
P-2	13.79	GW-2	11.11	1.28
P-3	14.86	GW-3	7.63	6.27
P-4	17.92	GW-4	9.21	8.46
P-5	18.03	GW-5	9.06	8.14
P-6	18.20	GW-6	8.95	7.46
P-7	18.06	GW-7	11.85	5.10
P-8	17.74	GW-8	13.22	4.06
P-9	17.47	GW-9	13.05	4.10
P-10	18.46	GW-10	11.96	4.98
P-11	17.42	GW-11	9.03	6.13
P-12	13.86	GW-12	11.90	0.77
P-13	14.32	GW-13	13.14	1.19
P-14	14.70	GW-14	7.45	1.79
P-15	14.65	GW-15	9.13	2.28
P-16	13.38	GW-16	10.97	2.15
P-17	14.31	GW-17	9.27	2.95

Date Data Collected: March 20, 2008

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: APRIL 2008

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.66	29.49	inward	GW-1	38.68	30.65
P-2	42.32	28.59	inward	GW-2	40.92	30.57
P-3	40.36	26.46	inward	GW-3	39.40	33.13
P-4	40.78	22.88	inward	GW-4	40.53	31.65
P-5	40.73	22.60	inward	GW-5	39.90	31.89
P-6	40.74	22.56	inward	GW-6	38.95	31.15
P-7	40.60	22.50	inward	GW-7	39.49	30.20
P-8	40.21	22.47	inward	GW-8	39.75	29.86
P-9	39.97	22.86	inward	GW-9	39.65	28.69
P-10	39.86	21.59	inward	GW-10	38.34	29.82
P-11	40.52	23.19	inward	GW-11	38.26	31.14
P-12	43.28	29.48	inward	GW-12	42.09	31.53
P-13	44.78	30.51	inward	GW-13	44.79	32.25
P-14	45.09	30.43	inward	GW-14	39.63	33.38
P-15	45.57	30.96	inward	GW-15	42.33	33.71
P-16	44.67	31.34	inward	GW-16	44.41	33.79
P-17	44.28	29.99	inward	GW-17	42.19	33.53

P-1	13.19	GW-1	8.03	1.16
P-2	13.73	GW-2	10.35	1.98
P-3	13.90	GW-3	6.27	6.67
P-4	17.90	GW-4	8.88	8.77
P-5	18.13	GW-5	8.01	9.29
P-6	18.18	GW-6	7.80	8.59
P-7	18.10	GW-7	9.29	7.70
P-8	17.74	GW-8	9.89	7.39
P-9	17.11	GW-9	10.96	5.83
P-10	18.27	GW-10	8.52	8.23
P-11	17.33	GW-11	7.12	7.95
P-12	13.80	GW-12	10.56	2.05
P-13	14.27	GW-13	12.54	1.74
P-14	14.66	GW-14	6.25	2.95
P-15	14.61	GW-15	8.62	2.75
P-16	13.33	GW-16	10.62	2.45
P-17	14.29	GW-17	8.66	3.54

Comments:

Date Data Collected: April 14, 2008

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: MAY 2008

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.47	inward	GW-1	38.68	29.68
P-2	42.32	28.56	inward	GW-2	40.92	29.58
P-3	40.36	26.04	inward	GW-3	39.40	31.61
P-4	40.78	22.92	inward	GW-4	40.53	30.71
P-5	40.73	22.63	inward	GW-5	39.90	30.47
P-6	40.74	22.59	inward	GW-6	38.95	29.81
P-7	40.60	22.50	inward	GW-7	39.49	27.79
P-8	40.21	22.47	inward	GW-8	39.75	26.74
P-9	39.97	22.87	inward	GW-9	39.65	25.74
P-10	39.86	21.61	inward	GW-10	38.34	25.89
P-11	40.52	23.20	inward	GW-11	38.26	29.54
P-12	43.28	29.46	inward	GW-12	42.09	30.63
P-13	44.78	30.55	inward	GW-13	44.79	30.95
P-14	45.09	30.58	inward	GW-14	39.63	32.14
P-15	45.57	30.99	inward	GW-15	42.33	33.05
P-16	44.67	31.35	inward	GW-16	44.41	33.02
P-17	44.28	29.97	inward	GW-17	42.19	32.53

Comments:

P-1	13.21	GW-1	9.00	0.21
P-2	13.76	GW-2	11.34	1.02
P-3	14.32	GW-3	7.79	5.57
P-4	17.86	GW-4	9.82	7.79
P-5	18.10	GW-5	9.43	7.84
P-6	18.15	GW-6	9.14	7.22
P-7	18.10	GW-7	11.70	5.29
P-8	17.74	GW-8	13.01	4.27
P-9	17.10	GW-9	13.91	2.87
P-10	18.25	GW-10	12.45	4.28
P-11	17.32	GW-11	8.72	6.34
P-12	13.82	GW-12	11.46	1.17
P-13	14.23	GW-13	13.84	0.40
P-14	14.51	GW-14	7.49	1.56
P-15	14.58	GW-15	9.28	2.06
P-16	13.32	GW-16	11.39	1.67
P-17	14.31	GW-17	9.66	2.56

Date Data Collected: May 9, 2008

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: JUNE 2008

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.47	inward	GW-1	38.68	31.44
P-2	42.32	28.51	inward	GW-2	40.92	28.96
P-3	40.36	26.03	inward	GW-3	39.40	31.77
P-4	40.78	23.39	inward	GW-4	40.53	30.88
P-5	40.73	23.31	inward	GW-5	39.80	30.98
P-6	40.74	23.25	inward	GW-6	38.95	30.53
P-7	40.60	23.22	inward	GW-7	39.49	28.14
P-8	40.21	23.18	inward	GW-8	39.75	27.00
P-9	39.97	22.97	inward	GW-9	39.65	26.02
P-10	39.86	22.19	inward	GW-10	38.34	25.59
P-11	40.52	23.43	inward	GW-11	38.26	29.61
P-12	43.28	29.35	inward	GW-12	42.09	30.32
P-13	44.78	30.42	inward	GW-13	44.79	31.62
P-14	45.09	29.87	inward	GW-14	39.63	31.96
P-15	45.57	30.92	inward	GW-15	42.33	33.12
P-16	44.67	31.27	inward	GW-16	44.41	32.94
P-17	44.28	29.92	inward	GW-17	42.19	32.03

P-1	13.21	GW-1	7.24	1.97
P-2	13.81	GW-2	11.96	0.45
P-3	14.33	GW-3	7.63	5.74
P-4	17.39	GW-4	9.65	7.49
P-5	17.42	GW-5	8.92	7.67
P-6	17.49	GW-6	8.42	7.28
P-7	17.36	GW-7	11.35	4.92
P-8	17.03	GW-8	12.75	3.82
P-9	17.00	GW-9	13.63	3.05
P-10	17.67	GW-10	12.75	3.40
P-11	17.09	GW-11	8.65	6.18
P-12	13.93	GW-12	11.77	0.97
P-13	14.36	GW-13	13.17	1.20
P-14	15.22	GW-14	7.67	2.09
P-15	14.65	GW-15	9.21	2.20
P-16	13.40	GW-16	11.47	1.67
P-17	14.36	GW-17	10.16	2.11

Comments:

Date Data Collected: June 12, 2008; GW-1 and P-1 rechecked on June 26, 2008

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: JULY 2008

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.80	inward	GW-1	38.68	33.88
P-2	42.32	28.79	inward	GW-2	40.92	33.77
P-3	40.36	28.08	inward	GW-3	39.40	34.72
P-4	40.78	23.00	inward	GW-4	40.53	33.93
P-5	40.73	22.80	inward	GW-5	39.90	33.08
P-6	40.74	22.56	inward	GW-6	38.95	32.46
P-7	40.60	22.52	inward	GW-7	39.49	31.49
P-8	40.21	22.51	inward	GW-8	39.75	30.60
P-9	39.97	22.61	inward	GW-9	39.65	26.27
P-10	39.86	21.70	inward	GW-10	38.34	30.38
P-11	40.52	23.33	inward	GW-11	38.26	31.66
P-12	43.28	29.61	inward	GW-12	42.09	32.18
P-13	44.78	30.56	inward	GW-13	44.79	32.90
P-14	45.09	30.10	inward	GW-14	39.63	34.57
P-15	45.57	31.03	inward	GW-15	42.33	34.71
P-16	44.67	31.26	inward	GW-16	44.41	35.21
P-17	44.28	30.01	inward	GW-17	42.19	34.38

P-1	12.88	GW-1	4.80	4.08
P-2	13.53	GW-2	7.15	4.98
P-3	12.28	GW-3	4.68	6.64
P-4	17.78	GW-4	6.60	10.93
P-5	17.93	GW-5	6.82	10.28
P-6	18.18	GW-6	6.49	9.90
P-7	18.08	GW-7	8.00	8.97
P-8	17.70	GW-8	9.15	8.09
P-9	17.36	GW-9	13.38	3.66
P-10	18.16	GW-10	7.96	8.66
P-11	17.19	GW-11	6.60	8.33
P-12	13.67	GW-12	9.91	2.57
P-13	14.22	GW-13	11.89	2.34
P-14	14.99	GW-14	5.06	4.47
P-15	14.54	GW-15	7.62	3.68
P-16	13.41	GW-16	9.20	3.95
P-17	14.27	GW-17	7.81	4.37

Comments:

Date Data Collected: July 29, 2008

Form Revised December 6, 2004

Monthly Groundwater Gradient Report

Month and Year: AUGUST 2008

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.72	inward	GW-1	38.68	33.52
P-2	42.32	28.71	inward	GW-2	40.92	33.47
P-3	40.36	28.02	inward	GW-3	39.40	34.46
P-4	40.78	22.94	inward	GW-4	40.53	33.70
P-5	40.73	22.75	inward	GW-5	39.90	32.99
P-6	40.74	22.56	inward	GW-6	38.95	32.43
P-7	40.60	22.50	inward	GW-7	39.49	31.50
P-8	40.21	22.41	inward	GW-8	39.75	30.51
P-9	39.97	22.52	inward	GW-9	39.65	29.30
P-10	39.86	21.56	inward	GW-10	38.34	30.25
P-11	40.52	23.28	inward	GW-11	38.26	31.87
P-12	43.28	29.51	inward	GW-12	42.09	32.16
P-13	44.78	30.47	inward	GW-13	44.79	32.88
P-14	45.09	30.19	inward	GW-14	39.63	34.23
P-15	45.57	30.89	inward	GW-15	42.33	34.78
P-16	44.67	31.22	inward	GW-16	44.41	35.75
P-17	44.28	29.89	inward	GW-17	42.19	34.12

Comments:

P-1	12.96	GW-1	5.16	3.80
P-2	13.61	GW-2	7.45	4.76
P-3	12.34	GW-3	4.94	6.44
P-4	17.84	GW-4	6.83	10.76
P-5	17.98	GW-5	6.91	10.24
P-6	18.18	GW-6	6.52	9.87
P-7	18.10	GW-7	7.99	9.00
P-8	17.80	GW-8	9.24	8.10
P-9	17.45	GW-9	10.35	6.78
P-10	18.30	GW-10	8.09	8.69
P-11	17.24	GW-11	6.39	8.59
P-12	13.77	GW-12	9.93	2.65
P-13	14.31	GW-13	11.91	2.41
P-14	14.90	GW-14	5.40	4.04
P-15	14.68	GW-15	7.55	3.89
P-16	13.45	GW-16	8.66	4.53
P-17	14.39	GW-17	8.07	4.23

Date Data Collected: August 12, 2008

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: SEPTEMBER 2008

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.72	inward	GW-1	38.68	32.26
P-2	42.32	28.81	inward	GW-2	40.92	32.26
P-3	40.36	27.90	inward	GW-3	39.40	33.22
P-4	40.78	22.97	inward	GW-4	40.53	32.23
P-5	40.73	22.82	inward	GW-5	39.90	31.80
P-6	40.74	22.61	inward	GW-6	38.95	31.11
P-7	40.60	22.61	inward	GW-7	39.49	29.47
P-8	40.21	22.58	inward	GW-8	39.75	28.36
P-9	39.97	22.67	inward	GW-9	39.65	28.36
P-10	39.86	21.63	inward	GW-10	38.34	28.53
P-11	40.52	23.40	inward	GW-11	38.26	30.30
P-12	43.28	29.56	inward	GW-12	42.09	31.13
P-13	44.78	30.55	inward	GW-13	44.79	32.74
P-14	45.09	30.56	inward	GW-14	39.63	34.25
P-15	45.57	30.97	inward	GW-15	42.33	35.07
P-16	44.67	31.35	inward	GW-16	44.41	35.51
P-17	44.28	29.96	inward	GW-17	42.19	33.44

Comments:

P-1	12.96	GW-1	6.42	2.54
P-2	13.51	GW-2	8.66	3.45
P-3	12.46	GW-3	6.18	5.32
P-4	17.81	GW-4	8.30	9.26
P-5	17.91	GW-5	8.10	8.98
P-6	18.13	GW-6	7.84	8.50
P-7	17.99	GW-7	10.02	6.86
P-8	17.63	GW-8	11.39	5.78
P-9	17.30	GW-9	11.29	5.69
P-10	18.23	GW-10	9.81	6.90
P-11	17.12	GW-11	7.96	6.90
P-12	13.72	GW-12	10.96	1.57
P-13	14.23	GW-13	12.05	2.19
P-14	14.53	GW-14	5.38	3.69
P-15	14.60	GW-15	7.26	4.10
P-16	13.32	GW-16	8.90	4.16
P-17	14.32	GW-17	8.75	3.48

Date Data Collected: September 16, 2008

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: October 2008

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.72	inward	GW-1	38.68	32.26
P-2	42.32	28.81	inward	GW-2	40.92	32.26
P-3	40.36	27.90	inward	GW-3	39.40	33.22
P-4	40.78	22.97	inward	GW-4	40.53	32.23
P-5	40.73	22.82	inward	GW-5	39.90	31.80
P-6	40.74	22.43	inward	GW-6	38.95	31.11
P-7	40.60	22.61	inward	GW-7	39.49	29.47
P-8	40.21	22.58	inward	GW-8	39.75	28.36
P-9	39.97	22.67	inward	GW-9	39.65	28.36
P-10	39.86	21.63	inward	GW-10	38.34	28.53
P-11	40.52	23.40	inward	GW-11	38.26	30.30
P-12	43.28	29.56	inward	GW-12	42.09	31.13
P-13	44.78	30.55	inward	GW-13	44.79	32.74
P-14	45.09	30.56	inward	GW-14	39.63	34.25
P-15	45.57	30.97	inward	GW-15	42.33	35.07
P-16	44.67	31.35	inward	GW-16	44.41	35.51
P-17	44.28	29.96	inward	GW-17	42.19	33.44

P-1	12.96	GW-1	6.42	2.54
P-2	13.51	GW-2	8.66	3.45
P-3	12.46	GW-3	6.18	5.32
P-4	17.81	GW-4	8.30	9.26
P-5	17.91	GW-5	8.10	8.98
P-6	18.31	GW-6	7.84	8.68
P-7	17.99	GW-7	10.02	6.86
P-8	17.63	GW-8	11.39	5.78
P-9	17.30	GW-9	11.29	5.69
P-10	18.23	GW-10	9.81	6.90
P-11	17.12	GW-11	7.96	6.90
P-12	13.72	GW-12	10.96	1.57
P-13	14.23	GW-13	12.05	2.19
P-14	14.53	GW-14	5.38	3.69
P-15	14.60	GW-15	7.26	4.10
P-16	13.32	GW-16	8.90	4.16
P-17	14.32	GW-17	8.75	3.48

Comments:

Date Data Collected: October 20, 2008

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: November 2008

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.51	inward	GW-1	38.68	31.33
P-2	42.32	28.56	inward	GW-2	40.92	31.36
P-3	40.36	26.27	inward	GW-3	39.40	32.09
P-4	40.78	22.89	inward	GW-4	40.53	29.48
P-5	40.73	22.74	inward	GW-5	39.90	31.18
P-6	40.74	22.58	inward	GW-6	38.95	30.45
P-7	40.60	22.59	inward	GW-7	39.49	28.09
P-8	40.21	22.52	inward	GW-8	39.75	26.50
P-9	39.97	22.56	inward	GW-9	39.65	26.30
P-10	39.86	21.44	inward	GW-10	38.34	26.06
P-11	40.52	23.25	inward	GW-11	38.26	29.51
P-12	43.28	29.36	inward	GW-12	42.09	30.52
P-13	44.78	30.39	inward	GW-13	44.79	32.76
P-14	45.09	29.81	inward	GW-14	39.63	33.53
P-15	45.57	30.90	inward	GW-15	42.33	34.84
P-16	44.67	31.27	inward	GW-16	44.41	34.63
P-17	44.28	29.88	inward	GW-17	42.19	33.20

P-1	13.17	GW-1	7.35	1.82
P-2	13.76	GW-2	9.56	2.80
P-3	14.09	GW-3	7.31	5.82
P-4	17.89	GW-4	11.05	6.59
P-5	17.99	GW-5	8.72	8.44
P-6	18.16	GW-6	8.50	7.87
P-7	18.01	GW-7	11.40	5.50
P-8	17.69	GW-8	13.25	3.98
P-9	17.41	GW-9	13.35	3.74
P-10	18.42	GW-10	12.28	4.62
P-11	17.27	GW-11	8.75	6.26
P-12	13.92	GW-12	11.57	1.16
P-13	14.39	GW-13	12.03	2.37
P-14	15.28	GW-14	6.10	3.72
P-15	14.67	GW-15	7.49	3.94
P-16	13.40	GW-16	9.78	3.36
P-17	14.40	GW-17	8.99	3.32

Comments:

Date Data Collected: November 12, 2008

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: December 2008

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.44	inward	GW-1	38.68	31.18
P-2	42.32	28.54	inward	GW-2	40.92	31.17
P-3	40.36	25.98	inward	GW-3	39.40	32.06
P-4	40.78	22.97	inward	GW-4	40.53	31.60
P-5	40.73	22.83	inward	GW-5	39.90	31.30
P-6	40.74	22.65	inward	GW-6	38.95	30.56
P-7	40.60	22.66	inward	GW-7	39.49	27.77
P-8	40.21	22.59	inward	GW-8	39.75	26.13
P-9	39.97	22.67	inward	GW-9	39.65	26.52
P-10	39.86	21.56	inward	GW-10	38.34	26.29
P-11	40.52	23.31	inward	GW-11	38.26	29.06
P-12	43.28	29.45	inward	GW-12	42.09	30.44
P-13	44.78	30.48	inward	GW-13	44.79	32.49
P-14	45.09	29.87	inward	GW-14	39.63	33.58
P-15	45.57	30.89	inward	GW-15	42.33	34.75
P-16	44.67	31.36	inward	GW-16	44.41	34.33
P-17	44.28	29.89	inward	GW-17	42.19	33.40

P-1	13.24	GW-1	7.50	1.74
P-2	13.78	GW-2	9.75	2.63
P-3	14.38	GW-3	7.34	6.08
P-4	17.81	GW-4	8.93	8.63
P-5	17.90	GW-5	8.60	8.47
P-6	18.09	GW-6	8.39	7.91
P-7	17.94	GW-7	11.72	5.11
P-8	17.62	GW-8	13.62	3.54
P-9	17.30	GW-9	13.13	3.85
P-10	18.30	GW-10	12.05	4.73
P-11	17.21	GW-11	9.20	5.75
P-12	13.83	GW-12	11.65	0.99
P-13	14.30	GW-13	12.30	2.01
P-14	15.22	GW-14	6.05	3.71
P-15	14.58	GW-15	7.58	3.76
P-16	13.31	GW-16	10.08	2.97
P-17	14.39	GW-17	8.79	3.51

Comments:

Date Data Collected: December 4, 2008

Form Revised December 6, 2004

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FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: January 2009

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.49	inward	GW-1	38.68	30.98
P-2	42.32	28.66	inward	GW-2	40.92	30.96
P-3	40.36	25.63	inward	GW-3	39.40	31.73
P-4	40.78	22.88	inward	GW-4	40.53	31.21
P-5	40.73	22.78	inward	GW-5	39.90	31.21
P-6	40.74	22.62	inward	GW-6	38.95	30.48
P-7	40.60	22.47	inward	GW-7	39.49	27.54
P-8	40.21	22.45	inward	GW-8	39.75	25.94
P-9	39.97	22.63	inward	GW-9	39.65	26.42
P-10	39.86	21.60	inward	GW-10	38.34	26.22
P-11	40.52	23.27	inward	GW-11	38.26	29.01
P-12	43.28	29.43	inward	GW-12	42.09	30.18
P-13	44.78	30.48	inward	GW-13	44.79	32.64
P-14	45.09	29.91	inward	GW-14	39.63	33.11
P-15	45.57	30.89	inward	GW-15	42.33	34.13
P-16	44.67	31.30	inward	GW-16	44.41	34.02
P-17	44.28	29.96	inward	GW-17	42.19	33.24

Comments:

DATA ENTRY TABLE

P-1	13.19	GW-1	7.70	1.49
P-2	13.66	GW-2	9.96	2.30
P-3	14.73	GW-3	7.67	6.10
P-4	17.90	GW-4	9.32	8.33
P-5	17.95	GW-5	8.69	8.43
P-6	18.12	GW-6	8.47	7.86
P-7	18.13	GW-7	11.95	5.07
P-8	17.76	GW-8	13.81	3.49
P-9	17.34	GW-9	13.23	3.79
P-10	18.26	GW-10	12.12	4.62
P-11	17.25	GW-11	9.25	5.74
P-12	13.85	GW-12	11.91	0.75
P-13	14.30	GW-13	12.15	2.16
P-14	15.18	GW-14	6.52	3.20
P-15	14.68	GW-15	8.20	3.24
P-16	13.37	GW-16	10.39	2.72
P-17	14.32	GW-17	8.95	3.28

Date Data Collected: January 12, 2009

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: February 2009

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.40	inward	GW-1	38.68	30.63
P-2	42.32	28.57	inward	GW-2	40.92	30.63
P-3	40.36	25.44	inward	GW-3	39.40	31.98
P-4	40.78	22.89	inward	GW-4	40.53	31.58
P-5	40.73	22.80	inward	GW-5	39.90	31.34
P-6	40.74	22.62	inward	GW-6	38.95	30.55
P-7	40.60	22.63	inward	GW-7	39.49	27.87
P-8	40.21	22.54	inward	GW-8	39.75	26.22
P-9	39.97	22.64	inward	GW-9	39.65	26.35
P-10	39.86	21.65	inward	GW-10	38.34	26.19
P-11	40.52	23.19	inward	GW-11	38.26	29.44
P-12	43.28	29.42	inward	GW-12	42.09	29.92
P-13	44.78	30.48	inward	GW-13	44.79	32.50
P-14	45.09	29.86	inward	GW-14	39.63	32.86
P-15	45.57	30.95	inward	GW-15	42.33	33.74
P-16	44.67	31.00	inward	GW-16	44.41	33.66
P-17	44.28	29.87	inward	GW-17	42.19	33.25

P-1	13.28	GW-1	8.05	1.23
P-2	13.75	GW-2	10.29	2.06
P-3	14.92	GW-3	7.42	6.54
P-4	17.89	GW-4	8.95	8.69
P-5	17.93	GW-5	8.56	8.54
P-6	18.12	GW-6	8.40	7.93
P-7	17.97	GW-7	11.62	5.24
P-8	17.67	GW-8	13.53	3.68
P-9	17.33	GW-9	13.30	3.71
P-10	18.21	GW-10	12.15	4.54
P-11	17.33	GW-11	8.82	6.25
P-12	13.86	GW-12	12.17	0.50
P-13	14.30	GW-13	12.29	2.02
P-14	15.23	GW-14	6.77	3.00
P-15	14.62	GW-15	8.59	2.79
P-16	13.67	GW-16	10.75	2.66
P-17	14.41	GW-17	8.94	3.38

Comments:

Date Data Collected: February 26, 2009

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: March 2009

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.50	inward	GW-1	38.68	30.33
P-2	42.32	28.70	inward	GW-2	40.92	30.27
P-3	40.36	25.31	inward	GW-3	39.40	31.39
P-4	40.78	22.90	inward	GW-4	40.53	30.88
P-5	40.73	22.79	inward	GW-5	39.90	30.64
P-6	40.74	22.57	inward	GW-6	38.95	29.90
P-7	40.60	22.57	inward	GW-7	39.49	27.22
P-8	40.21	22.51	inward	GW-8	39.75	25.73
P-9	39.97	22.69	inward	GW-9	39.65	25.49
P-10	39.86	21.59	inward	GW-10	38.34	25.44
P-11	40.52	23.24	inward	GW-11	38.26	28.96
P-12	43.28	29.42	inward	GW-12	42.09	29.53
P-13	44.78	30.50	inward	GW-13	44.79	32.31
P-14	45.09	29.84	inward	GW-14	39.63	32.31
P-15	45.57	30.94	inward	GW-15	42.33	33.41
P-16	44.67	31.04	inward	GW-16	44.41	33.39
P-17	44.28	29.93	inward	GW-17	42.19	32.91

P-1	13.18	GW-1	8.35	0.83
P-2	13.62	GW-2	10.65	1.57
P-3	15.05	GW-3	8.01	6.08
P-4	17.88	GW-4	9.65	7.98
P-5	17.94	GW-5	9.26	7.65
P-6	18.17	GW-6	9.05	7.33
P-7	18.03	GW-7	12.27	4.65
P-8	17.70	GW-8	14.02	3.22
P-9	17.28	GW-9	14.16	2.80
P-10	18.27	GW-10	12.90	3.85
P-11	17.28	GW-11	9.30	5.72
P-12	13.86	GW-12	12.56	0.11
P-13	14.28	GW-13	12.48	1.81
P-14	15.25	GW-14	7.32	2.47
P-15	14.63	GW-15	8.92	2.47
P-16	13.63	GW-16	11.02	2.35
P-17	14.35	GW-17	9.28	2.98

Comments:

Date Data Collected: March 24, 2009

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: April 2009

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.40	inward	GW-1	38.68	30.39
P-2	42.32	28.41	inward	GW-2	40.92	30.35
P-3	40.36	25.39	inward	GW-3	39.40	32.03
P-4	40.78	22.92	inward	GW-4	40.53	31.46
P-5	40.73	22.82	inward	GW-5	39.90	31.20
P-6	40.74	22.54	inward	GW-6	38.95	30.40
P-7	40.60	22.50	inward	GW-7	39.49	27.34
P-8	40.21	22.48	inward	GW-8	39.75	25.85
P-9	39.97	22.52	inward	GW-9	39.65	26.10
P-10	39.86	21.66	inward	GW-10	38.34	25.69
P-11	40.52	23.20	inward	GW-11	38.26	30.13
P-12	43.28	29.36	inward	GW-12	42.09	29.39
P-13	44.78	30.47	inward	GW-13	44.79	32.10
P-14	45.09	29.85	inward	GW-14	39.63	32.27
P-15	45.57	30.92	inward	GW-15	42.33	33.37
P-18	44.67	31.04	inward	GW-16	44.41	33.25
P-17	44.28	30.88	inward	GW-17	42.19	33.01

P-1	13.28	GW-1	8.29	0.99
P-2	13.91	GW-2	10.57	1.94
P-3	14.97	GW-3	7.37	6.64
P-4	17.86	GW-4	9.07	8.54
P-5	17.91	GW-5	8.70	8.38
P-6	18.20	GW-6	8.55	7.86
P-7	18.10	GW-7	12.15	4.84
P-8	17.73	GW-8	13.90	3.37
P-9	17.45	GW-9	13.55	3.58
P-10	18.20	GW-10	12.65	4.03
P-11	17.32	GW-11	8.13	6.93
P-12	13.92	GW-12	12.70	0.03
P-13	14.31	GW-13	12.69	1.63
P-14	15.24	GW-14	7.36	2.42
P-15	14.65	GW-15	8.96	2.45
P-16	13.63	GW-16	11.16	2.21
P-17	13.40	GW-17	9.18	2.13

Comments:

Date Data Collected: April 7, 2009

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: May 2009

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.49	inward	GW-1	38.68	30.64
P-2	42.32	28.80	inward	GW-2	40.92	30.78
P-3	40.36	25.23	inward	GW-3	39.40	31.47
P-4	40.78	22.89	inward	GW-4	40.53	30.52
P-5	40.73	22.83	inward	GW-5	39.90	30.44
P-6	40.74	22.63	inward	GW-6	38.95	29.73
P-7	40.60	22.64	inward	GW-7	39.49	28.70
P-8	40.21	22.54	inward	GW-8	39.75	25.09
P-9	39.97	22.68	inward	GW-9	39.65	24.46
P-10	39.86	21.69	inward	GW-10	38.34	24.35
P-11	40.52	23.18	inward	GW-11	38.26	29.75
P-12	43.28	29.40	inward	GW-12	42.09	30.40
P-13	44.78	30.54	inward	GW-13	44.79	31.68
P-14	45.09	29.83	inward	GW-14	39.63	31.43
P-15	45.57	30.98	inward	GW-15	42.33	32.77
P-16	44.67	31.04	inward	GW-16	44.41	32.28
P-17	44.28	29.90	inward	GW-17	42.19	31.55

P-1	13.19	GW-1	8.04	1.15
P-2	13.52	GW-2	10.14	1.98
P-3	15.13	GW-3	7.93	6.24
P-4	17.89	GW-4	10.01	7.83
P-5	17.90	GW-5	9.46	7.61
P-6	18.11	GW-6	9.22	7.10
P-7	17.96	GW-7	12.79	4.06
P-8	17.67	GW-8	14.66	2.55
P-9	17.29	GW-9	15.19	1.78
P-10	18.17	GW-10	13.99	2.66
P-11	17.34	GW-11	8.51	6.57
P-12	13.88	GW-12	11.69	1.00
P-13	14.24	GW-13	13.11	1.14
P-14	15.26	GW-14	8.20	1.60
P-15	14.59	GW-15	9.56	1.79
P-16	13.63	GW-16	12.13	1.24
P-17	14.38	GW-17	10.64	1.65

Comments:

Date Data Collected: May 15, 2009

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: June 2009

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.23	inward	GW-1	38.68	29.75
P-2	42.32	28.32	inward	GW-2	40.92	28.37
P-3	40.36	26.64	inward	GW-3	39.40	34.32
P-4	40.78	22.03	inward	GW-4	40.53	32.41
P-5	40.73	20.96	inward	GW-5	39.90	31.70
P-6	40.74	19.84	inward	GW-6	38.95	31.05
P-7	40.60	19.56	inward	GW-7	39.49	28.89
P-8	40.21	19.46	inward	GW-8	39.75	27.83
P-9	39.97	19.88	inward	GW-9	39.65	27.98
P-10	39.86	19.35	inward	GW-10	38.34	28.56
P-11	40.52	22.74	inward	GW-11	38.26	30.72
P-12	43.28	29.34	inward	GW-12	42.09	31.04
P-13	44.78	30.38	inward	GW-13	44.79	32.30
P-14	45.09	29.86	inward	GW-14	39.63	32.23
P-15	45.57	30.90	inward	GW-15	42.33	33.27
P-16	44.67	31.03	inward	GW-16	44.41	34.03
P-17	44.28	29.95	inward	GW-17	42.19	32.95

P-1	13.45	GW-1	8.93	0.52
P-2	14.00	GW-2	12.55	0.05
P-3	13.72	GW-3	5.08	7.68
P-4	18.75	GW-4	8.12	10.38
P-5	19.77	GW-5	8.20	10.74
P-6	20.90	GW-6	7.90	11.21
P-7	21.04	GW-7	10.60	9.33
P-8	20.75	GW-8	11.92	8.37
P-9	20.09	GW-9	11.67	8.10
P-10	20.51	GW-10	9.78	9.21
P-11	17.78	GW-11	7.54	7.98
P-12	13.94	GW-12	11.05	1.70
P-13	14.40	GW-13	12.49	1.92
P-14	15.23	GW-14	7.40	2.37
P-15	14.67	GW-15	9.06	2.37
P-16	13.84	GW-16	10.38	3.00
P-17	14.33	GW-17	9.24	3.00

Comments:

Date Data Collected: June 24, 2009, GW-1/P-1 and GW-2/P-2 on June 26, 2009

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: July 2009

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.54	inward	GW-1	38.68	31.80
P-2	42.32	28.71	inward	GW-2	40.92	31.24
P-3	40.36	27.32	inward	GW-3	39.40	34.77
P-4	40.78	22.16	inward	GW-4	40.53	34.08
P-5	40.73	21.01	inward	GW-5	39.90	33.16
P-6	40.74	19.86	inward	GW-6	38.95	32.60
P-7	40.60	19.58	inward	GW-7	39.49	31.64
P-8	40.21	19.49	inward	GW-8	39.75	30.86
P-9	39.97	19.79	inward	GW-9	39.65	30.12
P-10	39.86	19.43	inward	GW-10	38.34	30.64
P-11	40.52	22.66	inward	GW-11	38.26	31.55
P-12	43.28	29.25	inward	GW-12	42.09	32.30
P-13	44.78	30.21	inward	GW-13	44.79	33.16
P-14	45.09	30.21	inward	GW-14	39.63	34.45
P-15	45.57	30.95	inward	GW-15	42.33	34.08
P-16	44.67	31.05	inward	GW-16	44.41	34.26
P-17	44.28	29.96	inward	GW-17	42.19	34.16

P-1	13.14	GW-1	6.88	2.26
P-2	13.61	GW-2	9.68	2.53
P-3	13.04	GW-3	4.63	7.45
P-4	18.62	GW-4	6.45	11.92
P-5	19.72	GW-5	6.74	12.15
P-6	20.88	GW-6	6.35	12.74
P-7	21.02	GW-7	7.85	12.06
P-8	20.72	GW-8	8.89	11.37
P-9	20.18	GW-9	9.53	10.33
P-10	20.43	GW-10	7.70	11.21
P-11	17.86	GW-11	6.71	8.89
P-12	14.03	GW-12	9.79	3.05
P-13	14.57	GW-13	11.63	2.95
P-14	14.88	GW-14	5.18	4.24
P-15	14.62	GW-15	8.25	3.13
P-16	13.62	GW-16	10.15	3.21
P-17	14.32	GW-17	8.03	4.20

Comments:

Date Data Collected: July 20, 2009

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: August 2009

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.63	inward	GW-1	38.68	33.13
P-2	42.32	28.78	inward	GW-2	40.92	33.15
P-3	40.36	27.77	inward	GW-3	39.40	34.98
P-4	40.78	22.23	inward	GW-4	40.53	34.23
P-5	40.73	20.98	inward	GW-5	39.90	33.50
P-6	40.74	19.86	inward	GW-6	38.95	33.06
P-7	40.60	19.61	inward	GW-7	39.49	31.98
P-8	40.21	19.52	inward	GW-8	39.75	31.08
P-9	39.97	19.98	inward	GW-9	39.65	30.87
P-10	39.86	19.51	inward	GW-10	38.34	30.99
P-11	40.52	22.67	inward	GW-11	38.26	31.57
P-12	43.28	29.41	inward	GW-12	42.09	32.54
P-13	44.78	30.41	inward	GW-13	44.79	32.60
P-14	45.09	28.81	inward	GW-14	39.63	34.75
P-15	45.57	30.87	inward	GW-15	42.33	34.54
P-16	44.67	31.02	inward	GW-16	44.41	34.26
P-17	44.28	29.95	inward	GW-17	42.19	34.64

P-1	13.05	GW-1	5.55	3.50
P-2	13.54	GW-2	7.77	4.37
P-3	12.59	GW-3	4.44	7.19
P-4	18.55	GW-4	6.30	12.00
P-5	19.75	GW-5	6.40	12.52
P-6	20.88	GW-6	5.89	13.20
P-7	20.99	GW-7	7.51	12.37
P-8	20.69	GW-8	8.67	11.56
P-9	19.99	GW-9	8.78	10.89
P-10	20.35	GW-10	7.35	11.48
P-11	17.85	GW-11	6.69	8.90
P-12	13.87	GW-12	9.55	3.13
P-13	14.37	GW-13	12.19	2.19
P-14	15.28	GW-14	4.88	4.94
P-15	14.70	GW-15	7.79	3.67
P-16	13.65	GW-16	10.15	3.24
P-17	14.33	GW-17	7.55	4.69

Comments:

Date Data Collected: August 21, 2009

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: September 2009

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.74	inward	GW-1	38.68	34.34
P-2	42.32	29.00	inward	GW-2	40.92	34.39
P-3	40.36	27.39	inward	GW-3	39.40	34.40
P-4	40.78	22.19	inward	GW-4	40.53	33.25
P-5	40.73	20.93	inward	GW-5	39.90	32.55
P-6	40.74	19.80	inward	GW-6	38.95	32.05
P-7	40.60	18.95	inward	GW-7	39.49	31.09
P-8	40.21	18.78	inward	GW-8	39.75	30.20
P-9	39.97	19.59	inward	GW-9	39.65	30.14
P-10	39.86	19.37	inward	GW-10	38.34	29.78
P-11	40.52	22.64	inward	GW-11	38.28	31.31
P-12	43.28	29.39	inward	GW-12	42.09	31.94
P-13	44.78	30.43	inward	GW-13	44.79	32.54
P-14	45.09	29.80	inward	GW-14	39.63	33.90
P-15	45.57	30.89	inward	GW-15	42.33	34.47
P-16	44.67	31.07	inward	GW-16	44.41	35.07
P-17	44.28	29.97	inward	GW-17	42.19	33.88

P-1	12.94	GW-1	4.34	4.60
P-2	13.32	GW-2	6.53	5.39
P-3	12.97	GW-3	5.00	7.01
P-4	18.59	GW-4	7.28	11.06
P-5	19.80	GW-5	7.35	11.62
P-6	20.94	GW-6	6.90	12.25
P-7	21.65	GW-7	8.40	12.14
P-8	21.43	GW-8	9.55	11.42
P-9	20.38	GW-9	9.51	10.55
P-10	20.49	GW-10	8.56	10.41
P-11	17.88	GW-11	6.95	8.67
P-12	13.89	GW-12	10.15	2.55
P-13	14.35	GW-13	12.15	2.21
P-14	15.29	GW-14	5.73	4.10
P-15	14.68	GW-15	7.86	3.58
P-16	13.60	GW-16	9.34	4.00
P-17	14.31	GW-17	8.21	4.01

Comments:

Date Data Collected: September 24, 2009

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: October 2009

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.60	inward	GW-1	38.68	32.58
P-2	42.32	28.81	inward	GW-2	40.92	32.60
P-3	40.36	26.13	inward	GW-3	39.40	32.88
P-4	40.78	22.07	inward	GW-4	40.53	31.99
P-5	40.73	20.89	inward	GW-5	39.90	31.52
P-6	40.74	19.80	inward	GW-6	38.95	30.76
P-7	40.60	18.88	inward	GW-7	39.49	28.48
P-8	40.21	18.61	inward	GW-8	39.75	27.25
P-9	39.97	19.45	inward	GW-9	39.65	26.87
P-10	39.86	19.32	inward	GW-10	38.34	26.95
P-11	40.52	22.54	inward	GW-11	38.26	29.41
P-12	43.28	29.44	inward	GW-12	42.08	31.77
P-13	44.78	30.53	inward	GW-13	44.79	32.83
P-14	45.09	29.87	inward	GW-14	39.63	33.71
P-15	45.57	30.92	inward	GW-15	42.33	34.38
P-16	44.67	31.08	inward	GW-16	44.41	34.84
P-17	44.28	29.95	inward	GW-17	42.19	33.50

P-1	13.08	GW-1	6.10	2.98
P-2	13.51	GW-2	8.32	3.79
P-3	14.23	GW-3	6.52	6.75
P-4	18.71	GW-4	8.54	9.92
P-5	19.84	GW-5	8.38	10.63
P-6	20.94	GW-6	8.19	10.96
P-7	21.72	GW-7	11.01	9.60
P-8	21.60	GW-8	12.50	8.64
P-9	20.52	GW-9	12.78	7.42
P-10	20.54	GW-10	11.39	7.63
P-11	17.98	GW-11	8.85	6.87
P-12	13.84	GW-12	10.32	2.33
P-13	14.25	GW-13	11.96	2.30
P-14	15.22	GW-14	5.92	3.84
P-15	14.65	GW-15	7.95	3.46
P-16	13.59	GW-16	9.57	3.76
P-17	14.33	GW-17	8.69	3.55

Comments:

Date Data Collected: October 28, 2009

Form Revised December 6, 2004

FIGURE L-7

Manatee County Lena Road Landfill

Monthly Groundwater Gradient Report

Month and Year: November 2009

DATA ENTRY TABLE

Piezometers Inside Slurry Wall				Groundwater Monitoring Wells Outside Slurry Wall		
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.55	inward	GW-1	38.68	31.95
P-2	42.32	28.77	inward	GW-2	40.92	31.97
P-3	40.36	25.71	inward	GW-3	39.40	32.08
P-4	40.78	22.02	inward	GW-4	40.53	31.19
P-5	40.73	20.83	inward	GW-5	39.90	30.91
P-6	40.74	19.79	inward	GW-6	38.95	30.14
P-7	40.60	18.83	inward	GW-7	39.49	27.89
P-8	40.21	18.57	inward	GW-8	39.75	28.15
P-9	39.97	19.39	inward	GW-9	39.65	26.50
P-10	39.86	19.25	inward	GW-10	38.34	26.38
P-11	40.52	22.54	inward	GW-11	38.26	29.16
P-12	43.28	29.28	inward	GW-12	42.09	31.37
P-13	44.78	30.34	inward	GW-13	44.79	32.88
P-14	45.09	27.31	inward	GW-14	39.63	33.09
P-15	45.57	30.94	inward	GW-15	42.33	34.03
P-16	44.67	31.02	inward	GW-16	44.41	34.45
P-17	44.28	29.94	inward	GW-17	42.19	33.29

P-1	13.13	GW-1	6.73
P-2	13.55	GW-2	8.95
P-3	14.65	GW-3	7.32
P-4	18.76	GW-4	9.34
P-5	19.90	GW-5	8.99
P-6	20.95	GW-6	8.81
P-7	21.77	GW-7	11.60
P-8	21.64	GW-8	11.60
P-9	20.58	GW-9	13.15
P-10	20.61	GW-10	11.96
P-11	17.98	GW-11	9.10
P-12	14.00	GW-12	10.72
P-13	14.44	GW-13	11.91
P-14	17.78	GW-14	6.54
P-15	14.63	GW-15	8.30
P-16	13.65	GW-16	9.96
P-17	14.34	GW-17	8.90

2.40

3.20

6.37

9.17

10.08

10.35

9.06

9.58

7.11

7.13

6.62

2.09

2.54

5.78

3.09

3.43

3.35

Comments:

Date Data Collected: November 17, 2009

Form Revised December 6, 2004

Monthly Groundwater Gradient Report

Month and Year: December 2009

DATA ENTRY TABLE

Piezometers Inside Slurry Wall			Groundwater Monitoring Wells Outside Slurry Wall			
Piezometer	Riser Elevation	Leachate Elevation	Gradient Flow	Monitoring Well	Riser Elevation	Groundwater Elevation
P-1	42.68	29.68	inward	GW-1	38.68	33.86
P-2	42.32	29.06	inward	GW-2	40.92	33.91
P-3	40.36	27.74	inward	GW-3	39.40	33.94
P-4	40.78	22.23	inward	GW-4	40.53	33.42
P-5	40.73	20.94	inward	GW-5	39.90	32.48
P-6	40.74	19.82	inward	GW-6	38.95	31.85
P-7	40.80	18.90	inward	GW-7	39.49	31.03
P-8	40.21	18.63	inward	GW-8	39.75	30.06
P-9	39.97	19.58	inward	GW-9	39.65	29.34
P-10	39.86	19.34	inward	GW-10	38.34	29.99
P-11	40.52	22.55	inward	GW-11	38.26	31.13
P-12	43.28	29.32	inward	GW-12	42.09	31.79
P-13	44.78	30.27	inward	GW-13	44.79	32.55
P-14	45.09	30.31	inward	GW-14	39.63	34.15
P-15	45.57	30.97	inward	GW-15	42.33	34.78
P-16	44.67	31.07	inward	GW-16	44.41	35.31
P-17	44.28	30.03	inward	GW-17	42.19	33.98

P-1	13.00	GW-1	4.82	4.18
P-2	13.26	GW-2	7.01	4.85
P-3	12.62	GW-3	5.46	6.20
P-4	18.55	GW-4	7.11	11.19
P-5	19.79	GW-5	7.42	11.54
P-6	20.92	GW-6	7.10	12.03
P-7	21.70	GW-7	8.46	12.13
P-8	21.58	GW-8	9.69	11.43
P-9	20.39	GW-9	10.31	9.76
P-10	20.52	GW-10	8.35	10.65
P-11	17.97	GW-11	7.13	8.58
P-12	13.96	GW-12	10.30	2.47
P-13	14.51	GW-13	12.24	2.28
P-14	14.78	GW-14	5.48	3.84
P-15	14.60	GW-15	7.55	3.81
P-16	13.60	GW-16	9.10	4.24
P-17	14.25	GW-17	8.21	3.95

Comments:

Date Data Collected: December 17, 2009

Form Revised December 6, 2004

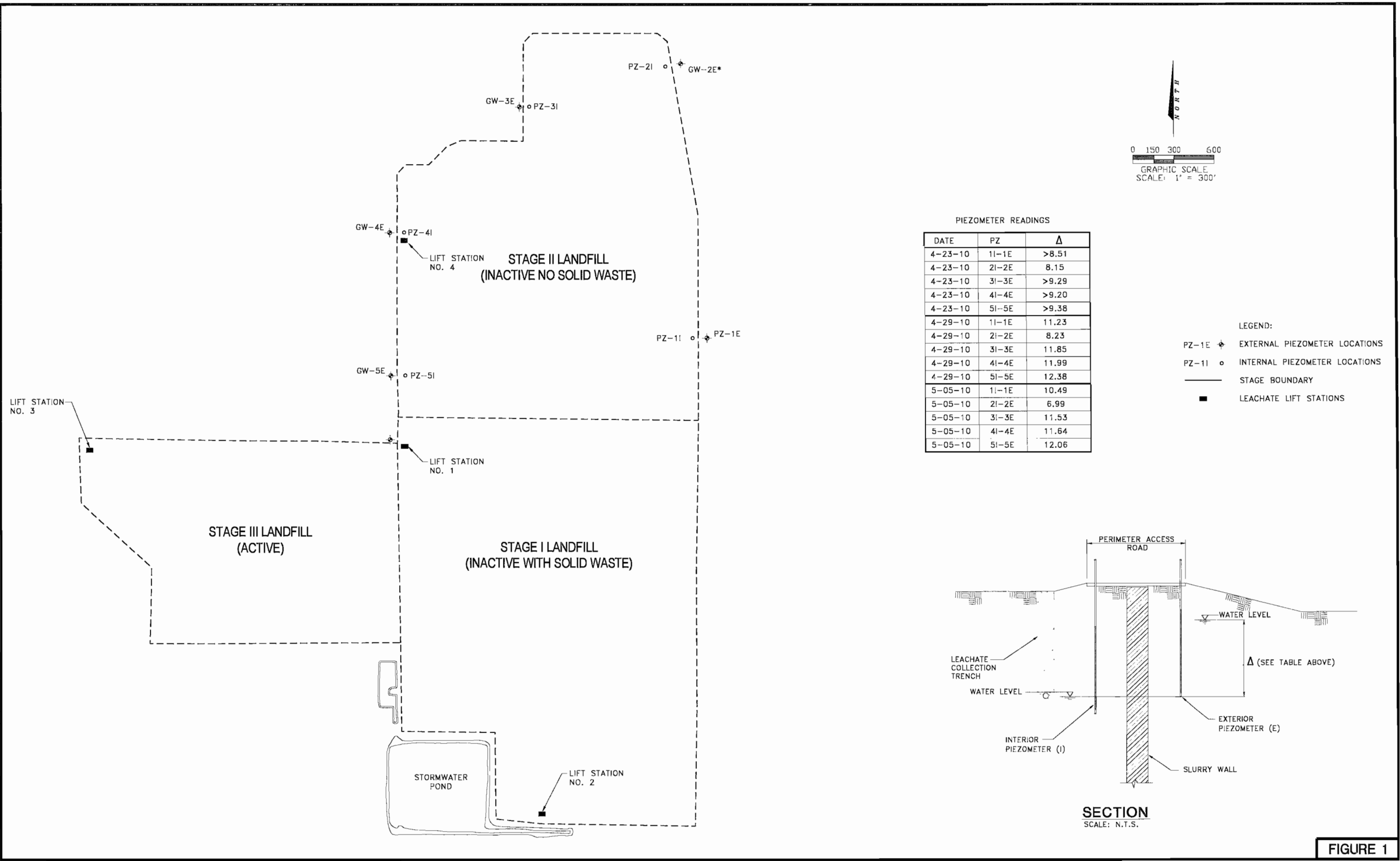


FIGURE 1

<p>482 South Keller Road ORLANDO, FL 32810-6101 TEL (407) 647-7275 FAX (407) 647-0624 WWW.PBSJ.COM</p> <p>POST: BUCKLEY, SCHUH & JERNIGAN, Inc. C/O PBS&J 3301 West Cypress Street Suite 200 Tampa, FL 33607 FPR Certificate of Authorization No.: 24</p>	CLIENT	PROJECT	TASK	ORIGINAL NOV. 2009	6. _____	Name: Joseph L. Miller Florida P.E. No.: 39177 Address: PBS&J 482 S. Keller Road Orlando, FL 32810-6101 Signature _____ Date _____	JOB NO. 100008517 DRAWN RGC DESIGN RGC/JLM CHECKED JLM Q.C. DED SHEET 1/2
	BOARD OF COUNTY COMMISSIONERS	LENA ROAD CLASS I LANDFILL	STAGE II	REVISIONS:	7. _____		
	MANATEE COUNTY	PERMIT RENEWAL 2009	TEMPORARY PIEZOMETERS	1. _____	8. _____		
	FLORIDA			2. _____	9. _____		
				3. _____	10. _____		
				4. _____	11. _____		
				5. _____	12. _____		