

**CITRUS COUNTY CENTRAL LANDFILL
CLOSURE AND LONG-TERM CARE PLAN**

Prepared for:

Citrus County Solid Waste Department
230 W. Gulf to Lake Hwy
Lecanto, Florida 34460



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June 2021

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ATTACHMENTS

Attachment A Post-Closure Monthly Inspection Checklist

1 INTRODUCTION

This Closure and Long-Term Care (CLTC) Plan provides guidelines and procedures for the closure requirements, closure construction, inspection, maintenance, repairs, monitoring, and recordkeeping of the Class I Citrus County Central Landfill (CCCL). The CCCL includes an active, lined Class I Landfill and two closed, unlined Class I landfill cells, and one closed lined Class I landfill cell.

This plan discusses closure procedures and requirements that are permitted in accordance with Rules 62-701.600 and 62-701.610, Florida Administrative Code (FAC), and long-term care (LTC) requirements specified in Rule 62-701.620(2), FAC.

This plan combines recommendations and Florida Department of Environmental Protection (FDEP) requirements. Only those permit items pertinent to the closure and routine maintenance and/or operation of the closed landfill and the stormwater system have been identified and discussed.

1.1 SITE INFORMATION

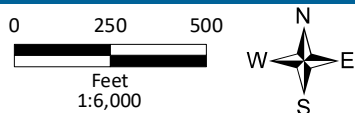
The CCCL is owned by Citrus County, Florida, and operated by the Citrus County Solid Waste Management Department. CCCL is in Lecanto, Florida, at 230 W. Gulf to Lake Highway (State Highway [SR] 44), in Section 1, Township 19 South, and Range 18 East.

The CCCL encompasses approximately 140 acres and consists of an active 32.6-acre lined Class I Landfill (Phases 1, 1A, 2, and 3), three closed Class I landfills encompassing approximately 60 acres, a yard waste processing area, a waste tire storage area, and supporting infrastructure (e.g., scalehouse, administrative building, and a citizens waste drop-off area). Two of the three closed Class I landfills are unlined. The active landfill has an active gas collection and control system (GCCS), and the closed landfills have passive landfill gas vents. Figure 1-1 provides the Site Location Map, and Figure 1-2 provides a Site Plan showing facility buildings and monitoring sites.

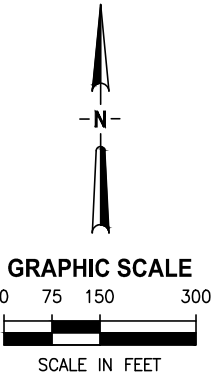
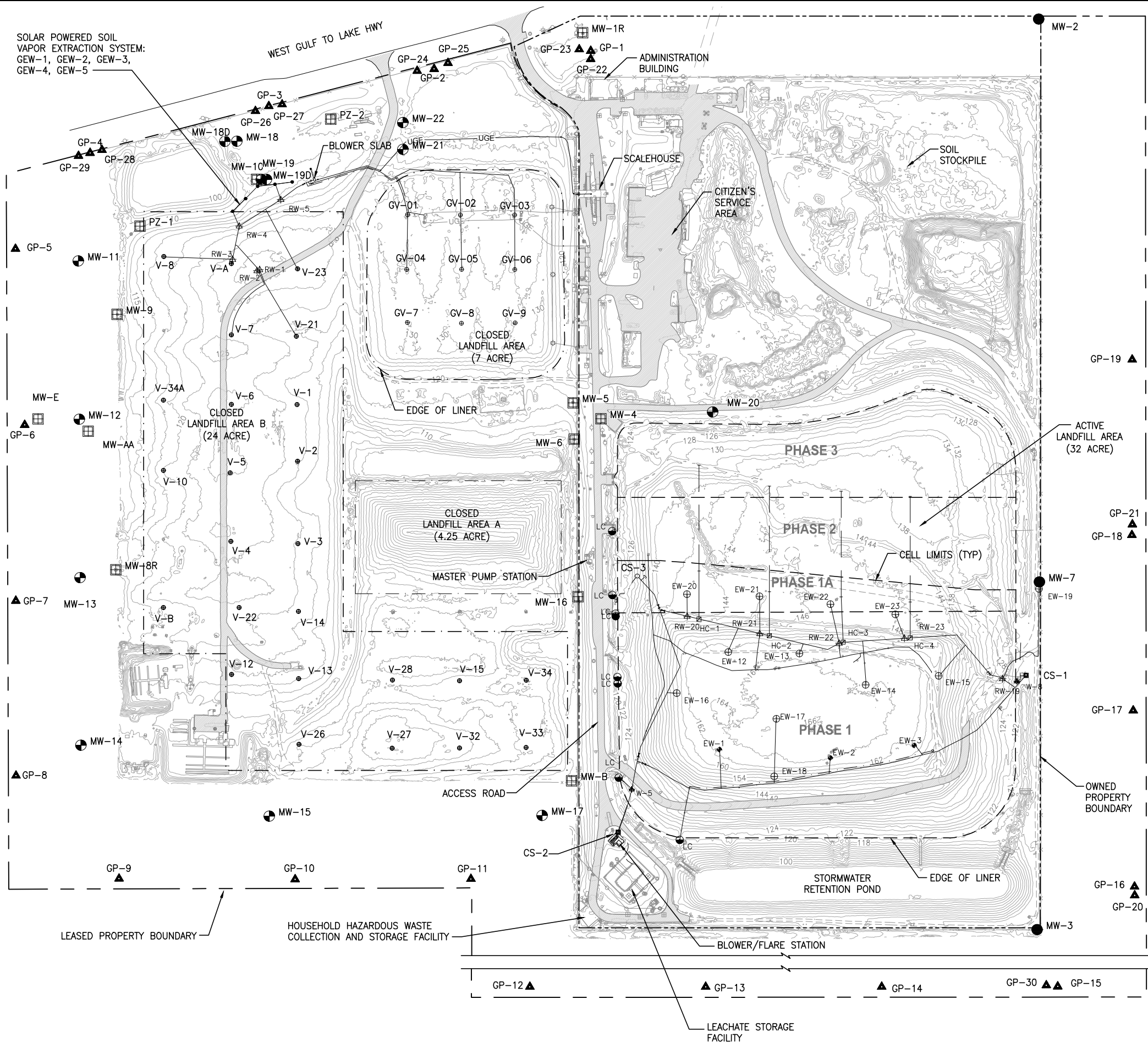
Figure 1-1

Site Location Map

Citrus County Central Landfill



JonesEdmunds



LEGEND

- EW-1 EXISTING LFG EXTRACTION WELL
- EW-10 EXISTING DOWNSLOPE LFG EXTRACTION WELL
- EW-8R EXISTING REMOTE LFG EXTRACTION WELLHEAD OR EXISTING LEACHATE CLEANOUT RISER WELLHEAD
- W-1
- EXISTING LFG PIPING
- CS-2 EXISTING CONDENSATE SUMP
- CT-1 EXISTING CONDENSATE TRAP
- LC EXISTING LEACHATE CLEANOUT
- MW-7 EXISTING BACKGROUND GROUNDWATER MONITORING WELL
- MW-13 EXISTING COMPLIANCE GROUNDWATER MONITORING WELL
- V-33 EXISTING PASSIVE LFG VENT
- GV-06 EXISTING PASSIVE LFG VENT (INSTALLED 2009)
- PZ-1 EXISTING PIEZOMETER
- MW-9 EXISTING PIEZOMETER
- GP-1 EXISTING GAS PROBE
- W-7 EXISTING LEACHATE CLEANOUT RISER WELLHEAD

- NOTES:
- TOPOGRAPHIC CONTOURS PREPARED BY COASTAL LAND SURVEYORS AND MAPPERS, DATED 10/15/2020.
 - EXISTING LFG VENTS LABELING MAY VARY IN THE FIELD.

FIGURE 1-2
SITE PLAN
CITRUS COUNTY CENTRAL LANDFILL
LECANTO, FLORIDA

2 CLOSURE PERMIT REQUIREMENTS

In accordance with the requirements of Rule 62-701.600(2), FAC, the following describes the procedures that will be followed and the information that will be provided at the time of final closure of the landfill.

Upon reaching final disposal capacity, a final closure permit application will be submitted. The plan submitted at that time will be in accordance with current solid waste regulations. The permit drawings submitted as part of this Permit Application will be updated to reflect actual site conditions at the time of final closure. These plans will include sufficient detail to construct the closure.

The closure plan submitted as part of this Permit Modification Application includes the following items:

- Closure Design Plan (Section 3).
- Closure Operation Plan (Section 4).
- Long-Term-Care Requirements (Section 10).
- Demonstration of proof of financial responsibility for LTC (Sections 4.3 and 10.4).

3 CLOSURE DESIGN PLAN

The Closure Design Plan consists of engineering plans and this document regarding closure design and procedures for the closure of the Class I Landfill in accordance with Rule 62-701.600(3), FAC.

3.1 CLOSURE PHASES

The County proposes to close the entire active Class I Landfill at the same time when all cells have reached final grades.

3.2 EXISTING TOPOGRAPHY AND FINAL GRADING PLANS

Figure 1-2 shows the topography for the active Class I landfill. This survey was flown by Dragonfly Aerosolutions on October 15, 2020, and signed and sealed by Coastal Land Surveyors and Mappers. Figure 3-1 shows the final grades.

3.3 CLOSURE PROVISIONS

The final cover will be placed on the exterior side slopes when the slopes have been filled to capacity.

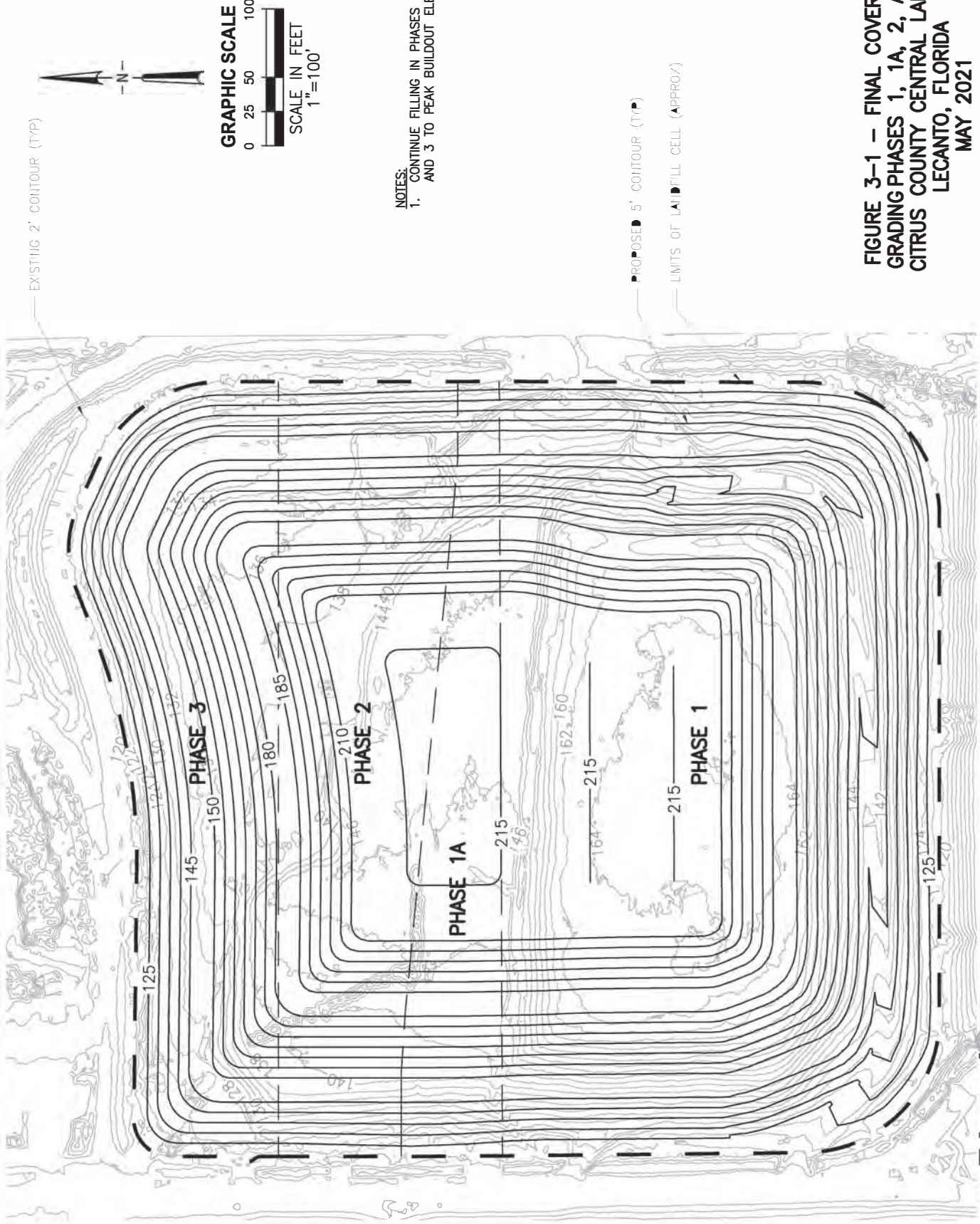
3.4 FINAL ELEVATIONS BEFORE SETTLEMENT

Figure 3-1 shows the final cover elevations before settlement and the grading plan. The maximum elevation of the final cover for Phases 1 and 1A is 215 feet National Geodetic Vertical Datum of 1929 (NGVD), and the maximum elevation of the final cover for Phases 2 and 3 is 218.1 feet NGVD.

3.5 SIDE-SLOPE DESIGN

The side slopes of the final cover design are shown to include benches, downslope drainage ways, and energy dissipaters. Side slopes shall not be steeper than a 3 feet horizontal to 1 foot vertical rise to control erosion of the final cover material. The side slopes will be designed to control stormwater flow using techniques such as building benches and tack-on berms on the side slopes of the landfill. The side slopes will contain downslope drainage-ways with water-flow energy dissipaters. Access for maintenance equipment will be provided. The design will address the susceptibility for erosion of the earthen material proposed for final cover relative to historical rainfall patterns for the area, the period between the patterns for the area, the period between the application of the final cover and establishment of vegetation, and maintenance procedures.

The Closure Design Plan will include an evaluation of the stability of the cover system and the disposed waste. The closure shall be designed to meet the minimum 1.5 factor of safety criteria in Subsection 62-701.400(2), FAC. This evaluation shall include an analysis of the potential for slides along the weakest interface of the final cover system and for deep-seated rotational or translational failures through the waste and the final cover. The analysis



EXISTING 2' CONTOUR (TYP)

GRAPHIC SCALE
 0 25 50 100
 SCALE IN FEET
 1"=100'

NOTES:
 1. CONTINUE FILLING IN PHASES 1, 1A, 2, AND 3 TO PEAK BUILDOUT ELEVATION

PROPOSED 5' CONTOUR (TYP)

LIMITS OF LANDFILL CELL (APPROX)

FIGURE 3-1 - FINAL COVER AND GRADING PHASES 1, 1A, 2, AND 3
 CITRUS COUNTY CENTRAL LANDFILL
 LECANTO, FLORIDA
 MAY 2021

will be based on the laboratory measurements of the interface friction angles of the cover system components.

3.6 FINAL COVER INSTALLATION

Final cover installation plans will be submitted at the same time as the Closure Permit Application, including a Construction Quality Assurance (CQA) Plan that meets the requirements of Subsections 62-701.400(7) and (8), FAC. A schedule for installing closure components will be provided. The top-grade vent will be designed to minimize erosion, maximize runoff and to prevent ponding or low spots while considering total fill height and expected subsidence caused by decomposing waste.

Final cover will be placed over the entire surface of each completed solid waste disposal unit or units within 180 days after the final waste deposit or within the timeframe set forth in the approved Closure Plan. The final cover will be vegetated to control erosion and provide a moisture infiltration seal with species that are drought-resistant and have roots that will not penetrate the final cover. Provisions for cover material and maintenance of the cover during LTC will be provided.

3.7 FINAL COVER DESIGN REQUIREMENTS

The final cover system will be designed to minimize infiltration and erosion and will include a barrier layer meeting Chapter 62-701.600, FAC, requirements. The barrier layer will have chemical and physical resistance to materials that it may come in contact with and be capable of withstanding exposure to the natural environmental stresses and forces throughout the installation/seaming process as well as settlement of the waste during the CLTC period. All geosynthetic components used in the final cover shall meet the standards and specifications contained in Subparagraphs 62-701.400(3)(d)1 and 2, 62-701.400(3)(d)5 through 11, and 62-701.400(3)(e) and (f), FAC. The barrier layer shall have a permeability that is substantially equivalent to or less than the permeability of the bottom-liner system.

3.7.1 PROTECTIVE SOIL LAYER DESIGN

A protective soil layer at least 24 inches thick shall be placed on top of the geomembrane. Material specifications, installation methods, and compaction specifications will be designed to protect the barrier layer from root penetration, resist erosion, and remain stable on the final design slopes of the landfill.

3.7.2 BARRIER SOIL LAYER DESIGN

The closure design includes geomembrane in lieu of a barrier soil layer.

3.7.3 EROSION CONTROL VEGETATION

The closure design includes sod placement above the protective soil layer to control erosion.

3.7.4 GEOMEMBRANE BARRIER LAYER DESIGN

The barrier layer will consist of the following (from top to bottom):

- Sod.
- 24-inch soil layer with the upper 6 inches capable of supporting vegetative growth.
- Double-sided geocomposite drainage layer.
- 40-mil textured linear low-density polyethylene (LLDPE) geomembrane.
- 12 inches of soil leveling course to intermediate cover that has been prepared and compacted over the waste.

Figure 3-1 provides a conceptual final cover design.

3.7.5 GEOSYNTHETIC CLAY LINER DESIGN

The closure does not include a geosynthetic clay liner as a barrier layer.

3.7.6 STABILITY ANALYSIS OF THE COVER SYSTEM AND THE DISPOSED WASTE

A stability analysis will be submitted at the time of permitting. This layer will include topsoil or soils that will sustain vegetative growth. The design may include a drainage layer between the geomembrane and the protective soil layer if necessary during the design and permitting process.

3.8 STORMWATER CONTROL

The stormwater conveyance and treatment system for the facility has been designed, permitted, and constructed. The CCCL operates under two separate Environmental Resource Permits (ERPs) that appear to be for the entire project site including the entrance road: Southwest Florida Water Management District (SWFWMD) ERP No. 40-2023 Modifications 001 through 005; and FDEP ERP No. 09-0291076 Modifications 001 through 006. The stormwater system was designed and permitted for final buildout conditions. Stormwater at the facility is prevented from coming onto or into waste-filled areas.

The *Environmental Resource Permit Drawings*, prepared by SCS Engineers and submitted as record drawings in March 2011 show the proposed final cover stormwater management and control system.

The design includes terraces at elevations 148.5 and 183.5 feet NGVD. Stormwater will drain along terraces to inlets, where they will enter 12-inch lateral chute pipes that connect to 18-inch stormwater downchute pipes. The stormwater will discharge down to grout-filled fabric revetment spillways, through the perimeter stormwater swales, and into the stormwater treatment areas. The stormwater system will be maintained throughout active operations at the landfill and will serve as the stormwater management system after closure.

3.9 ACCESS CONTROL

Fencing and other measures are used to restrict access. The boundary of the landfill property is fenced. Access to the site is restricted to prevent unauthorized entry and

dumping. The County will retain the right of entry to the property for inspecting, monitoring, and maintaining the site for the LTC period after solid waste operations are terminated. The right of access for the Permittee and FDEP will be maintained in case the property changes ownership.

If any landfill monuments are severely damaged or destroyed, corrective actions will be taken. If any access roads are severely damaged, corrective actions will be taken to maintain passable and safe roads on the site.

3.10 GAS MANAGEMENT SYSTEM

The CCCL operates under a Title V Air Operation Permit No. 0170366-007-AV and operates an active landfill gas collection system at the active Class I landfill that complies with the requirements of Rule 62-701.530, FAC. The gas management system is an active gas collection system that uses vertical collection wells and horizontal collection trenches to collect landfill gas generated within the waste. The gas wells are designed to reduce gas pressure in the interior of the landfill by collecting gases and preventing gases from moving laterally. The facility is not currently required by regulations to install the GCCS, but the facility decided to install the active gas collection system early. The gas collection system is connected to a landfill gas control system that consists of an open flare.

4 CLOSURE OPERATION PLAN

The following Closure Operation Plan is for the closure of the CCCL Class I Landfill (Phases 1, 1A, 2, and 3). The closure will be constructed when waste reaches final grades.

4.1 ACTIONS TO CLOSE

The construction of the closure surface will consist generally of preparing the subgrade, installing the toe drain, installing the geosynthetic components, and installing cover soil. The construction will begin with disking and scraping the intermediate cover to remove the vegetation. The subgrade will be graded to meet design elevations and prepared to receive the geomembrane. The geomembrane and geocomposite will be installed in accordance with the design drawings. Following geosynthetic installation, 24 inches of protective cover soil will be placed over the geosynthetics, and sod will be placed over the protective soil.

4.2 SCHEDULE

Closure of the Class I Landfill will commence when Phases 1, 1A, 2, and 3 have reached final grades. At that time, the final closure Permit Application to FDEP will provide a more detailed schedule.

4.3 FINANCIAL ASSURANCE FOR LONG-TERM CARE

The County maintains a Closure Escrow Fund in accordance with Rule 62-701.630, FAC, to cover the cost of final CLTC of the CCCL (for the active and closed Class I Landfill).

4.4 WATER-QUALITY MONITORING PLAN

Consult the Water-Quality Monitoring Plan referenced in the most current solid waste operations permit for the CCCL.

4.5 GAS MANAGEMENT SYSTEM

No changes are proposed to the Title V permit and existing active gas management system. Some infrastructure (e.g., vertical gas collection wells, horizontal gas collection trenches, header pipe) will have to be extended to accommodate the Class I closure. All modifications to the active gas management system will be documented and reported as outlined in the Title V permit reporting and recordkeeping requirements.

5 CERTIFICATION

After closure operations are inspected and approved by FDEP, the County will file a declaration to the public in the deed records of Citrus County. The declaration will include a legal description of the property on which the landfill is located and a site plan specifying the area filled with solid waste. The declaration shall also include a notice that any future owner or user of the site should consult FDEP before planning or initiating any activity that disturbs the landfill cover, monitoring system, or other control structures. A certified copy of the declaration will be filed with FDEP.

5.1 SURVEY MONUMENTS

After the landfill is closed with soil, a description of permanent benchmarks outside the landfill cells, survey monuments, and the marker posts that identify the waste-filling limits will be provided.

5.2 FINAL SURVEY REPORT

A final survey will be completed by a Florida-licensed Professional Surveyor and Mapper who verifies that final contours and elevations of the CCCL are in accordance with the plans as approved in the permit. The final closure survey will be submitted with the final soil conversion closure certification.

Aerial mapping techniques that provide equivalent survey accuracy may be substituted for the survey. Contours will be shown at no greater than 5-foot intervals.

6 DECLARATION TO THE PUBLIC

In accordance with Rule 62-701.600(7), FAC, once closure construction has been completed for the entire CCCL, the County will file a declaration to the public in the Citrus County deed records. The declaration will include a legal description of the property and a site plan specifying the area filled with solid waste. The declaration will also include a notice that any future owner or user of the site should consult FDEP before planning or initiating any activity involving disturbing the landfill cover, monitoring system, or other control structure. A certified copy of the declaration will be filed with FDEP.

7 OFFICIAL DATE OF CLOSING

The requirements identified in Sections 3 through 6 will be submitted to FDEP in accordance with Rule 62-701.600(8), FAC. FDEP will evaluate the documents to verify that they comply with the closure plan and regulatory requirements. After review, FDEP will notify the County in writing that the facility closure has been completed.

8 TEMPORARY CLOSURE

If an area of the landfill will not receive waste for more than 180 days, a 12-inch intermediate soil cover will be placed on the area and the area will have a rain cover applied or will be sodded to prevent erosion and stormwater intrusion. The waste will be covered with a minimum of 12 inches of soil cover and maintained in accordance with all applicable statutory regulations.

9 OTHER CLOSURE PROCEDURES

This Section describes the procedures that will be followed in accordance with Rule 62-701.610, FAC, for the closure of the Class I Landfill.

9.1 CLOSED LANDFILL USE

No use has been designated for the closed landfill area. In accordance with Rule 62-701.610(1), FAC, the County will consult with FDEP before conducting activities at the closed landfill. The County acknowledges that FDEP retains regulatory control over any activities that may affect the integrity of the environmental protection measures of the landfill.

9.2 RELOCATION OF WASTES

In accordance with Rule 62-701.610(2), FAC, if at any time after closure the County intends to relocate waste within the footprint of the landfill, the County will request permission from FDEP to move waste from one point to another within the footprint of the same solid waste disposal unit. The County will submit a Permit Modification Application to FDEP to reflect the proposed relocation of waste activity. The Permit Modification Application will address the requirements of Rule 62-701.610 (2)(a) through (e), FAC.

10 LONG-TERM-CARE REQUIREMENTS

In accordance with Rule 62-701.620, FAC, the County will be responsible for monitoring and maintaining the facility in accordance with the FDEP-approved closure plan. The LTC Plan will remain in effect for a minimum of 30 years from the date of closing, but the LTC period may be extended by FDEP to be consistent with Rule 62-701.620(1), FAC.

If disturbed, closed landfill areas are a potential hazard to public health, groundwater, and the environment. Therefore, FDEP retains regulatory control over any activities that may affect the integrity of the environmental protection measures, such as the landfill cover, drainage, monitoring system, or stormwater controls. FDEP will be consulted before activities are conducted at the closed landfill. During the LTC period, the County will continue water-quality monitoring in accordance with the permit requirements. The closure permit will be renewed every 10 years until the groundwater monitoring well analyses have stabilized and FDEP notifies the applicant in writing that renewal is not required.

Supervising the closed landfill is the responsibility of a person experienced in the closure requirements of a solid waste management facility. The facility will be inspected monthly during the LTC period. The LTC period has not been initiated for the closed landfill cells since the site is considered one single facility with one groundwater-monitoring network for closed and active landfill cells.

In accordance with Rule 62-701.620(3), FAC, the County may apply to FDEP for a permit modification to reduce the LTC period or eliminate some aspects of LTC. FDEP will grant such modification if reasonable assurance is provided to FDEP that no threat exists to human health or the environment and if the landfill:

- a. Has been constructed and operated in accordance with approved standards.*
- b. Was closed with appropriate final cover, vegetative cover has been established, and a monitoring system has been installed.*
- c. Has a 10-year history after closure of no violations of water quality standards or criteria detected in the monitoring system and no increases over background water for any monitoring parameters that may be expected to result in violations of water quality standards or criteria.*
- d. Has had no detrimental erosion of cover, and subsidence of waste has ceased.*

10.1 RIGHT OF ACCESS

In accordance with Rule 62-701.620(7), FAC, the County is obligated to retain the right of entry and to make provisions for access to the landfill property and the closed area of the landfill for the LTC period for inspecting, monitoring, and maintaining the site. The boundary of the landfill property is fenced. Access to the site will be restricted to prevent unauthorized entry and dumping. As part of the routine checklist procedure, all fencing and signage will be inspected for damage and repaired, repainted, and replaced if necessary to maintain the integrity of these items.

If any landfill monuments are severely damaged or destroyed, corrective actions will be taken. The site roadways will be inspected as part of the routine checklist procedure. If any access roads are severely damaged, they will be repaired to maintain passable and safe roads on the site.

10.2 GAS COLLECTION AND MONITORING SYSTEM

In accordance with Rule 62-701.620(5), FAC, the gas collection and monitoring system will be maintained for the LTC period of the landfill. If the landfill has stabilized to the point where no significant production of combustible gases or objectionable odors occur, the County may apply to modify the closure permit to reduce the LTC schedule.

10.3 GROUNDWATER MONITORING SYSTEM

In accordance with Rule 62-701.620(8), FAC, the groundwater monitoring system will be maintained for the LTC period of the landfill. Refer to Section 10.12 for additional details.

10.4 SUCCESSORS OF INTEREST

Any authority acquiring rights of ownership, possession, or operation of the CCCL through sale, lease, or transfer of property will be subject to all requirements of the permit and will provide any required proof of financial responsibility to FDEP in accordance with Rule 62-701.620, FAC. Leases or transfers of property will include specific conditions to delineate the following:

- The County is responsible for closure and will maintain any required proof of financial responsibility until the person or entity acquiring ownership, possession, or operation of the landfill establishes the required proof of financial responsibility with FDEP.
- Responsibility for continued monitoring, maintaining, and correcting deficiencies or problems.
- Mineral rights attached to the property and the rights to any recoverable materials that may be buried on the property or landfill gases that may be produced. An FDEP permit will be required if any on-site operations after closing a landfill involve disturbing the landfill.

Transfer of a landfill permit will be in accordance with Rule 62-4.120, FAC.

10.5 STABILIZATION REPORT

In accordance with Rule 62-701.620(6), FAC, the County will submit a report to FDEP that addresses landfill stabilization every 5 years after permit is issued for LTC. The submittal will include the technical report required in Rule 62-701.510(9)(b), FAC, and address subsidence, barrier layer effectiveness, stormwater management, and gas production and management. For lined landfills, the submittal will also address leachate collection and removal system effectiveness, leachate quality, and leachate quantity.

10.6 MONTHLY INSPECTION CHECKLIST

The County proposes to inspect the landfill monthly to ensure compliance with the LTC requirements and provide a log of landfill inspection activities. The County will inspect the

landfill slopes monthly in accordance with the Monitoring, Maintenance, and Testing Plan included in the site's Operation Plan. Attachment A includes an LTC monthly inspection checklist for the site. The site checklist forms are completed and signed by the individual conducting the monthly inspection. Items requiring attention are noted on the forms and brought to the attention of the Landfill Manager.

10.7 MAINTENANCE AND REPAIR

The County will inspect and maintain the landfill to minimize impacts to the function and/or integrity of the final cover system, the leachate collection/detection system, the leachate storage tank, and various other elements of the site. The County will provide site access control, erosion control, grass cover maintenance, and prevention of ponding. The condition of the surface vegetation, landfill cap, gas collection and monitoring system, stormwater system, and monitoring devices will be the primary focuses during the inspection.

Table 10-1 is a schedule for notification if corrective actions are required. Records of discovery will also be kept on the Monthly Inspection Checklist (Attachment A).

Table 10-1 Schedule for Notification and Corrective Actions

Activity	Initial Notification	Written Notification/Corrective Action Plan	Corrective Action
Sinkhole within 500 feet	Within 24 hours of discovery	Within 7 days of discovery, including description, location, size shown on plan sheet, corrective action plan	Based on proposed schedule
Fire/Explosion	Within 24 hours of discovery	Within 7 days of discovery, including remedial measures and schedule of activities	Based on proposed schedule
Damage to Facilities/Failure of Systems	Within 24 hours of discovery	Within 7 days of discovery, including details of damage/failure, remedial measures, schedule of repairs	Based on proposed schedule
Damage to Groundwater Monitoring System	Within 24 hours of discovery	Within 7 days of discovery, including details of damage/failure, remedial measures, schedule of repairs	Based on proposed schedule
Damage to Stormwater System	Within 24 hours of discovery	Within 7 days of discovery, including details of damage/failure, remedial measures, schedule of repairs.	Within 30 days of written notification
Erosion of Final Cover System >6 inches in depth	N/A	Description on Inspection Log	Within 72 hours of discovery
Leachate not accepted by Disposal Facility	Same as Written Notification	Within 3 days of cessation of leachate acceptance, including explanation of contingency measures and schedule of disposal.	Within 7 days of cessation of acceptance

Activity	Initial Notification	Written Notification/Corrective Action Plan	Corrective Action
Damage to Leachate Collection/ Detection System	Within 24 hours of discovery	Within 7 days of discovery, including details of damage/failure, remedial measures, schedule of repairs.	Based on proposed schedule
Damage to Storage Tanks Systems	Within 24 hours of discovery	Within 7 days of discovery, including details of damage/failure, remedial measures, schedule of repairs.	Based on proposed schedule

10.8 GRASS

Maintaining the soil conversion grass cover will include mowing, fertilizing, seeding, mulching, and filling areas of subsidence. Mowing, fertilizing, seeding, mulching, and filling will continue as needed. The following is a general schedule and description of grass maintenance activities.

Mowing—The height of the grass will be observed during monthly inspections. If the grass is found to be approximately 18 inches high, mowing will be scheduled before the next inspection. Caution will be exercised while mowing to keep heavy equipment away from the gas vents and monitoring devices.

Fertilizing—The general recommendations for commercial fertilizer are 16-4-8 formulation (nitrogen-potassium-phosphorus), of which 60 percent of the nitrogen will be in the urea-formaldehyde form and in conformance with State laws. Fertilizer will be applied once per year as needed. The spread rate will be 8 to 10 pounds per 1,000 square feet or as instructed on the package. The local US Department of Agriculture (USDA) extension office will be called to verify these recommendations.

Seed and Sod—Damaged areas or other areas where grass cover is sparse will be reseeded or sodded. Sod is generally recommended for use in all areas such as on steep slopes and in highly eroded or bare spots. Sod will be staked in place with sod pegs where necessary.

Seeding, if sown on relatively flat areas, will be performed in the early spring and late fall as needed in the following manner:

- Early spring—Scarified Bahia with 20 percent Bermuda seed.
 - Minimum percent pure seed – 95.
 - Minimum percent germination and hard seed – 80.
 - Bahia seed will not germinate until overnight temperatures stay above 70° Fahrenheit.
- Late fall—Italian rye.
 - Minimum percent pure – 95.
 - Minimum percent germination and hard seed – 90.

- Seed will not germinate until overnight temperatures stay below 70° Fahrenheit and above 40° Fahrenheit.
- Bahia Sod—16-inch-by-24-inch slabs with 1-1/2-inch root bed.

Seed Rates—The following are general recommendations for maintenance and replacement growth. High-erosion areas and bare patches will be seeded more heavily. Spread rates may vary for different grass seeds from different suppliers. The instructions on the seed bags will be followed. Maintenance seeding will be used where the grass is healthy and full. Replacement seed rates will be used on bare or thin grass growth areas.

- **Maintenance Seed Rates**

- Spring 1/2 pound per 1,000 square feet.
- Fall 1/2 pound per 1,000 square feet.

- **Replacement Seed Rates**

- Spring 3 to 5 pounds per 1,000 square feet.
- Fall 3 to 5 pounds per 1,000 square feet.

Watering—The County will water as required to maintain the health of the grass; daily watering will never be necessary. If the blades of the grass begin to wilt and loose resiliency when walked on, water needs to be applied. The water that is applied will be clean and potable.

10.9 EROSION CONTROL

Avoiding erosion is likely be the most cost-effective means of protecting the closure cap. A relatively minor eroded area combined with a severe storm event can degrade the final cover. The best way to avoid erosion is to maintain a healthy stand of grass and keep drainage swales free of silt and sediment. Cleaning the drainage swales will prevent overflow and backflow and reduces the risk of erosion from these causes. Large amounts of silt or sediment removed from the drainage swales may indicate damage to the closure cap.

10.10 STORMWATER STRUCTURES

All stormwater structures will be clean of all silt or soil deposits. All soil settlement surrounding these items will be brought to the attention of the Landfill Manager and then repaired in a manner consistent with the surrounding area. Grass will be maintained, replaced, reseeded, and mowed as indicated in the section on grassing. The drainage swales will be cleaned annually as needed.

10.11 LANDFILL CAP

Post-closure maintenance of the cover system will include inspecting the system in landfill areas that have a differential settlement of 5 feet or more in a horizontal distance of 100 feet. The system will be repaired in those areas as necessary. Any differential settlement at the landfill will be corrected to allow drainage paths to remain intact.

Differential settlement is defined as one area of the closure subsiding or settling faster than the surrounding area. Differential levels will be checked if evidence of settlement is detected

during routine site inspections. Differential level check information will be kept on file and will be made available for FDEP review.

If the final cover needs to be repaired, repair will follow the original design specifications. Repairs to the final cover will be under the supervision of a Professional Engineer. Accounts of all repairs to the final cover system and test results will be documented in Daily Observation Reports and maintained by the County. Repairs to any layer of the final cap system will be in accordance with the specification and CQA Plan for landfill cover construction.

10.12 MANAGEMENT OF MONITORING DEVICES

This Section describes procedures for maintaining and repairing groundwater and gas monitoring devices. Figure 1-2 shows the locations of the monitoring devices. Groundwater monitoring will continue at the landfill with the potential for periodic revisions after laboratory reports are evaluated.

10.12.1 GROUNDWATER MONITORING WELLS

If a monitoring well becomes inoperable, the County will notify FDEP immediately in writing as shown in Table 10-1. All inoperative monitoring devices will 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 FDEP.

The written notification will describe in detail the problem that has occurred and the remedial actions that will be taken. If deemed necessary, the damaged monitoring well will be properly abandoned and a new well will be constructed close to the abandoned well. Copies of the well abandonment permit and site inspection prepared by SWFWMD will be provided to FDEP for abandoning wells. Monitoring well design and replacement will be approved by FDEP before well abandonment and installation. When the monitoring well is completed, the following information will be provided to FDEP:

- Well Identification.
- Driller's Lithologic Log.
- Latitude/Longitude.
- Total Well Depth.
- Aquifer Monitored.
- Casing Diameter.
- Screen Type and Slot Size.
- Casing Type and Length.
- Elevation at Top of Pipe.
- SWFWMD Well Construction Permit Number.
- Elevation at Land Surface.

The newly constructed monitoring well will be developed and included in the routine monitoring.

The LTC permit will be renewed every 10 years until the monitoring well analyses have stabilized and FDEP notifies the County in writing that the permit renewal will not be required.

Groundwater monitoring will only be conducted by an individual trained in groundwater monitoring and reported to FDEP as required by the closure permit. Care will be taken when equipment is near any monitoring well so that no damage is done.

10.12.2 GAS MONITORING

Gas monitoring will continue at the landfill in accordance with the Operation Plan. Soil monitoring probes will be replaced and repaired in accordance with Rule 62-701.530, FAC. FDEP will be notified of maintenance repair activities.

10.13 RECORD-KEEPING REQUIREMENTS

Records of information used to develop or support the permit applications and any supplemental information submitted to FDEP will be kept for the design life of the landfill. Records of monitoring information, including calibration and maintenance records, all original chart recordings for continuous monitoring instrumentation, and copies of all reports required by permit will be kept for at least 10 years. Background-water-quality records will be kept for the design life of the landfill. Annual estimates of the remaining life and capacity and site life will be maintained. Annual estimates will be based on a summary of the heights, lengths, and widths of the solid waste disposal units and will be submitted annually to FDEP. Records more than 5 years old, which are required to be retained, may be archived if they can be retrieved within 7 days.

10.13.1 RECORDS OF MONITORING

Records of water-quality monitoring information will include the following:

- Facility name and identification number and identification number of the surface water and groundwater monitoring points.
- The date, exact place, and time of sampling or measurements.
- The person responsible for performing the sampling or measurements.
- Water levels before sampling.
- The dates analyses were performed.
- The person responsible for performing the analyses.
- The analytical techniques or methods used and method detection limits and applicable water-quality standards.
- STORET code numbers for parameters analyzed.
- The results of such analyses.

Water-quality monitoring reporting and evaluations, including routine sampling events, will be consistent with the pertinent requirements of Rule 62-701.510(8), FAC.

A technical report signed, sealed, and dated by a Professional Geologist or Professional Engineer will be submitted to FDEP every 2.5 years during the active life of the facility and every 5 years during the LTC period in accordance with Rule 62-701.510(8)(b), FAC. The technical report will be updated at the time of permit renewals. The technical report will meet the requirements of Rule 62-701.510(8), FAC, and will include the following:

- Tabular displays of data.
- Trend analyses.

- Comparisons of shallow-, middle-, and deep-zone wells.
- Correlation of parameters and discussions of data correlations.
- Interpretations of groundwater contour maps and flow rates.
- Evaluation of the adequacy of the frequency of water-quality monitoring and of the sampling locations.

10.13.2 INSPECTION FORMS

Inspections of the final cover and stormwater system will be documented and kept on file at the County office.

The County will document deficiencies observed in the fencing and security, access roads, monitoring devices, stormwater system, or final cover system during inspections of the landfill. The extent of damaged areas, the extent of the areas repaired, and a detailed description of the repair work will be recorded.

10.14 COMPLETION OF LTC

After the LTC period is completed, the Owner or Operator will notify FDEP with a certification, signed and sealed by a Professional Engineer, verifying that LTC has been completed in accordance with the closure plan.

Attachment A

**Post-Closure Monthly
Inspection Checklist**

Citrus County Central Landfill
Post-Closure Monthly Inspection Checklist
Page 1 of 2

Landfill Inspected: _____ Date of Inspection: _____			
Field Personnel: _____			
Conditions: _____			
Section A: Fencing and Security	Yes	No	N/A
1. Damage to fences, gates, or locks	_____	_____	_____
2. Gates unlocked/locks missing	_____	_____	_____
3. Signs of forced entry detected	_____	_____	_____
Section B: Access Roads	Yes	No	N/A
1. Access and site roads in poor condition	_____	_____	_____
2. Signs need repair	_____	_____	_____
Section C: Final Cover System	Yes	No	N/A
1. Settlement of cover	_____	_____	_____
2. Evidence of erosion, cracks, gullies	_____	_____	_____
3. Inadequate growth of grass cover	_____	_____	_____
4. Excessive grass height (greater than 18 inches)	_____	_____	_____
5. Holes or damage to cover	_____	_____	_____
6. Growth of damaging weeds or saplings	_____	_____	_____
7. Evidence of leachate seeps	_____	_____	_____
8. Landfill marker damage	_____	_____	_____
9. Impacts due to settlement	_____	_____	_____
10. Ponding of water	_____	_____	_____
Section D: Gas Venting System	Yes	No	N/A
1. Visible damage to system components	_____	_____	_____
2. Blockage in pipes	_____	_____	_____
3. Excessive release of odors	_____	_____	_____
Section E: Monitoring Devices	Yes	No	N/A
1. Damage to groundwater monitoring wells	_____	_____	_____
2. Damage to gas monitoring wells	_____	_____	_____
3. Locks missing	_____	_____	_____
4. Damage to gas monitor probe	_____	_____	_____

Section F: Stormwater Management System	Yes	No	N/A
1. Ponding of water	_____	_____	_____
2. Areas of silting	_____	_____	_____
3. Insufficient slope to promote positive drainage	_____	_____	_____
4. Areas of erosion in ditches or areas leading to ditches	_____	_____	_____
5. Inlets repair required	_____	_____	_____
6. Piping repair required	_____	_____	_____
7. Retention pond damage	_____	_____	_____
8. Berm repair required	_____	_____	_____
9. Letdown pipe repair required	_____	_____	_____
10. Grout-filled fabric repair required	_____	_____	_____
11. Litter or garbage problem	_____	_____	_____
12. Pollutants in drainage areas	_____	_____	_____
13. Water other than stormwater entering system	_____	_____	_____
14. Ditches/Culverts obstructed by vegetation or other	_____	_____	_____
15. Debris or weeds in perimeter ditch	_____	_____	_____
Section G: Site and surrounding area	Yes	No	N/A
1. Surface depressions	_____	_____	_____
Signature of Field Personnel: _____ Date: _____			

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