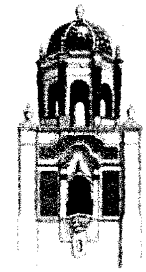
Operation Permit Renewal Application
Central County Solid Waste Disposal Complex
Sarasota County, Florida



SCS ENGINEERS

Prepared for:

Sarasota County Environmental Services
Solid Waste Operations
4000 Knights Trail Road
Nokomis, Florida 34275

Prepared by:

SCS Engineers
3012 U.S. Highway 301 N., Suite 700
Tampa, Florida 33619
(813) 621-0080

INCLUDES RESPONSES AND REPLACEMENT PAGES RECEIVED ON JUNE 28, JULY 29, and SEPTEMBER 20, 2002; MAY 2 and MAY 28, 2003; APRIL 1, JUNE 7, and NOVEMBER 18, 2004 and JUNE 1, 2005

File No. 09201010.01
February 28, 2002

INCLUDES REVISED INFO
RECEIVED 4/27/2006 and 5/30/2006

INCLUDES INFORMATION
RECEIVED 8/22/2006 and 2/20/2007
ASSOCIATED WITH
MODIFICATION #130542-004

SECTION 4

GROUNDWATER SAMPLING AND PARAMETERS

The groundwater monitoring well program currently consists of three background wells and five detection wells. Five of these wells (MW-1, MW-2, MW-4, MW-11, and MW-12) have screens that do not intercept the seasonal high groundwater level and will need to be replaced.

REPLACEMENT OF SELECTED MONITORING WELLS

Monitoring wells MW-1R, MW-2R, MW-4R, MW-11R, and MW-12R will be installed immediately adjacent to the wells they are replacing. Table 4-1 lists the proposed well construction characteristics of the wells based on the historical seasonal high and low water levels at each of the existing wells. Because of limitations of land surface elevation there are times when some of the replacement monitoring well screens will be submerged. However, with the replacement of these wells we are decreasing the frequency of submergence. The new monitoring well numbers will add an "R" to the existing designation to separate previous and future data sets. Each replacement well will be placed near the existing well but will be located approximately 50 from the edge of the nearest hydraulically up gradient waste cell. The wells that are replaced will be properly abandoned in accordance with state regulations.

ACTIVATION OF WELLS FOR WATER LEVEL DATA

Monitoring wells MW-3 and MW-5 have been inactive but they are available for water level measurements. These wells will be included in the groundwater monitoring program for water level data collection only. The water level measurement data will be included in potentiometric mapping of the surficial aquifer water levels. Following installation of the new groundwater quality monitoring wells, MW-3 and MW-5 will be surveyed to confirm their measuring point elevations.

WATER QUALITY PARAMETERS AND SAMPLING FREQUENCY

The monitoring well water quality parameters and sampling frequency of the current GWMP will remain unchanged with the exception of adding selected major cations and anions to the parameter list. The following parameters will be sampled semi-annually at each well:

REPLACED BY MATERIALS REC'D 2/26/07
IN SUPPORT OF MINOR MOD # 130542-004

Field Parameters

- Specific conductivity
- pH
- Dissolved oxygen
- Turbidity
- Temperature
- Color and sheen by observation

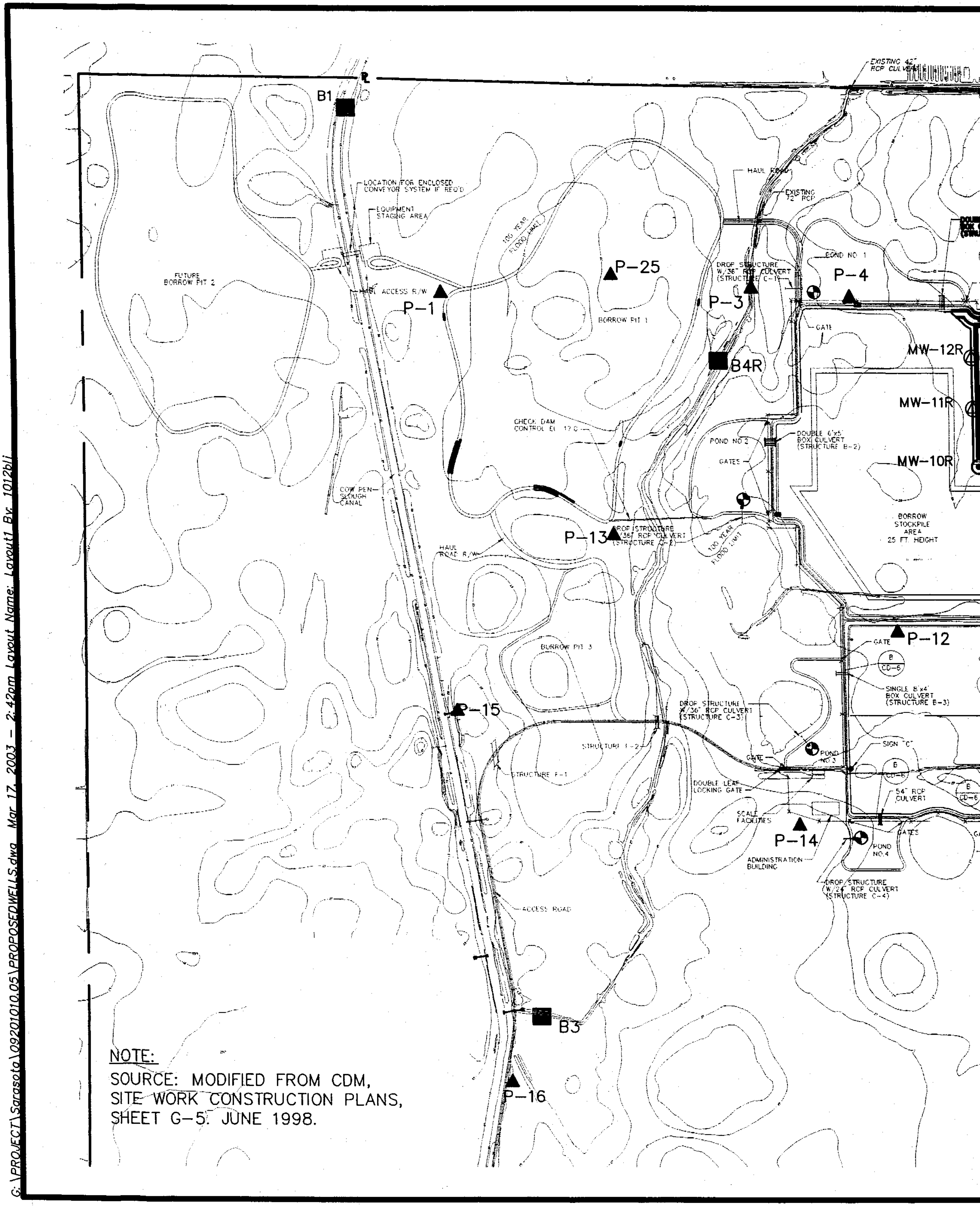
Laboratory Parameters (Unfiltered)

- Total ammonia-nitrogen
- Chloride
- Iron
- Mercury
- Nitrate
- Sodium
- Total Dissolved Solids (TDS)
- Those parameters listed in 40 CFR Part 258, Appendix I

Additional Cations and Anions (Unfiltered)

- Potassium
- Calcium
- Magnesium
- Sulfate
- Carbonate
- Bicarbonate

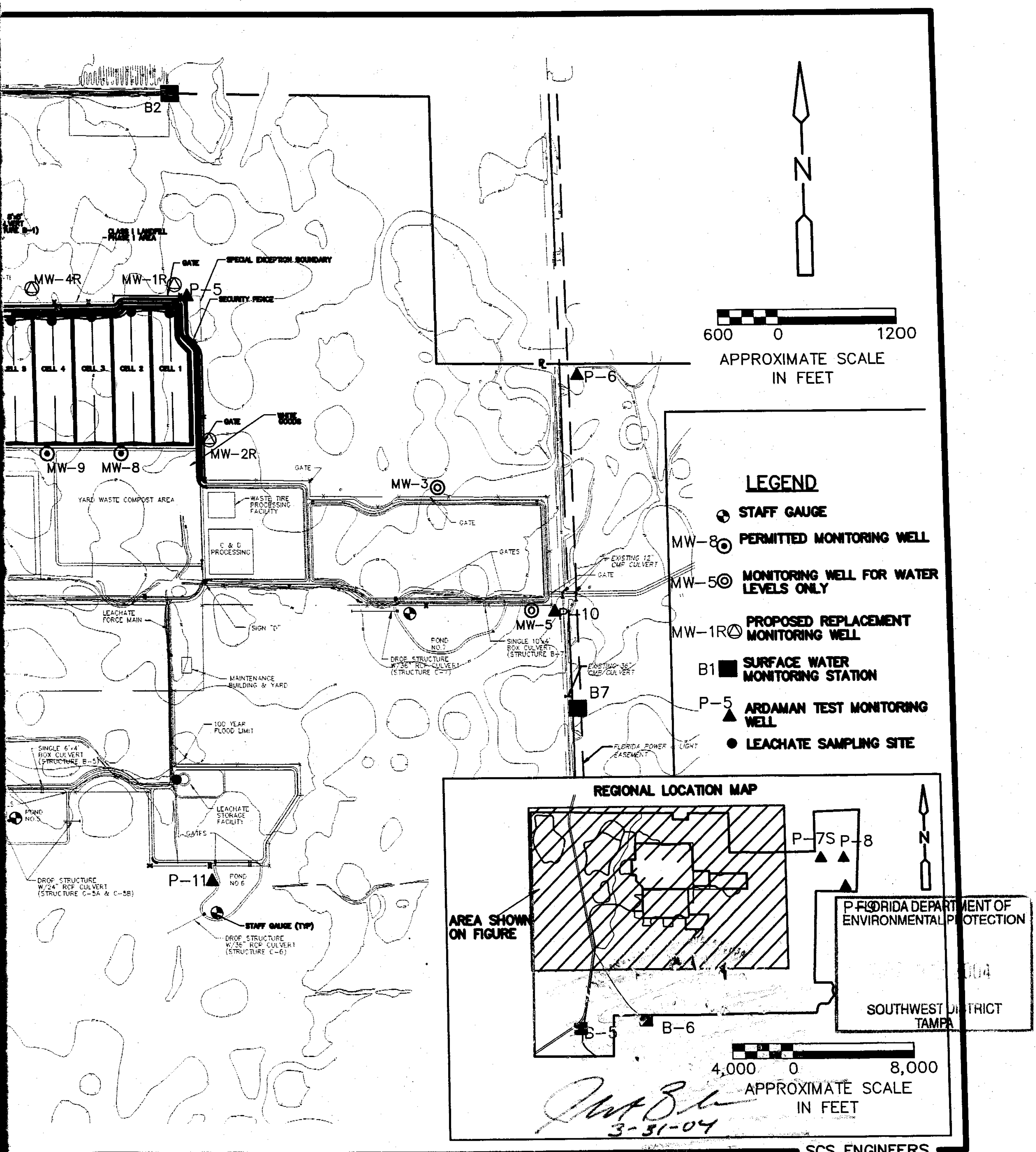
The major cations and anions will be used in Stiff diagram plots to assist in evaluating water quality characteristics.



NOTE:
SOURCE: MODIFIED FROM CDM, SITE WORK CONSTRUCTION PLANS, SHEET G-5. JUNE 1998.

G:\PROJECT\Sarasota\09201010.05\PROPOSEDWELLS.dwg Mar 17, 2003 - 2:42pm Layout Name: Layout1 By: 1012bli

Figure 4–1. Locations of Existing and Proposed Monitoring



SCS ENGINEERS

nd Test Sites, Central County Solid Waste Disposal Complex, Sarasota County, Florida.

PBS&J

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Dept. of Environmental Protection
FEB 26 2007
Southwest District

February 23, 2007

Mr. John R. Morris, P.G.
Solid Waste Section
Department of Environmental Protection
Southwest District
13051 North Telecom Parkway
Temple Terrace, FL 33637-0926

Re: Central County Solid Waste Disposal Complex, Class I Landfill, Sarasota County
Operating Permit # 130542-002-SO, Pending Permit Modification #130542-004
Monitoring Plan Changes Associated Background Monitor Wells

Dear Mr. Morris:

This letter is in response to your letter of September 18, 2006 requesting additional information related to the above referenced permit modification application. Your questions are repeated below typed in italics, followed by our responses in normal type.

Part A – General Information

1. *A.5.: Please submit a revised application form for this item that identifies the DEP identification number for the facility is SWD/58/51614.*

Response: Page 4 of 40 of the application was revised to include the correct DEP facility identification number, and the revised page is included with this response.

Part B – Disposal Facility General Information

2. *B.1.: It was indicated in this section of the application form that the pending permit modification proposed to delete installation of proposed replacement background wells MW-2R and MW-4R, and to relocate proposed replacement background well MW-1R at a location north and west of the cell. The location for proposed background well MW-1R appears to be inconsistent with the south-southwest direction of ground water flow described for the surficial aquifer across the landfill footprint (Cell 1-5) in the document entitled Appendix A, Ground Water Monitoring Plan Evaluation, Central County Solid Waste Disposal Complex, Sarasota County, Florida, prepared by SCS Engineers, dated June 28, 2002, revised July 24, 2002. Please submit revisions to this item of the application form that describes the location of the proposed replacement background well MW-1R that is up-gradient from and unaffected by the landfill footprint (Cells 1-5).*

Response: Page 6 of 40 of the application form was revised to correct the direction from north and west to north and east. The revised page 6 of 40 is included with this response.

<u>Part M – Water Quality and Leachate Monitoring Requirements</u> *(Rule 62-701.510, F.A.C.)*

3. *M.1.c. (3) and M.1.c. (5): Please note that the indication on page 3 of the application form that Part M is not applicable to the pending permit modification is incorrect. Please submit revised page 32 of the application form that references supplemental information to be provided regarding the proposed replacement background well for these two items of the application form, to address the following rule requirements:*
   - *Rule 62-701.510(3)(c), F.A.C. – sufficient number of background wells shall be maintained throughout the design life of the landfill to provide information on background water quality;*
   - *Rule 62-701.510(3)(d)3., F.A.C. – well spacing shall be no greater than 1,500 feet apart across the upgradient direction of ground water flow, in the uppermost aquifer within the zone of discharge, unless site conditions support the use of an alternative well spacing; and*
   - *Rule 62-701.510(3)(d)4.,F.A.C. – well screens shall be located to readily detect representative ground water conditions within the saturated thickness of the uppermost aquifer within the zone of discharge; well screens shall not act as conduits through confining layers between water bearing strata; the annual space above the sampling depth shall be sealed to prevent contamination of samples and ground water; wells monitoring the unconfined water table shall be screened so that the water table can be sampled at all times; the applicant shall provide technical justification for the actual screen length chosen.*

   Please submit a replacement for Section 4 (Ground Water Sampling and Parameters) of the document entitled Ground Water Monitoring Plan Addendum, Central County Solid Waste Disposal Complex, Sarasota County, Florida, prepared by SCS Engineers, dated June 28, 2002, revised July 29, 2002, with the appropriate revisions to provide the above-listed supplemental information regarding the proposed replacement background well(s). Please include a description of construction details for the proposed background well(s), including well screen interval length, top/bottom elevations for the well screen, and screen slot/sand pack sizes.

   Please also submit a replacement for Figure 4-1 of this document to include the following:
   - *Location and identification numbers for all existing monitoring wells and piezometers (see SC#E.3.);*
   - *Locations and unique identification numbers for all proposed monitoring well [i.e., proposed replacement background well(s)];*
   - *Locations and identification numbers for all existing surface water sampling locations (see SC #E.9.c);*
   - *Locations and identification numbers for all existing staff gauge locations in the storm water ponds (see SC #E.9.b);*

- *Locations and identification numbers for all existing landfill gas probes and landfill gas ambient monitoring locations (see SC #F.3.);*
- *Landfill Cell 1 through 5; and,*
- *North arrow and scale.*

Response: The application page 3 of 40 was revised to show that Part M was applicable. Part M was submitted with the application sections marked. *Section 4 Groundwater Sampling and Parameters* was revised to address the information request above. Revised Section 4 is included with this response letter. Figure L-1 Revised is include with this response shows the locations for the monitoring as requested above.

Sincerely,

Joseph L. Miller

Joseph L. Miller, P.E. #39177
Project Engineer

Cc: Paul Wingler, Sarasota County
Frank Coggins, Sarasota County

U:\SO\Projects\SARASOTA\WA-14 New Wells for Central Landfill\Response 1 Feb 23 2007.doc

Attachments

Revised application Pages 3, 4, 6, 32 and 33

Revised Section 4 Ground Water Sapling and Parameters

Figure L-1 Revised - Locations of Groundwater Monitoring Wells, Piezometers, Staff Gauges, Soil Gas Monitoring Probes and Ambient Gas Monitoring Locations

Figure GM-1 - Background Well MW-1R Section

Figure GM-2 - Ground Water Monitoring Background Well Detail

SECTION 4

GROUNDWATER SAMPLING AND PARAMETERS

The groundwater monitoring well program included three background wells (MW-1, MW-2 and MW-4), and five detection wells (MW-8, MW-9, MW-10R, MW-11 and MW-12). Six of these wells (MW-1, MW-2, MW-4, MW-8, MW-11 and MW-12) had screens that do not intercept the seasonal high groundwater level, and must be replaced.

REPLACEMENT OF SELECTED MONITORING WELLS

Monitoring wells MW-8A, MW-11R, and MW-12R will be installed immediately adjacent to the wells they are replacing. Background well MW-1R will replace MW-1, but will be located northeast of the landfill. Only one background well is needed, and locating this well northeast gives the 1,500 feet of coverage required by the regulations to adequately represent the background water quality upstream of the active landfill cells. Background wells MW-2 and MW-4 can be eliminated. Figure L-1 (Revised), included with this revised Section 4, shows the locations for the new ground water monitoring wells, existing groundwater monitoring wells to remain and existing groundwater monitoring wells abandoned. Figure L-1 also shows the locations for the piezometers (MW-3 and MW-5), staff gauges, surface water monitoring stations, soil monitoring gas probes and ambient gas monitoring locations. Figure GM-1 is a cross section through the landfill and background water monitoring well MW-1R. GM-2 is a well detail for the installation of the groundwater monitoring well.

Table 4-1 lists the proposed well construction characteristics for the replacement wells. The well screens were set based on the historical seasonal high and low water levels at each of the existing wells. Because of limitations of land surface elevation there are times when some of the replacement monitoring well screens will be submerged. However, the replacement of these wells decreases the frequency of submergence. Each replacement well is located near the existing well approximately 50-feet from the edge of the nearest hydraulically up gradient waste cell. Existing replaced wells will be abandoned in accordance with state regulations.

Table 4-1
Well Construction Characteristics for Replacement Wells

Monitoring Well	Length of Well Screen	Depth Below Ground Surface to Top of Screen	Depth Below Ground Surface to Bottom of Well Screen
MW-1R	10 ft.	2 ft.	12 ft.
MW-8A	10 ft.	3 ft.	13 ft.
MW-11R	10 ft	2 ft.	12 ft.
MW-12R	10 ft.	2 ft.	12 ft.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

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SOUTHWEST DISTRICT TAMPA

ACTIVATION OF WELLS FOR WATER LEVEL DATA

Monitoring wells MW-3 and MW-5 are inactive, but available for water level measurements. These wells are included in the groundwater monitoring program for water level data collection only. The water level measurement data will be used to draw potentiometric maps for the surficial aquifer water levels. The elevations and coordinates for MW-3 and MW-5 will be surveyed along with the other groundwater monitoring wells.

WATER QUALITY PARAMETERS AND SAMPLING FREQUENCY

Groundwater monitoring wells MW-1R, MW-8A, MW-9, MW-10, MW-11R and MW-12R will be sampled semi-annually for:

Field Parameters	Laboratory Parameters (Unfiltered)	Additional Cations and Anions (Unfiltered)
Specific conductivity	Total ammonia - nitrogen	Potassium
pH	Chlorides	Calcium
Dissolved oxygen	Iron	Magnesium
Turbidity	Mercury	Sulfate
Temperature	Nitrate	Carbonate
Color and sheen by observation	Sodium	Bicarbonate
-	Total Dissolved Solids (TDS)	-
Static Water Levels before pumping	Those parameters listed in 40 CFR Part 258, Appendix I	-

The major cations and anions will be used in Stiff diagram plots to assist in evaluating water quality characteristics.

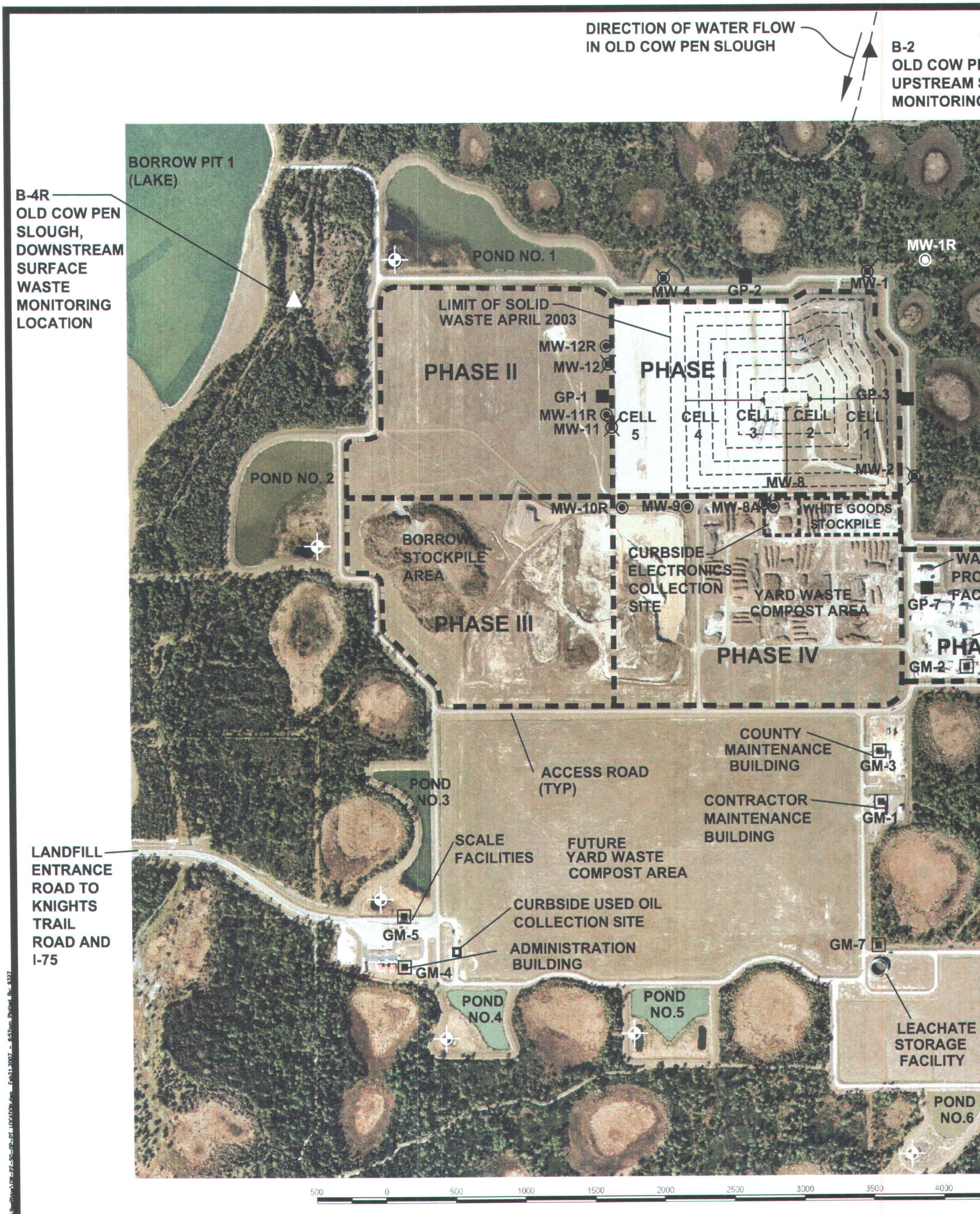
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

FEB 26 2007

SOUTHWEST DISTRICT TAMPA

Joseph L. Miller

P.E. # 39127



PBSJ

SARASOTA C
CENTRAL COUNTY SOLID WA
LOCATION OF GROUND WATER MONITORING W
GAS MONITORING PROBES (GP) AND AMBIE
FEBRUARY

EN SLOUGH,
SURFACE WATER
G LOCATION

SARASOTA COUNTY CENTRAL
SOLID WASTE DISPOSAL
COMPLEX

Natural Resources

Aerial Date: 03/01

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
FEB 26 2007
SOUTHWEST DISTRICT
TAMPA

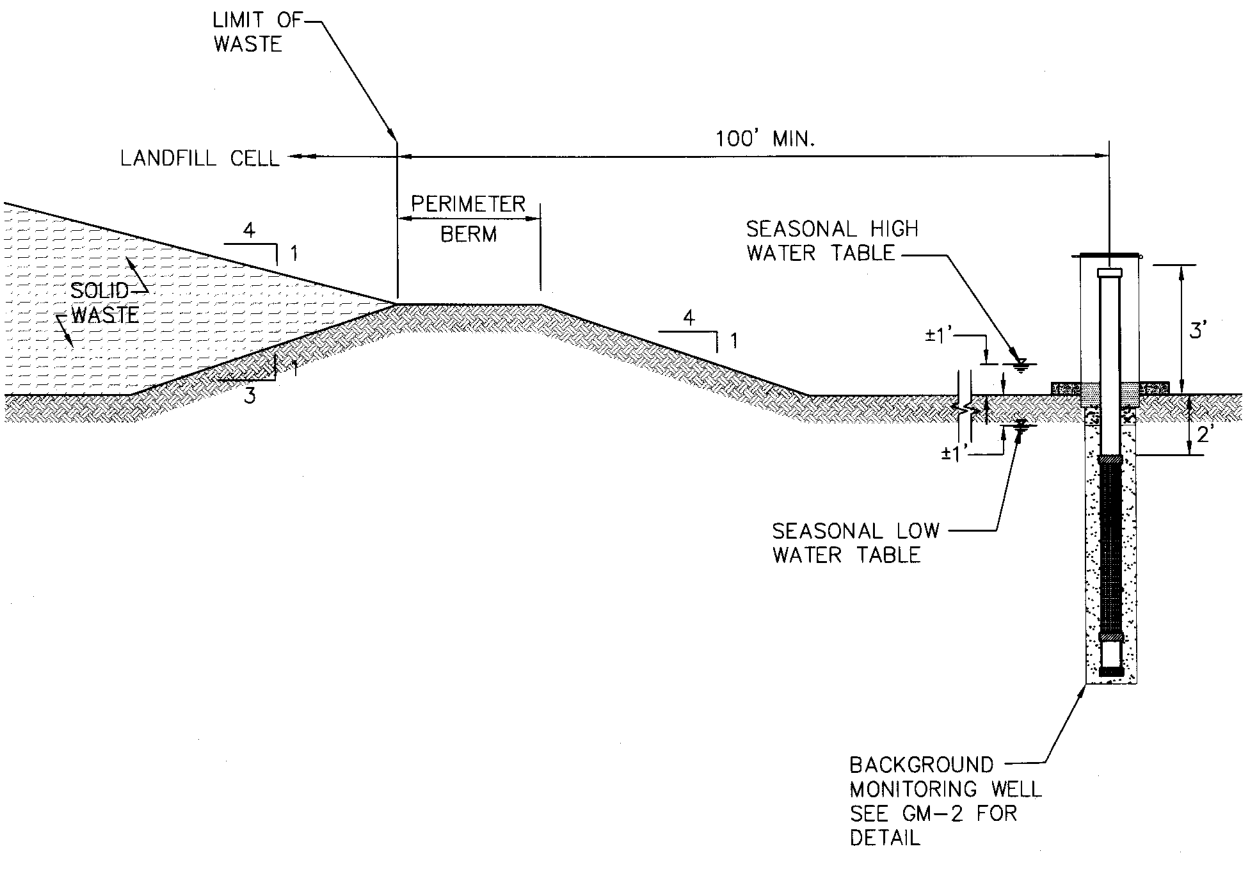
N

LEGEND:

- PIEZOMETERS (2) - MW-3 & MW-5
- GROUNDWATER MONITORING WELLS (6) - MW-1R, MW-8A, MW-9, MW-10R, MW-11R & MW-12R
- STAFF GAUGE LOCATIONS (7) - IN PONDS 1 THROUGH 7
- SURFACE WATER MONITORING STATIONS (2) - B-2 & B-4R
- SOIL MONITORING GAS PROBES (4) - GP-1, GP-2, GP-3 & GP-7
- AMBIENT GAS MONITORING LOCATIONS (6) -
  - GM-1 CONTRACTOR'S MAINTENANCE BUILDING AND YARD
  - GM-2 C&D PROCESSING AREA
  - GM-3 COUNTY MAINTENANCE BUILDING
  - GM-4 ADMINISTRATION BUILDING
  - GM-5 SCALE HOUSE
  - GM-7 CONTROL PANEL AT LEACHATE STORAGE FACILITY
- ABANDONED GROUNDWATER MONITORING WELLS (6) MW-1, MW-2, MW-4, MW-8, MW-11 & MW-12
- ---- LIMITS OF SOLID WASTE

Map Version: 02/03/03

OUNTY TE DISPOSAL COMPLEX LLS, PIEZOMETERS, STAFF GAUGES, SOIL NT GAS MONITORING LOCATIONS (GM) 2007	FIGURE L-1 REVISED

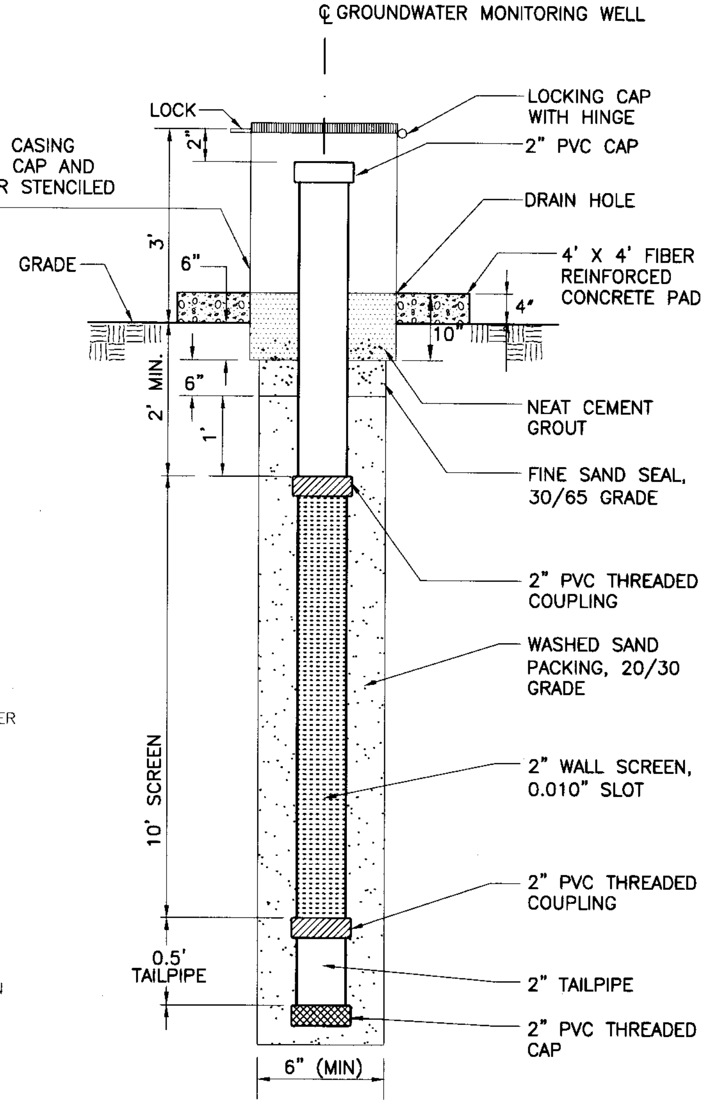


FEB. 19, 2007

PBSJ

SARASOTA COUNTY CENTRAL LANDFILL
BACKGROUND WELL MW-1R
SECTION

GM-1



CONSTRUCTION NOTES:

1. ALL WORK RELATED TO ABANDONMENT OR INSTALLATION OF MONITORING WELLS, SHALL BE DONE BY A FLORIDA CERTIFIED WATER WELL DRILLER.

2. ALL MONITORING WELLS, INDICATED ON THE DRAWINGS SHALL BE ABANDONED IN ACCORDANCE WITH F.A.C. RULE 62-532.440, AND THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD). THE DRILLER SHALL SUBMIT A WRITTEN REPORT TO THE FLORIDA DEPARTMENT OF ENVIRONMNETAL PROTECTION, WITH COPIES TO THE OWNER AND ENGINEER, DOCUMENTING VERIFICATION OF THE WELL ABANDONMENT WITHIN 90 DAYS OF ABANDONMENT. DOCUMENTATION OF ABANDONMENT SHALL INCLUDE A MAP SHOWING LOCATIONS AND SWFWMD ABANDONMENT RECORDS.

3. 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.

   A. FDEP FORM 62-522.900(3) MONITORING WELL COMPLETION REPORT

   B. 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 ABONDONED) 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.

4. 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.

2" DIAMETER GROUNDWATER MONITORING WELL DETAIL

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

FEB 26 2007

SOUTHWEST DISTRICT TAMPA

FEB. 19, 2007

PBSJ	SARASOTA COUNTY CENTRAL LANDFILL GROUND WATER MONITORING BACKGROUND WELL DETAIL	GM-2

Dept. of Environmental Protection
FEB 26 2007
Southwest District

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 - **Submitted**

PART B: DISPOSAL FACILITY GENERAL INFORMATION - **Submitted**

PART C: NON-DISPOSAL FACILITY GENERAL INFORMATION - **Not Applicable**

PART D: PROHIBITIONS - **Not Applicable**

PART E: SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL - **Not Applicable**

PART F: LANDFILL PERMIT REQUIREMENTS - **Not Applicable**

PART G: GENERAL CRITERIA FOR LANDFILLS - **Not Applicable**

PART H: LANDFILL CONSTRUCTION REQUIREMENTS - **Not Applicable**

PART I: HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS - **Not Applicable**

PART J: GEOTECHNICAL INVESTIGATION REQUIREMENTS - **Not Applicable**

PART K: VERTICAL EXPANSION OF LANDFILLS - **Not Applicable**

PART L: LANDFILL OPERATION REQUIREMENTS - **Not Applicable**

PART M: WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS - **Submitted ***

PART N: SPECIAL WASTE HANDLING REQUIREMENTS - **Not Applicable**

PART O: GAS MANAGEMENT SYSTEM REQUIREMENTS - **Not Applicable**

PART P: LANDFILL CLOSURE REQUIREMENTS - **Not Applicable**

PART Q: CLOSURE PROCEDURES - **Not Applicable**

PART R: LONG TERM CARE REQUIREMENTS - **Not Applicable**

PART S: FINANCIAL RESPONSIBILITY REQUIREMENTS - **Not Applicable**

PART T: CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER - **Submitted**

*** Revised February 22, 2007.**

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

Please Type or Print

A. GENERAL INFORMATION

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

[X] Disposal
- [X] Class I Landfill
- [ ] Class II Landfill
- [ ] Class III Landfill
- [ ] Other Describe: ______
- [ ] Ash Monofill
- [ ] Asbestos Monofill
- [ ] Industrial Solid Waste

[ ] Non-Disposal
- [ ] Incinerator For Non-biomedical Waste
- [ ] Waste to Energy Without Power Plant Certification
- [ ] 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
   - [X] Operation
   - [ ] Construction/Operation
   - [ ] Closure

3. Classification of application:
   - [ ] New
   - [ ] Renewal
   - [ ] Substantial Modification
   - [ ] Intermediate Modification
   - [x] Minor Modification

4. Facility name: Central County Solid Waste Disposal Complex

5. DEP ID number: **SWD/58/51614 *** County: Sarasota

6. Facility location (main entrance): North end Knights Trail Road
   4000 Knights Trail Road, Nokomis, Florida 34275

7. Location coordinates:

   Section: 9-16 Township: 38S Range: 19E
   Latitude: 27 ° 12' 00" Longitude: 82 ° 23' 00"

*** Revised DEP ID number Feb. 22, 2007**

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

FEB 26 2007

SOUTHWEST DISTRICT
TAMPA

B. DISPOSAL FACILITY GENERAL INFORMATION

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

This application is for a minor permit modification to eliminate two of the three proposed new background wells for the Class I Landfill, which are MW-2R and M2-4R, and relocate MW-1R north and **east** of the cell between 100 and 400 feet to a higher and dryer location. **The location and details for this well are further described in the revised Section 4 of the Groundwater Monitoring Plan. ***

2. Facility site supervisor: Frank Coggins

Title: Solid Waste Operations Manager Telephone: (941) 861-1571

fcoggins@scgov.net
E-Mail address (if available)

3. Disposal area: Total 55 acres; Used 44 acres; Available 11 acres.

4. Weighing scales used: [X] Yes [ ] No

5. Security to prevent unauthorized use: [X] Yes [ ] No

6. Charge for waste received: N/A $/yds^3 63.77 $/ton

7. Surrounding land use, zoning:

[X] Residential	[ ] Industrial
[X] Agricultural	[ ] None
[ ] Commercial	[X] Other Describe: Government Use

8. Types of waste received:

[X] Residential	[X] C & D debris
[X] Commercial	[X] Shredded/cut tires
[ ] Incinerator/WTE ash	[X] Yard trash
[X] Treated biomedical	[ ] Septic tank
[X] Water treatment sludge	[X] Industrial
[ ] Air treatment sludge	[X Industrial sludge
[X] Agricultural	[X] Domestic sludge
[X] Asbestos	
[ ] Other Describe:	

9. Salvaging permitted: [ ] Yes [X] No

10. Attendant: [X] Yes [ ] No Trained operator: [X] Yes [ ] No

11. Spotters: Yes [X] No [ ] Number of spotters used: 1

12. Site located in: [ ] Floodplain [ ] Wetlands [X] Other Uplands

*** Revised February 23, 2007.**

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
FEB 26 2007
SOUTHWEST DISTRICT TAMPA

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

S	LOCATION	N/A	N/C		
				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;
X	Cover Letter			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)
			X	b.	All sampling and analysis preformed in accordance with Chapter 62-160, FAC; (62-701.510(2)(b),FAC)
				c.	Ground water monitoring requirements; (62-701.510(3),FAC)
X	Fig, L-1			(1)	Detection wells located downgradient from and within 50 feet of disposal units;
X	Fig. L-1			(2)	Downgradient compliance wells as required;
X	Fig. GM-1			(3)	Background wells screened in all aquifers below the landfill that may be affected by the landfill;
X	Fig L-1			(4)	Location information for each monitoring well;
X	Fig. L-1			(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;
X	Table 4-1			(6)	Well screen locations properly selected;
X	Fig. GM-2			(7)	Procedures for properly abandoning monitoring wells;
		X		(8)	Detailed description of detection sensors if proposed.

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

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

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

DEP Application No.
(Filled by DEP)

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AUG 22 2006
SOUTHWEST DISTRICT TAMPA

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

APPLICATION INSTRUCTIONS AND FORMS

Sarasota County
Central County Solid Waste Disposal Complex

Minor Modification to
Delete Monitoring Wells MW-2R and MW-4R
And Relocate MW-1R

August 1, 2006

U:\SO\OldG\WASTEMAN\SARASOTA\WA-14 New Wells for Central Landfill\minor mod appl.DOC

INSTRUCTIONS TO APPLY FOR A SOLID WASTE MANAGEMENT FACILITY PERMIT

I. General

Solid Waste Management Facilities shall be permitted pursuant to Section 403.707, Florida Statutes, (FS) and in accordance with Florida Administrative Code (FAC) Chapter 62-701. A minimum of four copies of the application shall be submitted to the Department's District Office having jurisdiction over the facility. The appropriate fee in accordance with Rule 62-701.315, FAC, shall be submitted with the application by check made payable to the Department of Environmental Protection (DEP).

Complete appropriate sections for the type of facility for which application is made. Entries shall be typed or printed in ink. All blanks shall be filled in or marked "not applicable" or "no substantial change". Information provided in support of the application shall be marked "submitted" and the location of this information in the application package indicated. The application shall include all information, drawings, and reports necessary to evaluate the facility. Information required to complete the application is listed on the attached pages of this form.

II. Application Parts Required for Construction and Operation Permits

A. Landfills and Ash Monofills - Submit parts A,B, D through T
B. Asbestos Monofills - Submit parts A,B,D,E,F,G,J,L,N, P through S, and T
C. Industrial Solid Waste Facilities - Submit parts A,B, D through T
D. Non-Disposal Facilities - Submit parts A,C,D,E,J,N,S and T

NOTE: Portions of some parts may not be applicable.

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

III. Application Parts Required for Closure Permits

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

NOTE: Portions of some parts may not be applicable.

IV. Permit Renewals

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

V. Application Codes

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

VI. LISTING OF APPLICATION PARTS

PART A: GENERAL INFORMATION - **Submitted**

PART B: DISPOSAL FACILITY GENERAL INFORMATION - **Submitted**

PART C: NON-DISPOSAL FACILITY GENERAL INFORMATION - **Not Applicable**

PART D: PROHIBITIONS - **Not Applicable**

PART E: SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL - **Not Applicable**

PART F: LANDFILL PERMIT REQUIREMENTS - **Not Applicable**

PART G: GENERAL CRITERIA FOR LANDFILLS - **Not Applicable**

PART H: LANDFILL CONSTRUCTION REQUIREMENTS - **Not Applicable**

PART I: HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS - **Not Applicable**

PART J: GEOTECHNICAL INVESTIGATION REQUIREMENTS - **Not Applicable**

PART K: VERTICAL EXPANSION OF LANDFILLS - **Not Applicable**

PART L: LANDFILL OPERATION REQUIREMENTS - **Not Applicable**

PART M: WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS - **Not Applicable**

PART N: SPECIAL WASTE HANDLING REQUIREMENTS - **Not Applicable**

PART O: GAS MANAGEMENT SYSTEM REQUIREMENTS - **Not Applicable**

PART P: LANDFILL CLOSURE REQUIREMENTS - **Not Applicable**

PART Q: CLOSURE PROCEDURES - **Not Applicable**

PART R: LONG TERM CARE REQUIREMENTS - **Not Applicable**

PART S: FINANCIAL RESPONSIBILITY REQUIREMENTS - **Not Applicable**

PART T: CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER - **Submitted**

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

Please Type or Print

A. GENERAL INFORMATION

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

[X] Disposal
- [X] Class I Landfill
- [ ] Class II Landfill
- [ ] Class III Landfill
- [ ] Other Describe: ____
- [ ] Ash Monofill
- [ ] Asbestos Monofill
- [ ] Industrial Solid Waste

[ ] Non-Disposal
- [ ] Incinerator For Non-biomedical Waste
- [ ] Waste to Energy Without Power Plant Certification
- [ ] 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
- [X] Operation
- [ ] Construction/Operation
- [ ] Closure

3. Classification of application:
- [ ] New
- [ ] Renewal
- [ ] Substantial Modification
- [ ] Intermediate Modification
- [x] Minor Modification

4. Facility name: Central County Solid Waste Disposal Complex

5. DEP ID number: S058-299180 County: Sarasota

6. Facility location (main entrance): North end Knights Trail Road

4000 Knights Trail Road, Nokomis, Florida 34275

7. Location coordinates:

Section: 9-16 Township: 38S Range: 19E
Latitude: 27 ° 12' 00" Longitude: 82 ° 23' 00"

8. Applicant name (operating authority): Sarasota County Solid Waste Operations

Mailing address: 4000 Knights Trail Road Nokomis FL 34275
Street or P.O. Box City State Zip

Contact person: Frank Coggins Telephone: (941) 861-1571

Title: Solid Waste Operations Manager

fcoggins@scgov.net
E-Mail address (if available)

9. Authorized agent/Consultant: PBS&J

Mailing address: 482 South Keller Road Orlando FL 32804
Street or P.O. Box City State Zip

Contact person: Joe Miller Telephone: (407) 647-7275

Title: Project Manager

jlmiller@pbsj.com
E-Mail address (if available)

10. Landowner(if different than applicant): N/A

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: Sarasota County

12. Population to be served:

Current: 422,630 Five-Year Projection: 451,590

13. Date site will be ready to be inspected for completion: Not applicable

14. Expected life of the facility: 38 years years

15. Estimated costs:

Total Construction: $ N/A Closing Costs: NA

16. Anticipated construction starting and completion dates:

From: N/A To: N/A

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

N/A yds^3/day Received 860 tons/day N/A gallons/day

B. DISPOSAL FACILITY GENERAL INFORMATION

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

   This application is for a minor permit modification to eliminate two of the three proposed new background wells for the Class I Landfill, which are MW-2R and M2-4R, and relocate MW-1R north and west of the cell between 100 and 400 feet to a higher and dryer location.

2. Facility site supervisor: Frank Coggins

   Title: Solid Waste Operations Manager Telephone: (941) 861-1571

   fcoggins@scgov.net
   E-Mail address (if available)

3. Disposal area: Total 55 acres; Used 44 acres; Available 11 acres.

4. Weighing scales used: [X] Yes [ ] No

5. Security to prevent unauthorized use: [X] Yes [ ] No

6. Charge for waste received: N/A $/yds^3 63.77 $/ton

7. Surrounding land use, zoning:

   [X] Residential
   [X] Agricultural
   [ ] Commercial
   [ ] Industrial
   [ ] None
   [X] Other Describe: Government Use

8. Types of waste received:

   [X] Residential
   [X] Commercial
   [ ] Incinerator/WTE ash
   [X] Treated biomedical
   [X] Water treatment sludge
   [ ] Air treatment sludge
   [X] Agricultural
   [X] Asbestos
   [ ] Other Describe: ____
   [X] C & D debris
   [X] Shredded/cut tires
   [X] Yard trash
   [ ] Septic tank
   [X] Industrial
   [X Industrial sludge
   [X] Domestic sludge

9. Salvaging permitted: [ ] Yes [X] No

10. Attendant: [X] Yes [ ] No Trained operator: [X] Yes [ ] No

11. Spotters: Yes [X] No [ ] Number of spotters used: 1

12. Site located in: [ ] Floodplain [ ] Wetlands [X] Other Uplands

13. Property recorded as a Disposal Site in County Land Records: [ ] Yes [X] No

14. Days of operation: Monday through Saturday

15. Hours of operation: 8:00 a.m. to 5:00 p.m.

16. Days Working Face covered: Monday through Saturday

17. Elevation of water table: 16.5 to 20.0 (NGVD 1929)

18. Number of monitoring wells: 8

19. Number of surface monitoring points: 7

20. Gas controls used: [X] Yes [ ] No Type controls: [ ] Active [X] Passive

Gas flaring: [X] Yes [ ] No Gas recovery: [ ] Yes [X] No

21. Landfill unit liner type:

[ ] Natural soils	[ ] Double geomembrane
[ ] Single clay liner	[ ] Geomembrane & composite
[ ] Single geomembrane	[ ] Double composite
[X] Single composite	[ ] None
[ ] Slurry wall	
[ ] Other Describe:	

22. Leachate collection method:

[X] Collection pipes	[ ] Sand layer
[X] Geonets	[ ] Gravel layer
[ ] Well points	[ ] Interceptor trench
[ ] Perimeter ditch	[ ] None
[ ] Other Describe:	

23. Leachate storage method:

[X] Tanks
[ ] Surface impoundments
[ ] Other Describe:

24. Leachate treatment method:

[ ] Oxidation	[ ] Chemical treatment
[ ] Secondary	[ ] Settling
[ ] Advanced	
[ ] None	
[X] Other Off-site treatment at a WWTP	

25. Leachate disposal method:

[ ] Recirculated
[ ] Transported to WWTP
[ ] Injection well
[ ] Evaporation
[ ] Other ______

[X] Pumped to WWTP
[ ] Discharged to surface water
[ ] Percolation ponds

26. For leachate discharged to surface waters:

Name and Class of receiving water: N/A

27. Storm Water:

Collected: [X] Yes [ ] No

Type of treatment: Retention ponds

Name and Class of receiving water: Cow Pen Slough, Class III

28. Environmental Resources Permit (ERP) number or status: 407932.01

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

1. Applicant:

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

Frank Coggins	4000 Knights Trail Road
Signature of Applicant or Agent	Mailing Address
Frank Coggins Manager, Solid Waste Operations	Nokomis FL 34275
Name and Title (please type)	City, State, Zip Code
fcoggins@scgov.net	(941) 861-1571
E-Mail address (if available)	Telephone Number
	Date: August 1, 2006

Attach letter of authorization if agent is not a governmental official, owner, or corporate officer.

2. Professional Engineer registered in Florida (or Public Officer if authorized under Sections 403.707 and 403.7075, Florida Statutes):

This is to certify that the engineering features of this solid waste management facility have been designed/examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgment, this facility, when properly maintained and operated, will comply with all applicable statutes of the State of Florida and rules of the Department. It is agreed that the undersigned will provide the applicant with a set of instructions of proper maintenance and operation of the facility.

P. A. Wingler	4000 Knights Trail Road
Signature	Mailing Address
Paul Wingler Solid Waste Engineer	Nokomis, Florida 34275
Name and Title (please type)	City, State, Zip Code
	pwingler@scgov.net
	E-Mail address (if available)
01235	(941)861-1578
Florida Registration Number (please affix seal)	Telephone Number
	Date: August 2, 2006

Pelz, Susan

From: Pelz, Susan
Sent: Monday, November 13, 2006 2:48 PM
To: 'Franklin Coggins'
Cc: Amram, Allison; Evans, Roger; Morgan, Steve; Morris, John R.; Watson, Stephanie M.; Williams, Selena
Subject: RE: Compactor Washout procedures

Tracking:

Recipient	Read
'Franklin Coggins'	
Amram, Allison	
Evans, Roger	Read: 11/13/2006 4:53 PM
Morgan, Steve	Read: 11/13/2006 3:01 PM
Morris, John R.	
Watson, Stephanie M.	
Williams, Selena	Read: 11/13/2006 3:17 PM

Frank,

The Department **does not object** to your proposed container washout procedures. We will add this information to your Operation plan in our files. Please note that the container washouts should not occur during inclement weather.

If you have any questions, please call or email (email is better).

Susan J. Pelz, P.E.
Solid Waste Program Manager
Southwest District

13051 N. Telecom Parkway
Temple Terrace, Fl. 33637
813-632-7600 x 386
susan.pelz@dep.state.fl.us

From: Franklin Coggins [mailto:fcoggins@scgov.net]
Sent: Wednesday, October 25, 2006 3:00 PM
To: Pelz, Susan
Subject: Fwd: Compactor Washout procedures

Susan
Some addtional information and the attachment.

There are only going to be about 12 containers per year.

Frank Coggins
Manager, Solid Waste Operations
[illegible]650-4160
fcoggins@scgov.net

>>> Franklin Coggins 10/25/2006 2:39:19 PM >>>
Waste Management is requesting that they be allowed to wash containers at the lift. The purpose is the washout of containers to remove residue that accumulates in the container and is needed for odor control, sanitation and proper operation. Wash-Out of containers will only be done over the lined portion of the landfill. Only water (no chemicals) will be used during the Wash- Out process. Between 10 and 25 gallons of high-pressure low volume water are needed for each container wash.

Attached is the washout procedure. The process will take place very near the lift face, in an area where the leachate can be collected.

Frank Coggins
Manager, Solid Waste Operations
941-650-4160
fcoggins@scgov.net

Landfill Container Wash-Out Process

OVERVIEW: The following describes the container wash-out process. The washout of containers to remove residue is needed for odor control, sanitation and proper operation. Wash-Out of containers will only be done over the lined portion of the landfill with approval from the Department of Environmental Protection (DEP). Only water (no chemicals) will be used during the Wash- Out process. Between 10 and 25 gallons of high-pressure low volume water are needed for each container wash.

The following process will be followed:

1- Coordinate with the landfill staff to determine an appropriate/ approved wash-out location. (on top of a lined area with no possibility of run-off)

2- Position the vehicle and container in the Wash-Out Area.

3- Shut off the power to the vehicle and set park brake.

4- Use proper eye protection and gloves when performing Wash-Out.

5- Use only water (no chemicals) in pressure washer.

6- Enter container and wash residue out of back door onto the landfill.

7- Reposition after Wash-Out (as needed) to prevent pooling of water.

Environmental Consultants
3012 U.S. Highway 301 North
Suite 700
Tampa, FL 33619-2242
813 621-0080
FAX 813 623-6757

SCS ENGINEERS

November 18, 2004
File No. 09201001.01

Mr. John R. Morris, P.G.
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

Subject: Central County Solid Waste Disposal Complex, Sarasota County
Pending Permit No. 130542-002-SO
Replacement Monitoring Well MW-8A

Dear Mr. Morris:

On behalf of Sarasota County, SCS Engineers (SCS) is submitting the attached figure showing the location of monitoring well MW-8A. Monitoring well MW-8A will replace the original monitoring well MW-8 that was recently damaged beyond repair.

Monitoring well MW-8A will be constructed immediately adjacent to the MW-8 location and will have the following approximate construction characteristics:

Approximate Well Construction Elevations (Feet NGVD unless noted)							Water Level Elevations (Feet NGVD)[1]	
Measuring Point Elevation	Top of Casing Above Land Surface (feet)	Ground at Well	Top of Bentonite Seal[2]	Top of Sand[3] Pack	Top of Slotted Screen	Bottom of PVC End Cap	Maximum	Minimum
32.0	3.0	29.0	25.0	24.0	23.0	13.0	20.34	17.06

Notes:

[1] Values based on 2002 biennial report water level data plus consideration of water level data collected semi-annually at MW-8 during 2002, 2003, and the first half of 2004.

[2] Annulus will be grouted to surface above bentonite seal.

[3] Filter pack will be 20/30 silica sand.

[4] Casing and screen materials will be schedule 40 PVC and 10-slot screen.

During construction of MW-8A, the damaged well, MW-8, will be abandoned in accordance with Chapter 62-532.440, F.A.C, and the rules of the Southwest Florida Water Management District. A written report will be submitted to the Florida Department of Environmental Protection documenting the abandonment within 30 days of abandonment.

Please contact us if you need further information regarding construction of MW-8A or abandonment of MW-8.

Sincerely,

for Robert L. Westly, P.G.
Senior Hydrogeologist

11-18-04
John A. Banks, P.E.
Project Director
SCS ENGINEERS

RLW/JAB:rw
Enclosure

cc: Frank Coggins, Sarasota County
Paul Wingler P.E., Sarasota County

D.E.P.
NOV 18 2004
Southwest District Tampa

Environmental Consultants

3012 U.S. Highway 301 North
Suite 700
Tampa, FL 33619-2242

813 621-0080
FAX 813 623-6757

SCS ENGINEERS

June 4, 2004
File No. 09201010.01

Susan Pelz, P.E.
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-2242

Subject: CCSWDC Landfill - Operation Permit Renewal
Pending Permit No.: 130542-002-SO, Sarasota County

Dear Ms Pelz:

On behalf of Sarasota County, SCS Engineers (SCS) submits the enclosed information to supplement our request for information response provided to the Department on March 31, 2004. This supplemental information was developed based on discussions with Mr. Kim Ford. Mr. Ford indicated that if these items could be corrected and resubmitted the application would be declared complete. As a result of our discussions with Mr. Ford a request was made to the Department to suspend the review clock on the March submittal in order to provide these additional items.

Enclosed you will please find four sets of the following items requested by Mr. Ford:

- Revised fill sequencing plans for the referenced facility, which show more than five years of landfilling capacity.
- Operations Plan replacement pages L-6, L-18, L-22, and L-25 which correct minor typographical errors on these pages.
- Revised Figure L-1, which properly shows the LFG monitoring locations GM-4, GM-5, and GM-7 that where previously omitted.

If you have any questions about the information provided, please do not hesitate to contact us.

D.E.P.
JUN 07 2004
Southwest District Tampa

Sincerely,

6-4-04
John A. Banks, P.E.
Project Director
SCS ENGINEERS

Raymond J. Dever, P.E., DEE
Vice President
SCS ENGINEER

Enclosures
cc: Frank Coggins, Sarasota County, w/ enclosures

John A. Banks

From: John A. Banks
Sent: Friday, June 04, 2004 9:13 AM
To: Frank Coggins (E-mail)
Cc: Ray J. Dever
Subject: CCSWDC Revised Fill Sequence Drawings

This is to confirm our telephone conversation this morning that both the County and Onyx found the new draft fill Sequence plans acceptable and that SCS is to submit them to DEP to finalize the permit application.

John A. Banks, P.E.
Project Director
SCS Engineers
Tampa, Florida
(813) 621-0080
jbanks@scsengineers.com

Environmental Consultants

3012 U.S. Highway 301 North
Suite 700
Tampa, FL 33619-2242

813 621-0080
FAX 813 623-6757

SCS ENGINEERS

March 31, 2004
File No. 09201010.01

D.E.P.
APR 01 2004
Southwest District Tampa

Kim Ford, P.E.
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-2242

Subject: CCSWDC Landfill - Operation Permit Renewal
Pending Permit No.: 130542-002-SO, Sarasota County

Dear Mr. Ford:

On behalf of Sarasota County, SCS Engineers (SCS) submits the following responses to your request for additional information (RAI) in a letter directed to Mr. Gary Bennett from Mr. Kim Ford, dated October 16, 2002. This submittal represents the fourth response to this RAI. Previous responses were provided on May 2, May 28, and October 7, 2003 (submitted via Sarasota County correspondence).

For ease of review, each FDEP comment is reiterated in bold type, followed by our response.

The following documents are provided with this submittal:

- Revised Section L Operations Plan
- Revised Figures L-1 through L-7
- Revised Attachment L-13, Recycling Plan
- Revised Operations Drawings sheets 3, 6 though 13C and 16
- Revised Figure E-2 and F-1 (submitted on May 28, 2003)
- Revised Figure 4-1 (submitted on October 7, 2003)
- Calculations of slope stability for the stormwater berm (submitted on October 7, 2003)
- Overall slope stability calculation for the current 3:1 side slope configuration.
- Most recent topographic survey of the Phase I area (previously provided to the Department) (See Section E)

We have included the revision date as part of the header/footer for all revised pages and provided four copies of all revised materials.

In addition, the County has completed the Application for Yard Waste Processing Facility Registration. The facility registration number is 0171YT. The County provided copies of the application to the Southwest District office.

The following information is needed in support of the solid waste application (Chapter 62-701, Florida Administrative Code (F.A.C.). Please provide:

1. **62-701.500(2) (f) and (7) (c), and 62-701.600 (5) (e). According to Department rules, final sideslopes shall not be steeper than three feet horizontal to one foot vertical to control erosion of the final cover materials. The typical swale detail**

shown on Sheet 16 of the Operation Drawings shows 2H:1V sideslopes. Revisions to Detail B on Sheet 16 are requested to show 1) the 3H:1V waste limits along the sideslopes and (2) the final cover designed with a 3H:1V maximum sideslope adjacent to the swale.

Response: Please see the revised Detail B on the enclosed Sheet 16 of the Drawings and the enclosed calculations.

62-701.500, .510, and .530. Responses to Mr. John Morris' October 16, 2002 memorandum (attached) are requested. You may call Mr. Morris at (813) 744-6100, extension 336 to discuss the items in his memorandum.

Response: The responses to these comments were provided in the May 2, 2003 response letter from SCS. The responses are repeated here for your convenience.

SECTION B – DISPOSAL FACILITY GENERAL INFORMATION

1. **B.13.: The response that indicates the notation of the special exemption area in the County land records was not intended to fulfill landfill closure requirements, and the submittal of revised page 7 of the application form are noted. No additional information is requested.**

   Response: Comment noted.

SECTION L – LANDFILL OPERATION REQUIREMENTS (Rule 62-701.500, F.A.C.)
Operations Plan, Sarasota County, Florida, CCSWDC, prepared by SCS Engineers, dated Feb.28, 2002

2. **L.2.h.(2) – Leachate Management System**
   a. **Collection System – The submittal of Figure L-1A showing the leachate pump station valve boxes labeled C-1 through C-5 is noted. No additional information is requested.**

      Response: Comment noted.

   c. **The response verifying that Pond No. 6 is the location that will receive stormwater retained in the secondary containment of the leachate storage tank and the revision to Section L.2.h.2 of the Operations Plan are noted. No additional information is requested.**

      Response: Comment noted.

5. **L.8.b. – Leachate Collection and Removal System: The reference to the response provided to review comment No. 2.a. is noted. No additional information is requested.**

Response: Comment noted.

6. **L.9. – Gas Monitoring Program**

a. The revision to Section L.9 of the Operations Plan describing how the landfill gas probes will be monitored to be consistent with Rule 62-701.530(2)(b), F.A.C., is noted. However, the Department does not agree with the response that the issue of landfill gas detected at GP-4, GP-5 and GP-6 has been resolved. The proposed changes to the gas probes in the renewal application and subsequent submittals follow:

- **February 2002: abandon existing GP-4/GP-5/GP-6; install proposed GP-4t at a location south of the borrow stockpile and yard waste compost areas**

- **June 2002: abandon existing GP-4/GP-5/GP-6; renumber proposed GP-4t as proposed GP-4 and relocate it from south of the borrow stockpile and yard waste compost areas to between the waste tire and C&D processing facilities**

- **September 2002: abandon existing GP-4/GP-5/GP-6; renumber proposed GP-4 as proposed GP-7 to be installed at a location between the waste tire and C&D processing facilities**

It is agreed that the south side of landfill Cells 1 through 5 is a considerable distance from the property boundary. However, the proposed changes to eliminate the existing gas probes along the south side of the landfill footprint and the ambient monitoring locations in the scale house and administration building do not appear to provide a means to demonstrate the absence of landfill gas in the subsurface or in structures south of the landfill footprint. As such, the proposed changes do not appear to meet the requirements of Rule 62-701.530(2), F.A.C. At a minimum, the landfill gas monitoring program must include at least one gas probe located south of the landfill footprint (existing GP-4/GP-5/GP-6 or proposed GP-4t would be acceptable) or the existing ambient monitoring points at the scale house and administration building must be maintained. Please submit revisions to Section L.9 and Figure L-1 of the Operations Plan as appropriate to address this review comment.

Response: Section L. and Figure L-1 have been revised to include GM-4 and GM-5 in the LFG Monitoring Plan.

b. **It is agreed that the Department did not issue a permit modification to include ambient monitoring locations GM-6 and GM-7 in Specific Condition No. 19 of permit No. SO58-299180. For the purposes of clarification, it is noted that the County agreed to add ambient monitoring location GM-7 (electric panel at leachate tank) to the quarterly landfill gas monitoring events in response to the Department's request during a meeting conducted November 9, 1999. As previously requested, please provide a site map that shows the location of GM-6 (control booth) and specifically indicate why it is considered appropriate to cease monitoring this location. At a minimum, it is considered appropriate to maintain ambient monitoring location GM-7. Please submit revisions to Section L.9 and Figure L-1 of the Operations Plan as appropriate to address this review comment.**

Response: Section L.9 and Figure L-1 have been revised to include GM-7. A more detailed site plan is attached to show the location of the control booth. The control booth should not be routinely monitored because it is rarely occupied, its foundation is elevated above natural grade, the local groundwater table is within a few feet of land surface and it is over 3,000 feet from the waste filling area. The control booth is also located immediately adjacent to the Scale House where monitoring will be performed.

c. **The response and the revisions to Section L.9 and Figure L-1 of the Operations Plan that indicate the proposed gas probe to be located between the waste tire and C&D processing facilities shall be identified as GP-7 are noted. No additional information is requested.**

Response: Comment noted.

11. **Section 4 – Water Quality Monitoring Findings**

a. **The revisions of Appendix A (Ground Water Quality Data) to address the majority of the listed inconsistencies with the data provided by Sarasota County are noted. Several of the items need additional review, as follow:**

2) **The revisions to the ground water quality data summaries for wells MW-1, MW-9 and MW-10 for the stated parameters/sampling events are noted. No additional information is requested.**

Response: Comment noted.

c. **The discussion of trend analysis provided for some of the parameters appears to be inconsistent with the data provided by Sarasota County for the semi-annual sampling events and the plots provided in Appendix B. Please review the results for the following parameters and revise as appropriate:**

3) **The response that the County will regrade the northwest corner of the yard waste processing area to redirect stormwater toward the east and south is noted. No additional information is requested.**

Response: Comment noted.

d. **The revisions of Appendix C (Leachate Quality) to address the majority of the listed inconsistencies with the data provided by Sarasota County are noted. Item No. 4 needs additional review, as follows:**

4) **The affirmation in the response that the leachate sample collected during the October 2000 sampling event was reported to contain nitrate at 0.03 mg/L is noted. No additional information is requested.**

Response: Comment noted.

e. **The acknowledgement of the Department's intention to prepare Specific Conditions of the renewal permit to include the proposed parameters in the routine sampling events and to require their inclusion in the next monitoring plan evaluation is noted. No additional information is requested.**

Response: Comment noted.

12. **Section 5 – Ground Water Levels and Flow**

b. **Further review of the field sheets included in the reports for the semi-annual sampling events indicates that three elevations for the top of casing at well MW-9 (31.90, 34.85 and 35.01 feet NGVD) have been used since 1998. The data available in the Department's files are not sufficient to determine which elevation is correct for which sampling event. To resolve this uncertainty, it is the Department's intention to require a new survey (top of casing/land surface elevations and latitude/longitude coordinates) be submitted for all proposed and existing monitor wells to comply with the requirements of Rule 62-701.510(3)(d)1, F.A.C. This comment is provided for informational purposes, no additional information is requested.**

Response: Comment noted.

d. **The response that surface water elevations in the retention ponds may be influenced by short-term rainfall events is noted. No additional information is requested.**

Response: Comment noted.

13. **Section 6 – Adequacy of Monitoring Program**

a. **The submittal of Figure 4-1 to show the locations of existing and proposed monitoring and test sites is noted. It is the Department's understanding that wells MW-6 and MW-7 were abandoned and that water levels will be measured in wells MW-3 and MW-5 during routine sampling events (response to comment No. 12.d., dated and received June 28, 2002). Please submit a revised Figure 4-1 that indicates the status of these wells.**

Response: Figure 4-1 has been revised as requested. The revised Figure 4-1 is enclosed.

If you have any questions about the information provided, please do not hesitate to contact us.

Sincerely,

3-31-04

John A. Banks, P.E.	Raymond J. Dever, P.E., DEE
Project Director	Vice President
SCS ENGINEERS	SCS ENGINEERS

JAB/RJD:jab
Enclosures

cc: Frank Coggins, Sarasota County
Susan Pelz, P.E., FDEP Tampa
John Morris, P.G., FDEP Tampa

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SCS ENGINEERS

May 28, 2003
File No. 09201024.01

MAY 28 2003

Kim Ford, P.E.
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Subject: Sarasota County, Central County Solid Waste Disposal Complex
Operations Permit Renewal, Pending Permit No. 130542-002-SO

Dear Mr. Ford:

At your request we SCS Engineers (SCS) is providing the following documents in support of the referenced permit application:

- Replacement page v of the application Table of Contents
- Replacement pages L-4, L-5, and L-19 of the Operations Plan
- Replacement sheets 3 and 16 of the Operations Drawings
- Replacement Drawing E-2 (Figure E-2)
- Replacement Drawing F-1 (Figure F-1)
- Replacement Drawing L-1 (Figure L-1)
- Additional input data sheets for the berm slope stability calculations

In addition, we recognize that several cross sections contained within the Operations Drawings, related to the fill sequence plans, may not accurately reflect the revised terrace swale berm and its proposed elevations. We will evaluate this issue and submit revised drawings, as needed, by June 13, 2003.

The three scenarios contained in the berm slope stability calculations model the effects of water infiltration and potential water build up along the low permeability portion of the future closure cap system. The future closure cap, which will incorporate the same side slopes (3H:1V maximum), represents the worst-case scenario for veneer slope stability due to the collection and migration of water along the closure cap interface. During operations prior to closure, water that has infiltrated should percolate downward through the intermediate and daily covers and not along a defined failure plane (i.e. such as the interface of the low permeability interface of the future closure cap).

The soil types, Soil Types 1 and 2, used in the model represent the cover soil and the strength of the interface between the cover soil and the drainage layer along the closure cap, respectively. Soil Type 1 represents a sandy soil with a typical internal phi angle of 30 degrees and no cohesion. Soil Type 2 represents the interface friction strength between the cover soil and a drainage geocomposite or between the cover soil and a geomembrane.

The slope stability model scenarios use the same side slope profile and only vary the depth of saturation above the closure cap. To achieve a short-term slope stability factor of safety equal to 1.3, the depth of saturation should be keep below 12 inches above the closure cap. The future closure cap should be designed to either limit the amount of water infiltrating the cover system or designing the transmissivity of a drainage geocomposite to provide sufficient lateral drainage to keep the saturation depth below 12 inches. To minimize the amount of infiltration into the closure cap system, the design could possibly specify sandy soils with clayey fines or provide considerations for placing low permeability soils along the stormwater berms to maximum stormwater runoff and collection.

The specific design requirements for the geosyenthetic materials and final cover soils shall be addressed at the time of final closure design and submitted to the Department for approval. During design of the closure cap, site-specific soils and direct shear test results should be conducted using the proposed geosynthetic and soil components.

Please let us know if you have any questions with this submittal.

Sincerely,

5/28/03

John A. Banks, P.E.
Project Director
SCS ENGINEERS

Raymond J. Dever, P.E., DEE
Vice President
SCS ENGINEERS

cc: Gary Bennett, Sarasota County

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SCS ENGINEERS

May 2, 2003
File No. 09201010.01

MAY 02 2003

Kim Ford, P.E.
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-2242

Subject: CCSWDC Landfill - Operation Permit Renewal
Pending Permit No.: 130542-002-SO, Sarasota County

Dear Mr. Ford:

On behalf of Sarasota County, SCS Engineers (SCS) submits the following responses to your request for additional information in a letter directed to Mr. Gary Bennett from Mr. Kim Ford, dated October 16, 2002. For ease of review, each FDEP comment is reiterated in bold type, followed by our response. As previously communicated to the Department, response to this request has been delayed until the Department issued a policy statement regarding stormwater diversion berms placed on 3H:1V side slopes.

The following documents are provided with this submittal:

- Revised Section F Landfill Permit General Requirements
- Revised Section L Operations Plan
- Revised Figure L-1
- Revised Drawing Sheet 16
- Revised Figure 4-1
- Calculations of slope stability for the stormwater berm.
- Sheet CD-9 from the original design drawings showing location of control booth.

We have provided revised submittals, or replacement pages to the submittals, using a ~~strikethrough~~ and underline format, to facilitate review. We have included the revision date as part of the header/footer for all revised pages and provided four copies of all revised materials.

The following information is needed in support of the solid waste application (Chapter 62-701, Florida Administrative Code (F.A.C.). Please provide:

1. **62-701.500(2) (f) and (7) (c), and 62-701.600 (5) (e). According to Department rules, final sideslopes shall not be steeper than three feet horizontal to one foot vertical to control erosion of the final cover materials. The typical swale detail shown on Sheet 16 of the Operation Drawings shows 2H:1V sideslopes. Revisions to Detail B on Sheet 16 are requested to show 1) the 3H:1V waste limits along the sideslopes and (2) the final cover designed with a 3H:1V maximum sideslope adjacent to the swale.**

Response: Please see the revised Detail B on the enclosed Sheet 16 of the Drawings. In accordance with recent discussions with the Department, the berm includes a relatively short distance of 2:1 slope. We have enclosed calculations that show this design is stable with an acceptable factor of safety using conservative assumptions and under worst-case scenarios. We evaluated the berm for two failure modes; 1) a sliding failure of the material that makes up the berm on a 2:1 slope angle and; 2) along the interface with the geomembrane cap material. Both of these analyses were performed assuming the soils are in a saturated condition.

2. **62-701.500, .510, and .530. Responses to Mr. John Morris' October 16, 2002 memorandum (attached) are requested. You may call Mr. Morris at (813) 744-6100, extension 336 to discuss the items in his memorandum.**

Response: Please see the following responses.

Please provide all responses that relate to engineering required for design and operation, signed and sealed by a professional engineer. All descriptions of operations procedures provided as part of responses should be included as revisions to the Operations Plan (Section L). All replacement pages should be numbered, and with revision date.

Below are our responses to a Memorandum dated October 16, 2002 from John R. Morris to Kim Ford.

SECTION B – DISPOSAL FACILITY GENERAL INFORMATION

1. **B.13.: The response that indicates the notation of the special exemption area in the County land records was not intended to fulfill landfill closure requirements, and the submittal of revised page 7 of the application form are noted. No additional information is requested.**

Response: Comment noted.

SECTION L – LANDFILL OPERATION REQUIREMENTS (Rule 62-701.500, F.A.C.)
Operations Plan, Sarasota County, Florida, CCSWDC, prepared by SCS Engineers, dated Feb.28, 2002

2. **L.2.h.(2) – Leachate Management System**
   a. **Collection System – The submittal of Figure L-1A showing the leachate pump station valve boxes labeled C-1 through C-5 is noted. No additional information is requested.**

   Response: Comment noted.

c. **The response verifying that Pond No. 6 is the location that will receive stormwater retained in the secondary containment of the leachate storage tank and the revision to Section L.2.h.2 of the Operations Plan are noted. No additional information is requested.**

Response: Comment noted.

5. **L.8.b. – Leachate Collection and Removal System: The reference to the response provided to review comment No. 2.a. is noted. No additional information is requested.**

Response: Comment noted.

6. **L.9. – Gas Monitoring Program**

a. **The revision to Section L.9 of the Operations Plan describing how the landfill gas probes will be monitored to be consistent with Rule 62-701.530(2)(b), F.A.C., is noted. However, the Department does not agree with the response that the issue of landfill gas detected at GP-4, GP-5 and GP-6 has been resolved. The proposed changes to the gas probes in the renewal application and subsequent submittals follow:**

- **<u>February 2002</u>: abandon existing GP-4/GP-5/GP-6; install proposed GP-4t at a location south of the borrow stockpile and yard waste compost areas**

- **<u>June 2002</u>: abandon existing GP-4/GP-5/GP-6; renumber proposed GP-4t as proposed GP-4 and relocate it from south of the borrow stockpile and yard waste compost areas to between the waste tire and C&D processing facilities**

- **<u>September 2002</u>: abandon existing GP-4/GP-5/GP-6; renumber proposed GP-4 as proposed GP-7 to be installed at a location between the waste tire and C&D processing facilities**

It is agreed that the south side of landfill Cells 1 through 5 is a considerable distance from the property boundary. However, the proposed changes to eliminate the existing gas probes along the south side of the landfill footprint <u>and</u> the ambient monitoring locations in the scale house and administration building do not appear to provide a means to demonstrate the absence of landfill gas in the subsurface or in structures south of the landfill footprint. As such, the proposed changes do not appear to meet the

requirements of Rule 62-701.530(2), F.A.C. At a minimum, the landfill gas monitoring program must include at least one gas probe located south of the landfill footprint (existing GP-4/GP-5/GP-6 or proposed GP-4t would be acceptable) or the existing ambient monitoring points at the scale house and administration building must be maintained. Please submit revisions to Section L.9 and Figure L-1 of the Operations Plan as appropriate to address this review comment.

Response: Section L. and Figure L-1 have been revised to include GM-4 and GM-5 in the LFG Monitoring Plan.

b. **It is agreed that the Department did not issue a permit modification to include ambient monitoring locations GM-6 and GM-7 in Specific Condition No. 19 of permit No. SO58-299180. For the purposes of clarification, it is noted that the County agreed to add ambient monitoring location GM-7 (electric panel at leachate tank) to the quarterly landfill gas monitoring events in response to the Department's request during a meeting conducted November 9, 1999. As previously requested, please provide a site map that shows the location of GM-6 (control booth) and specifically indicate why it is considered appropriate to cease monitoring this location. At a minimum, it is considered appropriate to maintain ambient monitoring location GM-7. Please submit revisions to Section L.9 and Figure L-1 of the Operations Plan as appropriate to address this review comment.**

Response: Section L.9 and Figure L-1 have been revised to include GM-7. A more detailed site plan is attached to show the location of the control booth. The control booth should not be routinely monitored because it is rarely occupied, its foundation is elevated above natural grade, the local groundwater table is within a few feet of land surface and it is over 3,000 feet from the waste filling area. The control booth is also located immediately adjacent to the Scale House where monitoring will be performed.

c. **The response and the revisions to Section L.9 and Figure L-1 of the Operations Plan that indicate the proposed gas probe to be located between the waste tire and C&D processing facilities shall be identified as GP-7 are noted. No additional information is requested.**

Response: Comment noted.

11. **Section 4 – Water Quality Monitoring Findings**

a. **The revisions of Appendix A (Ground Water Quality Data) to address the majority of the listed inconsistencies with the data provided by Sarasota County are noted. Several of the items need additional review, as follow:**

2) **The revisions to the ground water quality data summaries for wells MW-1, MW-9 and MW-10 for the stated parameters/sampling events are noted. No additional information is requested.**

Response: Comment noted.

c. **The discussion of trend analysis provided for some of the parameters appears to be inconsistent with the data provided by Sarasota County for the semi-annual sampling events and the plots provided in Appendix B. Please review the results for the following parameters and revise as appropriate:**

3) **The response that the County will regrade the northwest corner of the yard waste processing area to redirect stormwater toward the east and south is noted. No additional information is requested.**

Response: Comment noted.

d. **The revisions of Appendix C (Leachate Quality) to address the majority of the listed inconsistencies with the data provided by Sarasota County are noted. Item No. 4 needs additional review, as follows:**

4) **The affirmation in the response that the leachate sample collected during the October 2000 sampling event was reported to contain nitrate at 0.03 mg/L is noted. No additional information is requested.**

Response: Comment noted.

e. **The acknowledgement of the Department's intention to prepare Specific Conditions of the renewal permit to include the proposed parameters in the routine sampling events and to require their inclusion in the next monitoring plan evaluation is noted. No additional information is requested.**

Response: Comment noted.

12. **Section 5 – Ground Water Levels and Flow**

b. **Further review of the field sheets included in the reports for the semi-annual sampling events indicates that three elevations for the top of casing at well MW-9 (31.90, 34.85 and 35.01 feet NGVD) have been used since 1998. The data available in the Department's files are not sufficient to determine which elevation is correct for which sampling event. To resolve this uncertainty, it is the Department's intention to require a new survey (top of casing/land surface elevations and latitude/longitude coordinates) be submitted for all proposed <u>and</u> existing monitor wells to comply with the requirements of Rule 62-701.510(3)(d)1, F.A.C. This comment is provided for informational purposes, no additional information is requested.**

Response: Comment noted.

d. **The response that surface water elevations in the retention ponds may be influenced by short-term rainfall events is noted. No additional information is requested.**

Response: Comment noted.

13. **Section 6 – Adequacy of Monitoring Program**

a. **The submittal of Figure 4-1 to show the locations of existing and proposed monitoring and test sites is noted. It is the Department's understanding that wells MW-6 and MW-7 were abandoned and that water levels will be measured in wells MW-3 and MW-5 during routine sampling events (response to comment No. 12.d., dated and received June 28, 2002). Please submit a revised Figure 4-1 that indicates the status of these wells.**

Response: Figure 4-1 has been revised as requested. The revised Figure 4-1 is enclosed.

If you have any questions about the information provided, please do not hesitate to contact us.

Sincerely,

Robert L. Westly

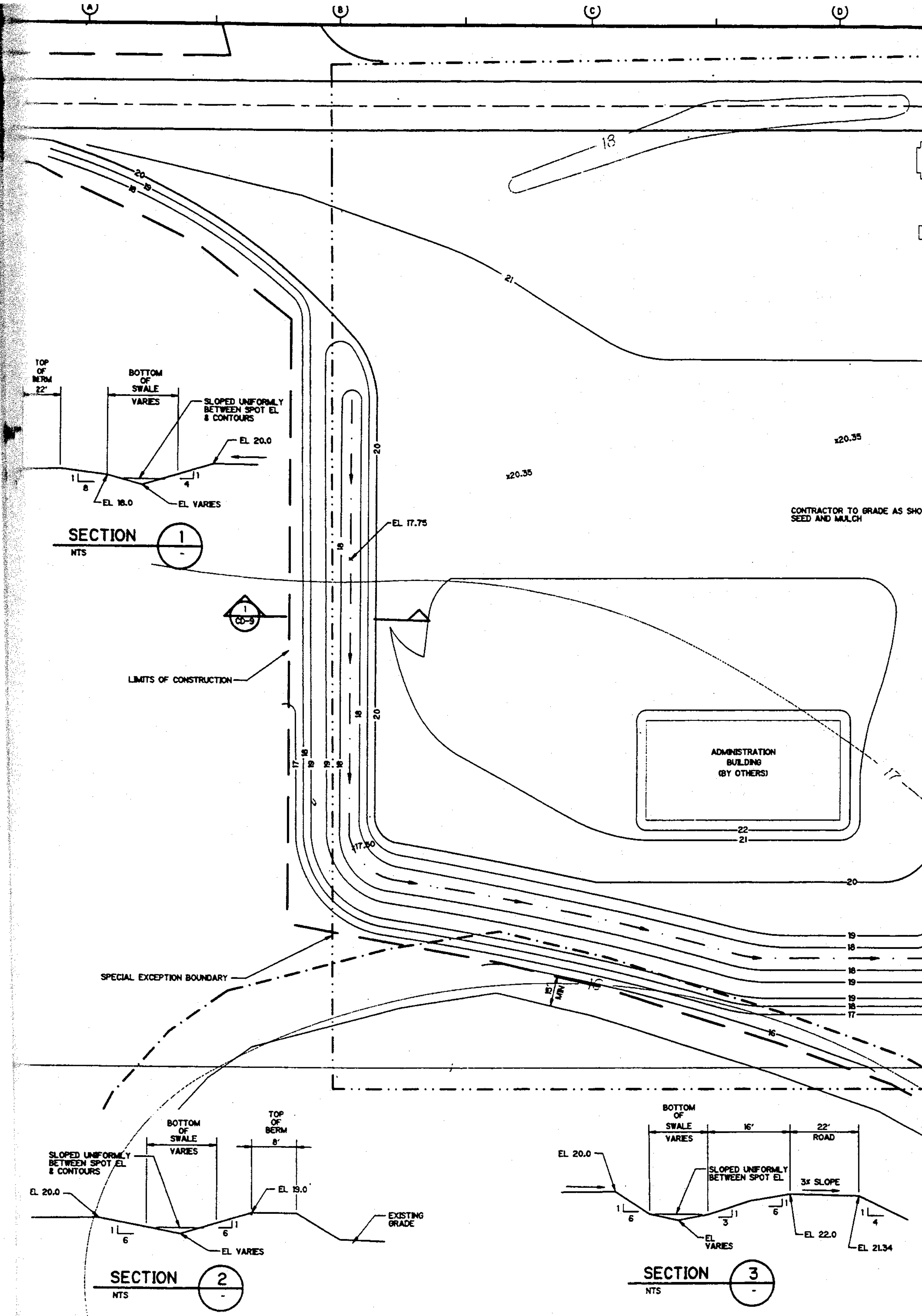
Robert L. Westly
Senior Hydrogeologist
SCS ENGINEERS

5-2-03

John A. Banks, P.E.
Project Director
SCS ENGINEERS

JAB/RJD:jlh
Enclosures

cc: Gary Bennett, Sarasota County
Susan Pelz, P.E., FDEP Tampa
John Morris, P.G., FDEP Tampa



JMB		CONFORMED DRAWING
DRWN	CHKD	REMARKS

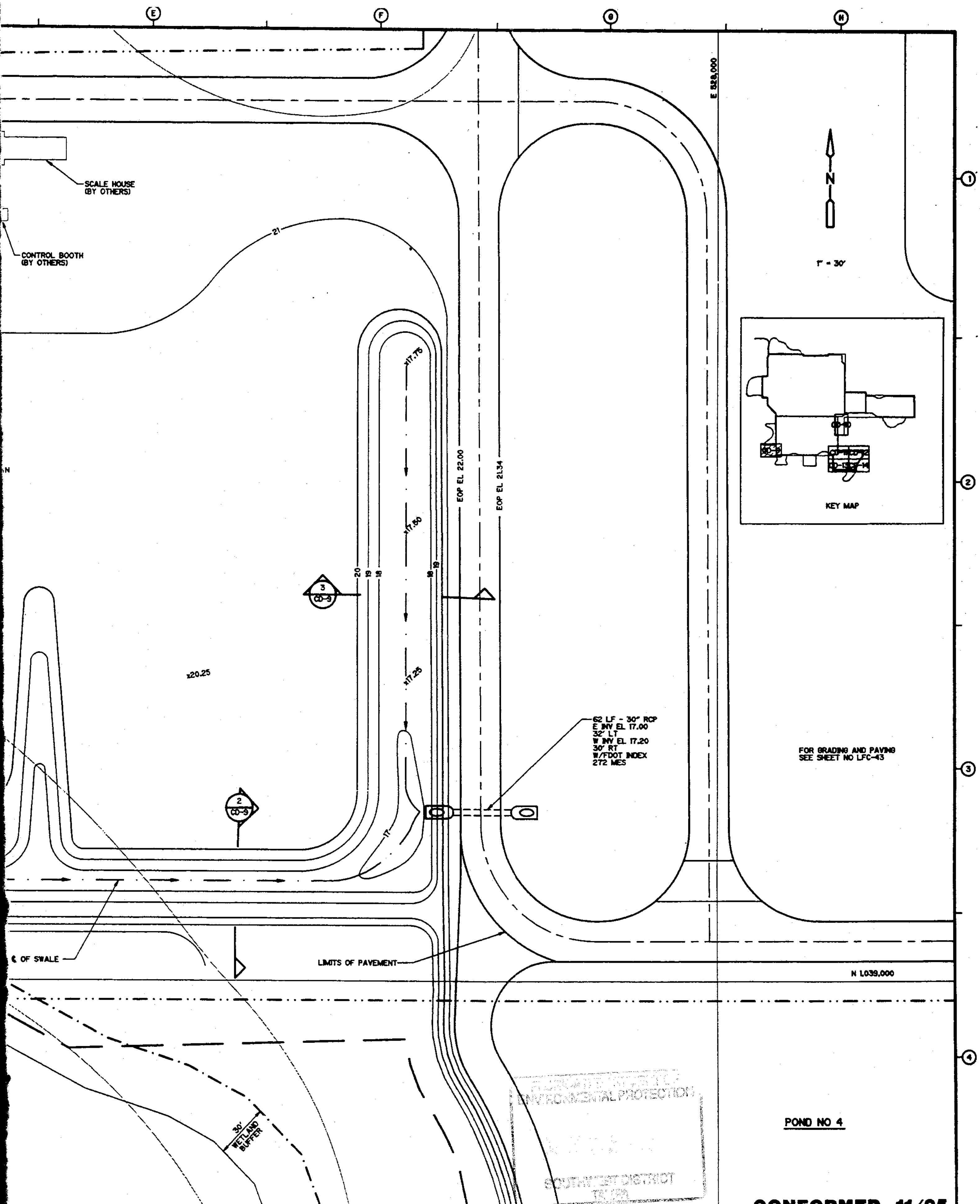
DESIGNED BY: C. KUNIHIRO
DRAWN BY: C. PEAY
SHEET CHK'D BY: J. HOFFMAN
CROSS CHK'D BY: W. SPRIGGS
APPROVED BY: J. BANKS
DATE: MAY 1994

CAMP DRESSER & McKEE INC.

environmental engineers, scientists, planners, & management consultants

CDM

CENT



SARASOTA COUNTY, FLORIDA

RAL COUNTY SOLID WASTE DISPOSAL COMPLEX
LANDFILL SITE WORK

PROPOSED GRADING AT SCALE HOUSE AREA

PROJECT NO. 9250-58-CDN

SHEET NO. CD-9

Environmental Consultants

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SCS ENGINEERS

September 20, 2002
File No. 09201010.01

Kim Ford, P.E.
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-2242

D.E.P.
SEP 2 0 2002
Southwest District Tampa

Subject: CCSWDC Landfill - Operation Permit Renewal
Pending Permit No.: 130542-002-SO, Sarasota County

Dear Mr. Ford:

On behalf of Sarasota County, SCS Engineers (SCS) submits the following responses to your request for additional information in a letter directed to Mr. Gary Bennett from Mr. Kim Ford, dated July 24, 2002. For ease of review, each FDEP comment is reiterated in bold type, followed by our response. The following documents are enclosed with this letter as revisions to the previously submitted information as a result of the responses to the following comments:

- Permit Application form page 7
- Pages v and vi of the Table of Contents
- Section G
- Section J
- Section N
- Section O
- Section M, Appendix A
- Section L
- Figure L-1
- Figure L-1A (new)
- Figure L-5 (new)
- Operation Drawings
- Figure 4-1 of the Monitoring Plan Addendum, Section M
- Calculations in support of using 18-inch diameter drainage pipes.
- Drawing E-4

The following information is needed in support of the solid waste application (Chapter 62-701, Florida Administrative Code (F.A.C.). provide:

1. **62-701.320(7)(d)3. The table of contents should be revised to list each related attachment.**

   Response: A revised table of contents is provided herein. Please note that Attachment E-1 contains the boundary survey and legal description of the site. Please disregard any previous references to Attachment E-3.

2. **62-701.320(10). Revisions requested as follows: a) Section 0 to delete references to previous Operation permit Application; b) Section J to include references to each valid geotechnical report; c) Section N to include procedures for management of used oil and lawn mowers, and to delete references to previous Operation Permit Application; d) Section 0.2 to reference the gas monitoring plan described in Section L.9.**

Response: Please see the enclosed revised Sections G, J, N, and O.

3. **62-701.500(1). Revisions to Section *LA* and Attachment L-1 are requested to include training for spotters also.**

   Response: Please see the revised Section L and Attachment L-1.

4. **62-701.500(2). Revisions to the Operations Plan are requested as follows:**

   a) **Section L.2.c. — to include procedures for managing used oil and lawn mowers;**

   b) **Section L.2.j — to include reference to Section L.8.h. for cleaning;**

   c) **Section L.6. — to include clarification identifying the <u>County</u> rather than the 'landfill' as a responsible entity;**

   d) **Section L.9. — to include the location of all gas monitoring inside structures;**

   e) **Attachment L.2. — to include reference to Sections L.ll.e for fire control and L.2.b.1 for emergency procedures;**

   f) **Attachment L-3 — Sheet 3 to show 3 to 1 external sideslopes;**

   g) **Attachment ta-4 — to describe the disposal of contaminated soil only "within the bermed working area'; and**

   h) **Attachment L-13 — to include the recycling of used oil and lawn mowers.**

   Response: Please see the revised Section L.

5. **62-701.500(2)(f).**

   a) **The referenced drawings for the sequence of filling should be confirmed still valid or revised, and provided as part of the operations plan.**

      Response: Please see the revised sequence of filling drawing included with the operations plans.

   b) **One full sized set of plans and one reduced set (for use as an attachment to the operations plan) with all revisions are requested.**

      Response: Please see the enclosed plans.

c) **Plan views showing grades required for proper drainage along terrace swales are requested.**

Response: Please see the enclosed plans, Sheet No. 16.

d) **Typical details for all temporary and permanent drainage devices (letdown structures, terraces, berms and swales) to convey stormwater from the top and sides of filled areas without erosion are requested.**

Response: Please see Sheet No. 16 of the enclosed plans.

6. **62-701.500(7)(g). confirmation of conformance to designed dimensions and details for filled portions of Phase I including references to specific plan sheets and details is requested.**

Response: SCS Engineers has reviewed as-built surveys and performed site inspections at the CCSWDC. SCS finds that the construction of the landfill is in compliance with the operations plans as previously approved and as clarified herein. The drainage structures currently in place are adequate for current needs as described below. As the landfill height increases additional drainage structures will be required as discussed below. Drawing E-4 is provided showing the as-constructed configuration of the landfill. The side slopes, letdown pipes and swales are in conformance to the details as provided on Sheet 16 of the Operation Drawings.

7. **62-701.500(7)(j). clarification regarding erosion control. Typical details on a drawing for each type of erosion control and stormwater management control are requested.**

Response: Please see the revised Sheet 16 of the Operation Drawings. The plans provide for 18-inch diameter letdown pipes until final cap and cover are applied at which time the permanent 24-inch and 30-inch diameter pipes are required. Please see the attached calculations supporting the 18-inch pipes for temporary stormwater conveyance.

8. **62-701.500, .510, and .530. Responses and required supporting information in response to Mr. John Morris' July 24, 2002 memorandum (attached). You may call Mr. Morris at (813) 744-6100, extension 336 to discuss the items in his memorandum.**

Response: Please see the following responses.

SECTION B – DISPOSAL FACILITY GENERAL INFORMATION

1. **B.13.: Please note that this review comment in my memorandum dated March 28, 2002 incorrectly referenced application form item No. B.12 instead of item No. B.13. It is indicated in the response that the legal description of the special exception area was provided in Attachment E-3; please verify that the referenced information was provided in Attachment E-1. It appears that the legal description information that was submitted does not meet the requirements of Rule 62-**

701.610(5), F.A.C., that are associated with closure of the facility. Please submit a revised permit application form (page 7 of 40) that indicates a "No" response to item No. B.13.

Response: The legal description of the special exception area was in fact provided as a supplement to Attachment E-1. The special exception area is a designation in the Sarasota County Land Development Code that allows for a landfill as well as other uses. The information presented in support of this designation indicates the intended purpose of the special exception area, as being for a landfill. This information is included in the County's Land Records. However, based on information provided by John Morris, we understand this section of the permit application form refers to closure requirements. Therefore, the proper response on the form is no. We have enclosed revised page 7 of the application form reflecting this change.

SECTION L – LANDFILL OPERATION REQUIREMENTS (Rule 62-701.500, F.A.C.)
Operations Plan, Sarasota County, Florida, CCSWDC, prepared by SCS Engineers, dated Feb.28, 2002

2. **L.2.h.(2) – Leachate Management System**

   a. **Collection System – The revision of this section to refer to the Figure L-3 does not address the intent of the review comment. Please submit a revised site plan similar to Sheet No. 1 that shows each of the leachate pump station valve boxes with unique identification numbers that will allow the leachate samples to be referenced to individual landfill cells. Please submit revisions to this section that reference the requested figure.**

      Response: Figure L-1A is attached, with the leachate pump station valve boxes shown on the figure and labeled C-1 to C-5.

   b. **The revisions of this section that indicate stormwater retained in the secondary containment of the leachate storage tank will be managed as leachate if a visible sheen is present are noted. No additional information is requested.**

      Response: Comment acknowledged.

   c. **It is noted that the response indicates that stormwater retained in the secondary containment of the leachate storage tank will be released to Stormwater Pond No. 4 but Figure L-1 indicates Stormwater Pond No. 6 as the receiving pond. Please review this apparent inconsistency and submit revisions to the text or Figure L-1 as appropriate.**

      Response: Pond No. 6 is correctly shown as the reviewing pond and the text has been revised accordingly.

d. **The revisions of this section that indicate a log will be maintained to track releases of stormwater retained in the secondary containment of the leachate storage tank are noted. No additional information is requested.**

Response: Comment acknowledged.

e. **Leachate Monitoring – The revisions of this section that reference the leachate monitoring plan submitted in Section M of the permit application are noted. No additional information is requested.**

Response: Comment acknowledged.

3. **L.2.i. – Ground Water Monitoring System: The revisions of this section that reference the ground water monitoring plan submitted in Section M of the permit application are noted. No additional information is requested.**

Response: Comment acknowledged.

4. **L.8.a. – Leachate Monitoring, Sampling and Analysis: The revisions of this section that reference the leachate monitoring plan submitted in Section M of the permit application are noted. No additional information is requested.**

Response: Comment acknowledged.

5. **L.8.b. – Leachate Collection and Removal System: The revisions of this section that refer to Sheet No. 14 (Leachate pump station – Detail 5) are noted, however the reference to Figure L-3 does not address the intent of the review comment. Please submit a revised site plan similar to Sheet No. 1 that shows <u>each</u> of the leachate pump station valve boxes with unique identification numbers that will allow the leachate samples to be referenced to individual landfill cells.**

Response: Please see response L.2.h.(2) a.

6. **L.9. – Gas Monitoring Program**

a. **The response that describes how existing gas probes GP-4, GP-5 and GP-6 will be abandoned is noted. However, it is noted that several quarterly gas monitoring events (1998Q3, 1998Q4, 1999Q1, 1999Q2, and 1999Q3) indicated gas measurements greater than 100% of the LEL for methane were reported for at least one of these three gas probes. Please provide the**

technical basis that supports the decision to abandon gas probes GP-4, GP-5 and GP-6, and provide a revised Figure L-1 if it is determined that these gas probes will be maintained. Please also submit revisions to this section of the Operations Plan that include a detailed description of the procedure and equipment that will be used to conduct the quarterly gas monitoring events to meet the requirements of Rule 62-701.530(2)(b), F.A.C., specifically including how pre-purging measurements will be recorded at the gas probes and describing the physical locations at each gas monitoring location.

Response: The issue of landfill gas detected in GP-4, GP-5, GP-6 was previously resolved with the Department. It was determined that the gas was naturally occurring. After several sampling events and purging of the wells, no gas has been detected in these probes. Recent sampling of the probes has been conducted without purging and no gas has been detected. Section L.9 has been revised to include the additional detail requested.

b. The response that gas monitoring locations GM-6 and GM-7 were "never proposed or referenced" is inconsistent with the quarterly gas monitoring reports submitted by Sarasota County. It is noted that GM-6 (control booth) and GM-7 (electric panel at leachate tank) have been included in the gas monitoring events since 1998Q3 and 1999Q4, respectively. The information provided in this section of the Operations Plan that structures other than those at GM-1, GM-2 and GM-3 will not be monitored due to their distance from the landfill, shallow water table and lack of subsurface connections to the landfill were considered sufficient to support the deletion of GM-4 (administration building) and GM-5 (scale house). However this information is considered to be insufficient to support the deletion of GM-6 and GM-7. Please provide a site map that shows the locations of existing gas monitoring locations GM-6 and GM-7 and indicate why it is considered appropriate that these locations no longer be monitored. Please include these locations on Figure L-1 if these gas monitoring locations will be maintained.

Response: Gas monitor locations GM-6 and GM-7 were added by County staff for general information purposes; however, these sites were not added to the monitoring program through an official permit modification. The County does not desire to include these locations in the LFG Monitoring Program as these locations are over 3,000 feet from the landfill cell and would serve no purpose in monitoring for LFG migration.

c. **The response that the proposed gas probe located between the waste tire and C&D processing facilities shall be identified as GP-4 is unacceptable as that identification number is currently assigned to an existing gas probe. Please provide a unique identification number for this proposed gas probe and submit a revised Figure L-1 that includes this change.**

Response: Figure L-1 has been modified to change the GP-4 identifier to GP-7.

The revisions of this section regarding the preparation of a gas remediation plan are noted. No additional information is requested.

Response: Comment acknowledged.

7. **Attachment L-2 – Contaminated Soil Acceptance Criteria: The revisions in the Contaminated Soil Acceptance Criteria (renumbered as Attachment L-4) that precludes the stockpiling of this material unless authorized in writing by the Department are noted. No additional information is requested.**

Response: Comment acknowledged.

<u>SECTION M – WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS</u> (Rule 62-701.510, F.A.C.)

8. **M.1.a. through M.1.h.(2): The submittal of pages 32 and 33 of DEP Form No. 62-701.900(1) referring to Section M of the supporting information and the document entitled *Groundwater Monitoring Plan Evaluation, Central County Solid Waste Disposal Complex, Sarasota County, Florida* (GWMPE) are noted. No additional information is requested.**

Response: Comment acknowledged.

<u>Appendix A – Groundwater Monitoring Plan Evaluation, Central County Solid Waste Disposal Complex, Sarasota County, Florida, prepared by SCS Engineers, dated Feb.28, 2002, revised June 28, 2002.</u>

9. **Section 2 – Summary of the Ground Water, Surface Water, and Leachate Monitoring Program**

a. **The information provided in Notes 2 and 3 of revised Table 2-2 regarding the source of monitor well construction details are noted. No additional information is requested.**

Response: Comment acknowledged.

b. **The revisions of Section 2 in Section M that describe the semi-annual/annual sampling events and the procedure for collecting composite samples for inorganics are noted. No additional information is requested.**

Response: Comment acknowledged.

c. **The revisions of Section 2 in the GWMPE and Section 2 in Section M that indicate leachate samples will be annually analyzed for the parameters listed in 40 CFR Part 258, Appendix II are noted. No additional information is requested.**

Response: Comment acknowledged.

10. **Section 3 – Previous Land Use Effects on Ground Water at the CCSWDC**

a. **The response indicates that an investigation will be conducted of potential soil impacts related to former cattle ranching activities and related effects on leachate and ground water quality. Please note that such an investigation is typically conducted during the hydrogeological investigation (Rule 62-701.410, F.A.C.) and is considered to be outside the scope of routine water quality and leachate monitoring (Rule 62-701.510, F.A.C.). As such, the Department does not intend to include a Specific Condition in the permit renewal that requires the implementation of a soil sampling program. No additional information is requested.**

b. **The basis for the assertions presented in the response regarding the comparisons provided for ground water quality data collected "pre-landfill" and "post-landfill" seems to be inadequate for the following reasons:**

c. **The ground water sampling event conducted during September 1998 at wells MW-8 and MW-9 did not report field turbidity measurements due to equipment failure; it cannot be determined if the elevated metals results are representative of site conditions or were affected by elevated sample turbidity (potentially affected by well design, well installation/development, or sample collection).**

The ground water sampling events conducted at wells P-1 through P-14D did not report field turbidity measurements; it cannot be determined if the elevated metals results reported for selected wells are representative of site

conditions or were affected by elevated sample turbidity.

The most conservative ground water velocity using site-specific variables is considered to be about 85 feet/year (see comment No. 12.a.); potential impacts to ground water quality at well MW-8 from landfilling operations cannot be ruled out.

The potential ground water impacts from activities in the yard waste composting area have not been previously indicated; if surface drainage from the composting area that is directed toward wells MW-8 and MW-9 has affected ground water quality at these downgradient wells, the ability to distinguish potential impacts from the landfill cells appears to be limited (see comment No. 11.c.3)).

Based on the response provided to comment No. 11.e., the Department expects that the next ground water monitoring plan evaluation will provide additional characterization of ground water/leachate quality trends at the facility.

The importance of collecting ground water samples that are representative of site conditions cannot be over-emphasized. Please note that the Department's SOP regarding ground water sampling (adopted April 9, 2002) provides several new criteria regarding well purging and the measurements of field parameters prior to sample collection that will be included in the review of results provided for future sampling events. A copy of this SOP may be viewed on the Department's web page at: ftp://ftp.dep.state.fl.us/pub/labs/assessment/soppdf/fs2200.pdf. Please note that the Department may consider future sampling events that report field measurements that do not meet the criteria in SOP FS 2212 (turbidity less than 20 NTU and dissolved oxygen less than 20% saturation) as not representative of site conditions, and may result in the requirement to resample. These comments are provided for informational purposes and do not require a response. No additional information is requested.

Response: Comments acknowledged.

11. **Section 4 – Water Quality Monitoring Findings**

a. **The revisions of Appendix A (Ground Water Quality Data) to address the majority of the listed inconsistencies with the data provided by Sarasota County are noted. Several of the items need additional review, as follow:**

1) **No additional information is requested.**

Response: Comment acknowledged.

2) **MW-1: Turbidity for April 2001 (previous comment referenced incorrect date) at 7.9 NTU**

MW-9: Conductivity for November 1999 at 2140 µMHOs/cm

MW-10: Turbidity for October 2000 at 18.9 NTU

Response: Acknowledged. Appendix A is attached, (Groundwater Quality Data) and has been revised to reflect the changes referenced above.

3) **No additional information is requested.**

Response: Comment acknowledged.

b. **The discussion of regulatory exceedances for some of the parameters appears to be inconsistent with the data provided by Sarasota County for the semi-annual sampling events and the summary tables provided in Appendix A. Please review the results for the following parameters and revise as appropriate:**

1) **Refer to comment No. 10.b. No additional information is requested.**

Response: Comment acknowledged.

2) **The response that indicates the relation between turbidity and metals concentrations was intended as a general observation and some measurements may not show this relationship is noted. No additional information is requested.**

Response: Comment acknowledged.

3) **Refer to comment No. 10.b. No additional information is requested.**

Response: Comment acknowledged.

4) **The revisions of this section regarding the sodium concentrations reported at detection well MW-11 are noted. No additional**

information is requested.

Response: Comment acknowledged.

5) **The response that TDS in the vicinity of well MW-1 is variable based on the ground water conductivity data collected on May 8, 2002 is noted. No additional information is requested.**

Response: Comment acknowledged.

6) **The revisions to this section regarding vanadium concentrations are noted. No additional information is requested.**

Response: Comment acknowledged.

c. **The discussion of trend analysis provided for some of the parameters appears to be inconsistent with the data provided by Sarasota County for the semi-annual sampling events and the plots provided in Appendix B. Please review the results for the following parameters and revise as appropriate:**

1) **The occurrence of ammonia in ground water samples collected over time at the detection wells remains unclear. Further investigation of ground water/leachate quality as indicated in comment No. 11.e. appears to be warranted. No additional information is requested.**

Response: Comment acknowledged.

2) **The potential occurrence/source of mineralized water in the vicinity of well MW-1 remains unclear. Further investigation of ground water/leachate quality as indicated in comment No. 11.e. appears to be warranted. No additional information is requested.**

Response: Comment acknowledged.

3) **The response that iron was reported above the ground water standard at well MW-10 before the construction of the landfill (May 1994) is noted, however iron was also reported <u>below</u> the ground water standard (0.0202 mg/L in October 1997) before the landfill was constructed. Please indicate how drainage from the yard waste composting area will be controlled to minimize potential impacts to ground water quality in areas downgradient from the landfill cells.**

Response: Stormwater currently accumulates in the area of MW-9. The County will regrade this area in the northwest corner of the yard waste processing area to direct runoff to the east and to the south from this area. This will be accomplished through the addition of fill at the northwest corner of the yard waste area.

d. **The revisions of Appendix C (Leachate Quality) to address the majority of the listed inconsistencies with the data provided by Sarasota County are noted. Item No. 4 needs additional review, as follows:**

1) **No additional information is requested.**

Response: Comment acknowledged.

2) **No additional information is requested.**

Response: Comment acknowledged.

3) **No additional information is requested.**

Response: Comment acknowledged.

4) **October 2000 sampling event reported nitrate at 0.03 mg/L.**

Response: The nitrate value of 0.03 mg/l is the correct value for the October 2000 sampling event as listed in Appendix C (Leachate Quality).

e. **The response that proposes the collection of supplemental parameters to assist in the evaluation of the relationship between ground water and leachate quality is noted. It is the Department's intention to prepare Specific Conditions of the renewal permit to include the proposed parameters in the routine sampling events and to require their inclusion in the next monitoring plan evaluation.**

Response: Comment acknowledged.

f. **The revisions to renumbered Appendix E (Surface Water Quality) to address the listed inconsistencies with the data provided by Sarasota County are noted. No additional information is requested.**

Response: Comment acknowledged.

12. **Section 5 – Ground Water Levels and Flow**

a. **It is the Department's intention to use the most conservative site-specific information available for the calculation of ground water velocity. As such, using the arithmetic mean of all 10 slug tests (23.2 ft/day), hydraulic gradient of 0.002 ft/ft, and effective porosity of 0.2, ground water velocity is calculated to be about 85 ft/year. It is considered appropriate to continue routine ground water sampling events at a semi-annual frequency using this worst case ground water flow velocity. No additional information is requested.**

Response: Comment acknowledged.

b. **The response indicates that a math error was found for the November 1999 water levels, however the data provided in Appendix F (renumbered) appear to be unchanged from the March 2002 submittal. Please review and revise as appropriate.**

Response: The math error was in the semi-annual report. The Appendix F (renumbers) data is correct.

c. **The response that the surficial aquifer ground water elevations collected upon installation of the proposed replacement wells will be used as a check of the previous contour maps is noted. No additional information is requested.**

Response: Comment acknowledged.

d. **The response that existing monitor wells MW-3 and MW-5 are available to be included in routine ground water level measurements is noted. Please indicate if including surface water elevations for the staff gauges located on Figure 2-1 would help to further characterize ground water flow in the surficial aquifer.**

Response: Including the surface water elevations at the staff gauges may help but the data could potentially be influenced by short-term rainfall events, if gauges are read during or immediately following the event.

13. **Section 6 – Adequacy of Monitoring Program**

a. **The response that wells MW-1, MW-2, MW-4, MW-11 and MW-12 will be replaced to minimize submergence of the wells screen is noted. Please provide a revised site map (similar to Figure 2-1) that shows the location and unique identification number for the replacement wells for use as a permit attachment (no larger than 11 x 17 inches).**

Response: Locations of Existing and Proposed Monitoring and Test Sites, are shown on attached Figure 4-1 for inclusion in Section M - "Groundwater Monitoring Plan Addendum." The figure shows the proposed locations of MW-1R, MW-2R, MW-4R, MW-11R, and MW-12R.

b. **The revisions to this section of the GWMPE regarding well MW-2 purging dry during the April 2001 sampling event are noted. No additional information is requested.**

Response: Comment acknowledged.

c. **The response that construction details for the proposed replacement well are presented in Table 4-1 of Section M is noted. Please note that the well screen and sand pack materials must be adequately sized to the formation encountered at each well location to minimize sample turbidity. No additional information is requested.**

Response: Comment acknowledged.

d. **The revisions to this section of the GWMPE regarding ground water velocity and sampling frequency are noted. As indicated in comment No. 12.a., it is considered appropriate to continue routine ground water sampling events at a semi-annual frequency using the worst case ground water flow velocity. No additional information is requested.**

Response: Comment acknowledged.

e. **The revisions to this section of the GWMPE regarding surface water monitoring at stations B2 and B4R are noted. No additional information is requested.**

Response: Comment acknowledged.

f. **The revisions to this section of the GWMPE regarding supplemental leachate characterization are noted. No additional information is requested.**

Response: Comment acknowledged.

14. **Section 7 – Landfill Design and Operation Effectiveness: The revisions to this section of the GWMPE regarding the proposed changes to the monitoring plan are noted. No additional information is requested.**

Response: Comment acknowledged.

If you have any questions about the information provided, please do not hesitate to contact us.

Sincerely,

Robert L. Westly
Senior Hydrogeologist
SCS ENGINEERS

John A. Banks, P.E.
Project Director
SCS ENGINEERS

JAB/RJD:jlh
Enclosures

cc: Gary Bennett, Sarasota County
Susan Pelz, P.E., FDEP Tampa
John Morris, P.G., FDEP Tampa

SCS ENGINEERS

SHEET ______ OF ______

CLIENT Sarasota Co.	PROJECT Operations Plans	JOB NO.
SUBJECT Evaluate Letdown Pipe Sizing	BY TAB	DATE 9/16/02
	CHECKED [illegible]	DATE 9/16/02

Assumptions: 1) Temporary Letdown Pipes

2) Sodded Intermediate Cover

3) No Capping

4) 25 year - 24 hour Storm event

5) Plateau Areas will be roughly graded 2% slope poor grass CN = 74

6) Side slopes will be 3:1 sloped with good sod CN = 98

7) Maximum Contributing Area on top Plateau is 3.75 acres (See Attached Figure)

8) Review Total Flow at near build-out conditions

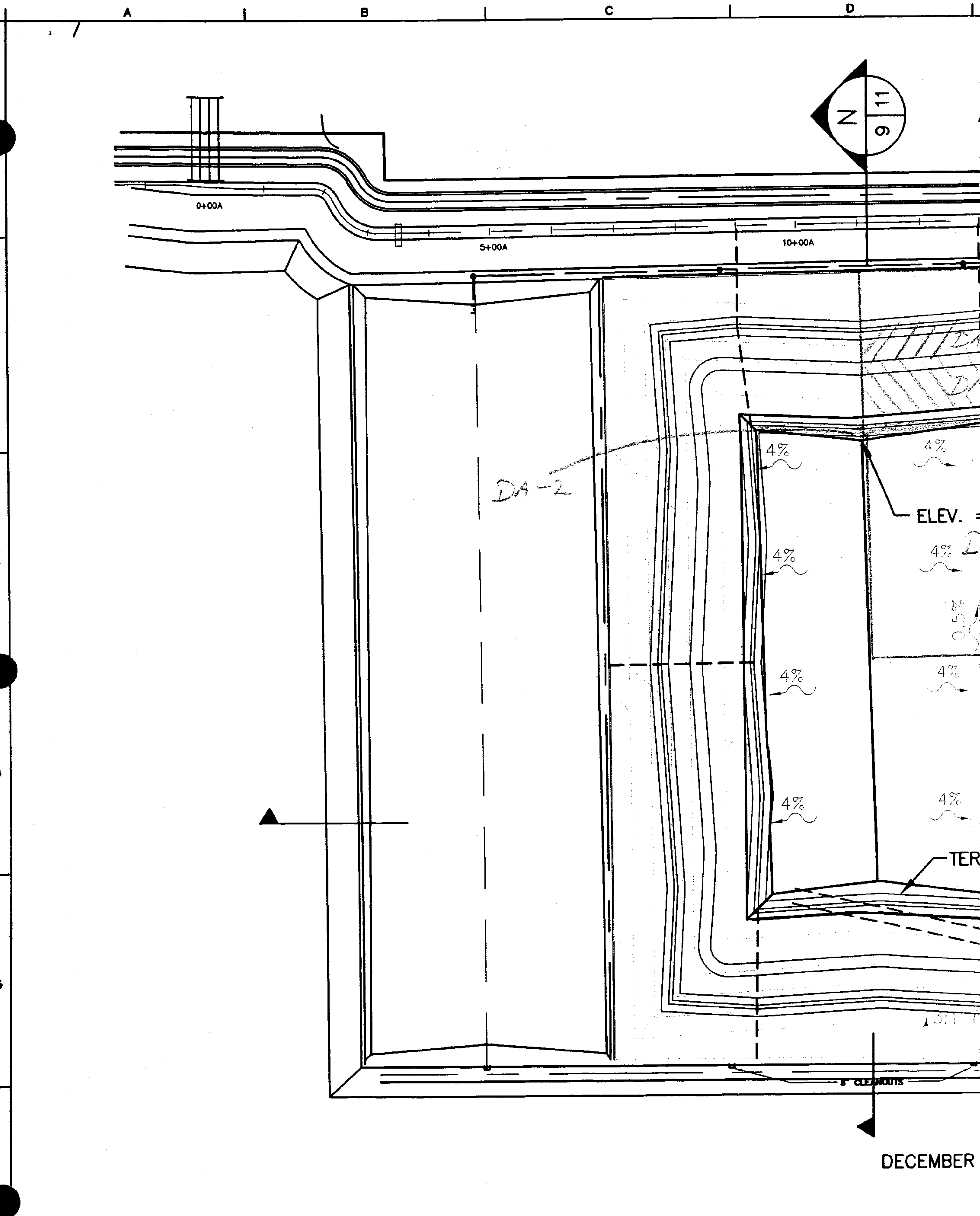
Results:

1) Peak flow in letdown pipes under the above assumptions is 19 cfs

2) Peak flow without top contributing area is 13 cfs

3) The hydraulic capacity of the lowest segment of pipe at 18-inch diameter and 3:1 slope is approximately 66 cfs

4) Factor of Safety is approx. 3.5



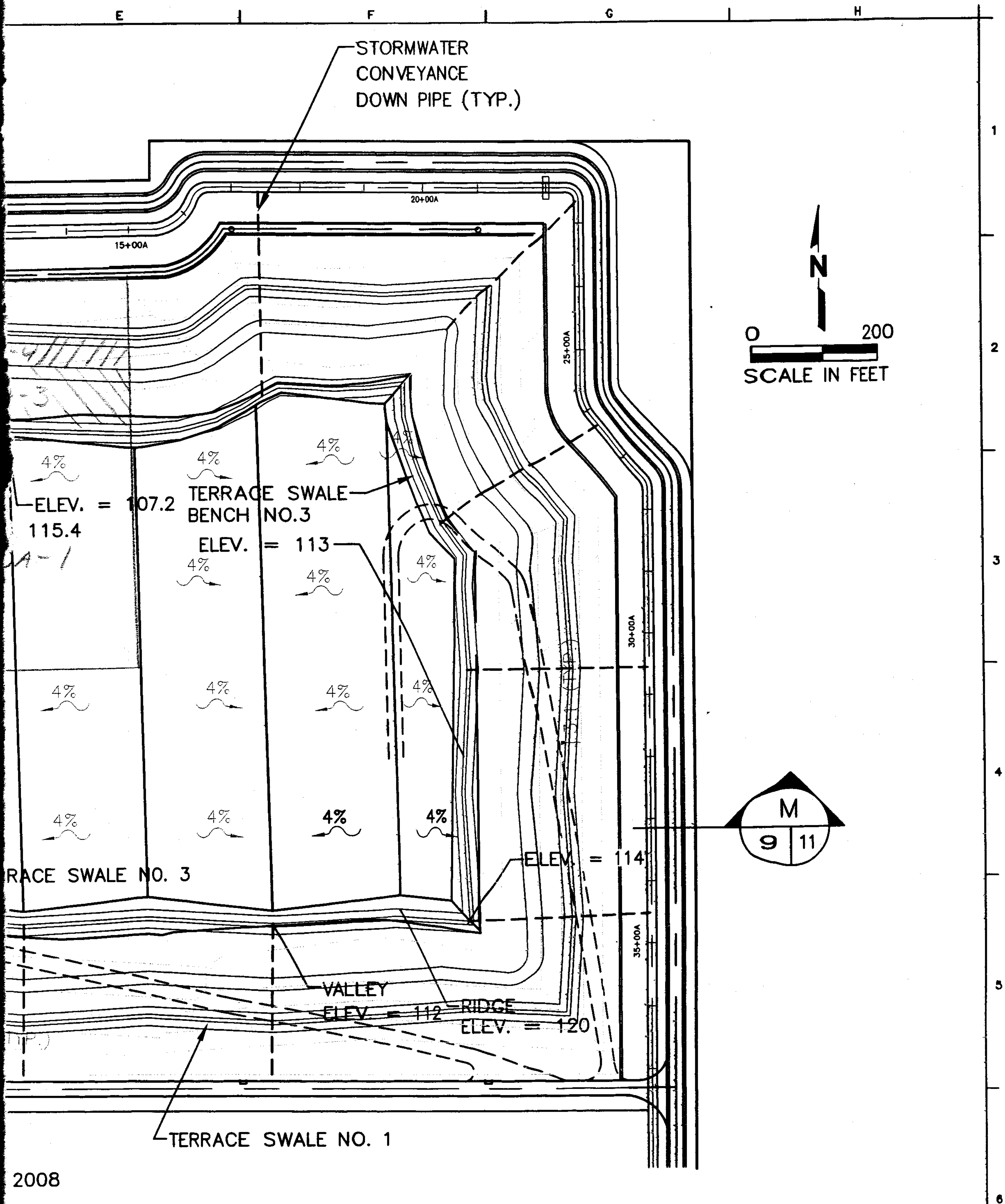
:\PROJECT\Sarasota\09201041.00\PHASES.dwg 07/26/2002 12:02:50 PM EDT

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
3012 U.S. HWY. 301 NORTH, SUITE 700, TAMPA, FL 33619
PH (813) 621-0080 FAX NO. (813) 623-6757

Revisions

No.	Description	Date	By	No.	Description	Date

A B C D



2008

By	Approved By:	RBG
	Checked By:	JAB
	Drawn By:	GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

Drawing No. 09201041.00\PHASES.dwg		
Scale:	As Shown	Sheet Number: 11
Date:	JANUARY 28, [illegible]	

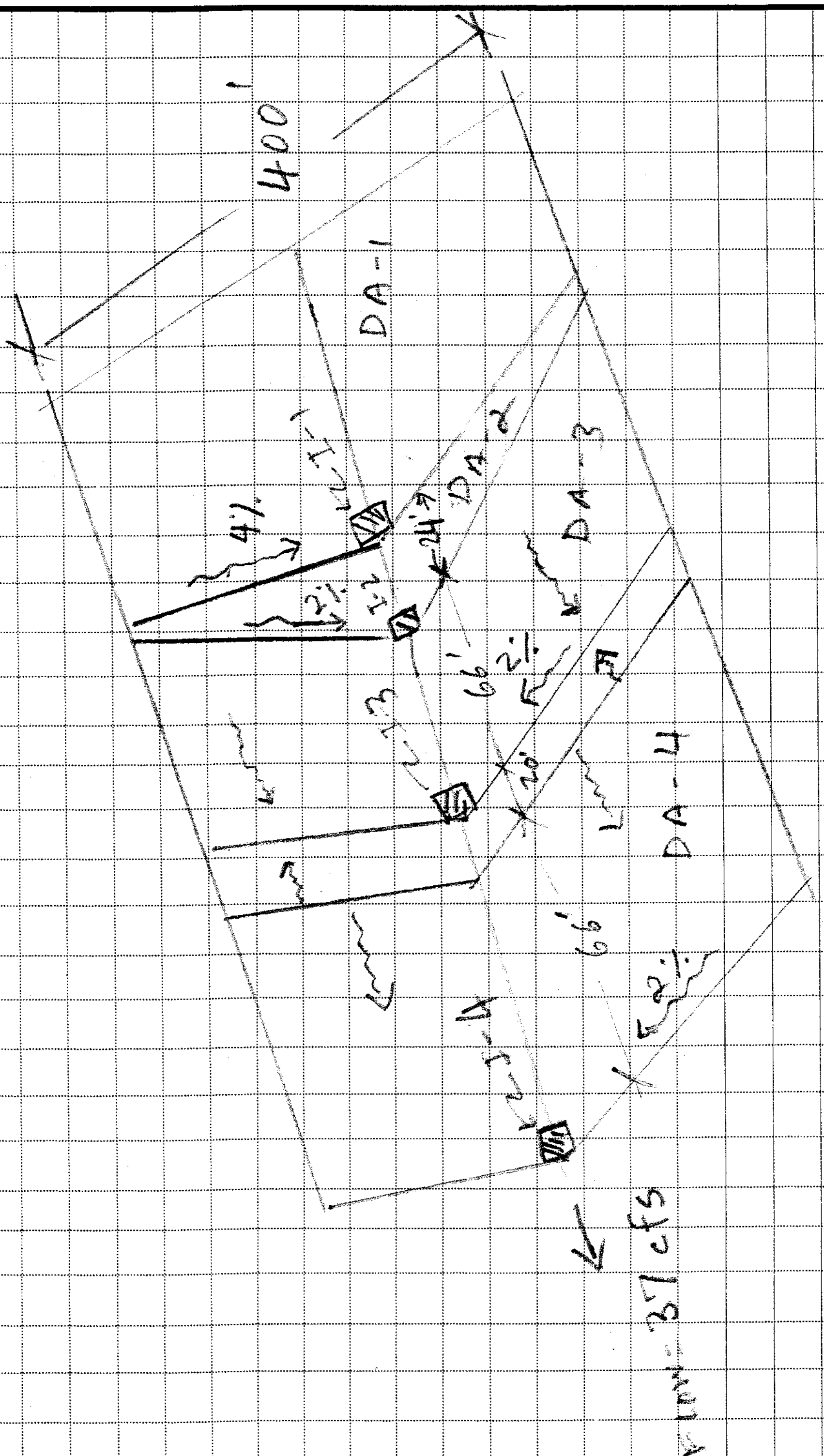
RUNOFF COMPUTATIONS
METHOD TR-55

SCS ENGINEERS

SHEET 1 OF 1

CLIENT	PROJECT	JOB NO.
WMI	SARASOTA - FILL SEQUENCE	09201010.01

SUBJECT	BY	DATE
DRAINAGE AREA MODEL	MMM	9/12/02
	CHECKED DB	DATE 9/16/02



DRAINAGE AREA	AREA (ACRES)
1	3.7
2	0.11
3	0.72
4	0.61

SCS ENGINEERS

Client WMI		Project Sarasota Fill Sequencing	Job No. 0920101.01
Subject Summary of Drainage Calculations		By MMM	Date 9/16/02
			Checked Date 9/16/02

Rainfall: SCS, Type III
25-yr, 24-hr. Rainfall = 9.5 in.
Peak flow at outfall = 19.0 cfs

Basin Name	Drainage Area, A (acres)	Slope Condition	Curve Number	Time of Concentration (hr.)	Peak Flow (cfs)
DA-1	3.70	enerally Flat, 2-4	74	0.45	15.0
DA-2	0.11	Steep, 33%	98	0.04	1.0
DA-3	0.72	Steep, 33%	98	0.06	7.0
DA-4	0.61	Steep, 33%	98	0.06	6.0

RUNOFF CURVE NUMBER COMPUTATION Version 2.10

Project : WMI-Sarasota Fill Sequencing User: MMM Date: 09-13-2002
County : Sarasota State: FL Checked: ____ Date: ________
Subtitle: Flow Computation For Drainage Subareas (With Inflow From Top)
Subarea : 1

COVER DESCRIPTION	Hydrologic Soil Group A	B	C	D
		Acres (CN)		
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Open space (Lawns,parks etc.)				
Good condition; grass cover > 75%	-	-	3.7(74)	-
Total Area (by Hydrologic Soil Group)			3.7 ====	

SUBAREA: 1 TOTAL DRAINAGE AREA: 3.7 Acres WEIGHTED CURVE NUMBER: 74

RUNOFF CURVE NUMBER COMPUTATION Version 2.10

Project : WMI-Sarasota Fill Sequencing User: MMM Date: 09-13-2002
County : Sarasota State: FL Checked: ____ Date: ________
Subtitle: Flow Computation For Drainage Subareas (With Inflow From Top)
Subarea : 2

COVER DESCRIPTION	Hydrologic Soil Group A	B Acres (CN)	C	D
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Impervious Areas				
Paved parking lots, roofs, driveways	-	-	-	.11(98)
Total Area (by Hydrologic Soil Group)				.11

SUBAREA: 2 TOTAL DRAINAGE AREA: .11 Acres WEIGHTED CURVE NUMBER: 98

RUNOFF CURVE NUMBER COMPUTATION — Version 2.10

Project : WMI-Sarasota Fill Sequencing — User: MMM — Date: 09-13-2002

County : Sarasota — State: FL — Checked: ____ — Date: ________

Subtitle: Flow Computation For Drainage Subareas (With Inflow From Top)

Subarea : 3

COVER DESCRIPTION	Hydrologic Soil Group A	B	C	D
	Acres (CN)			
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Impervious Areas				
Paved parking lots, roofs, driveways	-	-	-	.72(98)
Total Area (by Hydrologic Soil Group)				.72

SUBAREA: 3 — TOTAL DRAINAGE AREA: .72 Acres — WEIGHTED CURVE NUMBER: 98

RUNOFF CURVE NUMBER COMPUTATION Version 2.10

Project : WMI-Sarasota Fill Sequencing User: MMM Date: 09-13-2002
County : Sarasota State: FL Checked: ____ Date: ________
Subtitle: Flow Computation For Drainage Subareas (With Inflow From Top)
Subarea : 4

COVER DESCRIPTION	Hydrologic Soil Group A	B	C	D
	Acres (CN)			
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Impervious Areas				
Paved parking lots, roofs, driveways	-	-	-	.61(98)
Total Area (by Hydrologic Soil Group)				.61

SUBAREA: 4 TOTAL DRAINAGE AREA: .61 Acres WEIGHTED CURVE NUMBER: 98

TIME OF CONCENTRATION AND TRAVEL TIME Version 2.10

Project : WMI-Sarasota Fill Sequencing User: MMM Date: 09-13-2002

County : Sarasota State: FL Checked: ____ Date: ________

Subtitle: Flow Computation For Drainage Subareas (With Inflow From Top)

Subarea #1 - 1

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	5	200	.04	F					0.251
Shallow Concent'd		800	.005	u					0.195

Time of Concentration = 0.45*

Subarea #2 - 2

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	5	24	.33	F					0.020
Open Channel		200						3	0.019

Time of Concentration = 0.04*

Subarea #3 - 3

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	5	66	.33	F					0.044
Open Channel		200						3	0.019

Time of Concentration = 0.06*

Subarea #4 - 4

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	5	66	.33	F					0.044
Open Channel		200						3	0.019

Time of Concentration = 0.06*

--- Sheet Flow Surface Codes ---

A Smooth Surface
B Fallow (No Res.)
C Cultivated < 20 % Res.
D Cultivated > 20 % Res.
E Grass-Range, Short
F Grass, Dense
G Grass, Burmuda
H Woods, Light
I Woods, Dense
J Range, Natural

--- Shallow Concentrated ---
--- Surface Codes ---
P Paved
U Unpaved

* - Generated for use by TABULAR method

TABULAR HYDROGRAPH METHOD Version 2.10

Project : WMI-Sarasota Fill Sequencing User: MMM Date: 09-13-2002

County : Sarasota State: FL Checked: ____ Date: ________

Subtitle: Flow Computation For Drainage Subareas (With Inflow From Top)

Total watershed area: 0.008 sq mi Rainfall type: III Frequency: 25 years

	Subareas 1	2	3	4
Area(sq mi)	0.01*	0.00*	0.00*	0.00*
Rainfall(in)	9.5	9.5	9.5	9.5
Curve number	74*	98*	98*	98*
Runoff(in)	6.29	9.26	9.26	9.26
Tc (hrs)	0.45*	0.04*	0.06*	0.06*
(Used)	0.40	0.10	0.10	0.10
TimeToOutlet	0.02	0.01	0.00	0.00
(Used)	0.10	0.00	0.00	0.00
Ia/P	0.07	0.00	0.00	0.00
(Used)	0.10	0.10	0.10	0.10

Time (hr)	Total Flow	Subarea Contribution to Total Flow (cfs) 1	2	3	4
11.0	1	1	0	0	0
11.3	1	1	0	0	0
11.6	3	1	0	1	1
11.9	6	2	0	2	2
12.0	7	2	0	3	2
12.1	12	3	1P	4	4
12.2	18	4	1	7P	6P
12.3	18	6	1	6	5
12.4	18	10	1	4	3
12.5	18	13	0	3	2
12.6	19P	15P	0	2	2
12.7	17	15	0	1	1
12.8	15	13	0	1	1
13.0	11	9	0	1	1
13.2	7	5	0	1	1
13.4	6	4	0	1	1
13.6	5	3	0	1	1
13.8	3	2	0	1	0
14.0	3	2	0	1	0
14.3	2	2	0	0	0
14.6	2	2	0	0	0
15.0	2	2	0	0	0
15.5	1	1	0	0	0
16.0	1	1	0	0	0
16.5	1	1	0	0	0
17.0	1	1	0	0	0
17.5	1	1	0	0	0
18.0	1	1	0	0	0
19.0	1	1	0	0	0
20.0	0	0	0	0	0
22.0	0	0	0	0	0
26.0	0	0	0	0	0

P - Peak Flow   * - value(s) provided from TR-55 system routines

RUNOFF CURVE NUMBER COMPUTATION Version 2.10

Project : WMI-Sarasota Fill Sequencing User: MMM Date: 09-13-2002
County : Sarasota State: FL Checked: ____ Date: ________
Subtitle: Flow Computation For Drainage Subareas (With No Inflow From Top)
Subarea : 1

COVER DESCRIPTION	Hydrologic Soil Group A	B	C	D
	Acres (CN)			
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Impervious Areas				
Paved parking lots, roofs, driveways	-	-	-	.11(98)
Total Area (by Hydrologic Soil Group)				.11

SUBAREA: 1 TOTAL DRAINAGE AREA: .11 Acres WEIGHTED CURVE NUMBER: 98

RUNOFF CURVE NUMBER COMPUTATION Version 2.10

Project : WMI-Sarasota Fill Sequencing User: MMM Date: 09-13-2002

County : Sarasota State: FL Checked: ____ Date: ________

Subtitle: Flow Computation For Drainage Subareas (With No Inflow From Top)

Subarea : 2

COVER DESCRIPTION	Hydrologic Soil Group A	B	C	D
	Acres (CN)			
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Impervious Areas				
Paved parking lots, roofs, driveways	-	-	-	.72(98)
Total Area (by Hydrologic Soil Group)				.72

SUBAREA: 2 TOTAL DRAINAGE AREA: .72 Acres WEIGHTED CURVE NUMBER: 98

RUNOFF CURVE NUMBER COMPUTATION Version 2.10

Project : WMI-Sarasota Fill Sequencing User: MMM Date: 09-13-2002
County : Sarasota State: FL Checked: ____ Date: ________
Subtitle: Flow Computation For Drainage Subareas (With No Inflow From Top)
Subarea : 3

COVER DESCRIPTION	Hydrologic Soil Group A	B	C	D
		Acres (CN)		
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Impervious Areas				
Paved parking lots, roofs, driveways	-	-	-	.61(98)
Total Area (by Hydrologic Soil Group)				.61

SUBAREA: 3 TOTAL DRAINAGE AREA: .61 Acres WEIGHTED CURVE NUMBER: 98

TIME OF CONCENTRATION AND TRAVEL TIME   Version 2.10

Project : WMI-Sarasota Fill Sequencing   User: MMM   Date: 09-13-2002
County : Sarasota   State: FL   Checked: ____   Date: ________
Subtitle: Flow Computation For Drainage Subareas (With No Inflow From Top)

Subarea #1 - 1

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	5	24	.33	F					0.020
Sheet		200	.02	F					0.331

Time of Concentration = 0.35*

Subarea #2 - 2

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	5	66	.33	F					0.044
Open Channel		200						3	0.019

Time of Concentration = 0.06*

Subarea #3 - 3

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	5	66	.33	F					0.044
Open Channel		200						3	0.019

Time of Concentration = 0.06*

--- Sheet Flow Surface Codes ---

A Smooth Surface
B Fallow (No Res.)
C Cultivated < 20 % Res.
D Cultivated > 20 % Res.
E Grass-Range, Short
F Grass, Dense
G Grass, Burmuda
H Woods, Light
I Woods, Dense
J Range, Natural

--- Shallow Concentrated ---
--- Surface Codes ---

P Paved
U Unpaved

* - Generated for use by TABULAR method

TABULAR HYDROGRAPH METHOD Version 2.10

Project : WMI-Sarasota Fill Sequencing User: MMM Date: 09-13-2002
County : Sarasota State: FL Checked: ____ Date: ________
Subtitle: Flow Computation For Drainage Subareas (With No Inflow From Top)

Total watershed area: 0.002 sq mi Rainfall type: III Frequency: 25 years

	Subareas 1	2	3
Area(sq mi)	0.00*	0.00*	0.00*
Rainfall(in)	9.5	9.5	9.5
Curve number	98*	98*	98*
Runoff(in)	9.26	9.26	9.26
Tc (hrs)	0.35*	0.06*	0.06*
(Used)	0.30	0.10	0.10
TimeToOutlet	0.02	0.01	0.00
(Used)	0.10	0.00	0.00
Ia/P	0.00	0.00	0.00
(Used)	0.10	0.10	0.10

Time (hr)	Total Flow	Subarea Contribution to Total Flow (cfs) 1	2	3
11.0	0	0	0	0
11.3	0	0	0	0
11.6	2	0	1	1
11.9	4	0	2	2
12.0	5	0	3	2
12.1	8	0	4	4
12.2	13P	0	7P	6P
12.3	11	0	6	5
12.4	8	1P	4	3
12.5	6	1	3	2
12.6	5	1	2	2
12.7	3	1	1	1
12.8	2	0	1	1
13.0	2	0	1	1
13.2	2	0	1	1
13.4	2	0	1	1
13.6	2	0	1	1
13.8	1	0	1	0
14.0	1	0	1	0
14.3	0	0	0	0
14.6	0	0	0	0
15.0	0	0	0	0
15.5	0	0	0	0
16.0	0	0	0	0
16.5	0	0	0	0
17.0	0	0	0	0
17.5	0	0	0	0
18.0	0	0	0	0
19.0	0	0	0	0
20.0	0	0	0	0
22.0	0	0	0	0
26.0	0	0	0	0

P - Peak Flow   * - value(s) provided from TR-55 system routines

Table 2-2a.—Runoff curve numbers for urban areas[1]

Cover description		Curve numbers for hydrologic soil group—			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.)[3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only)[4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)[5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

[1]Average runoff condition, and $I_a = 0.2S$.
[2]The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.
[3]CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.
[4]Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.
[5]Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4, based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

CIRCULAR PIPE CAPACITY

SCS ENGINEERS

Client WMI	Project Sarasota Fill Sequencing	Job No. 092010101.	
Subject Pipe Capacity Calculation		By MMM	Date 9/16/02
		Checked	Date

CIRCULAR PIPE FLOW COMPUTATIONS

Assumptions:

Select a smooth pipe, PVC	
Pipe Length =	66.0 Ft
Pipe Diameter, D =	18 inches
Slope =	0.33 Ft/Ft
Manning's Roughness Coeff., "n" =	0.012

Calculate Flow and Velocity:

Pipe Capacity (full), Q = A * V

Velocity (pipe full), V = $\dfrac{1.49\,(R^{2/3} * S^{1/2})}{n}$

where:

V = Velocity of pipe, in feet per second
A =Cross-sectional area of pipe, in square foot
n = Coefficient of roughness for pipe
R = Hydraulic radius of pipe = A/WP, in feet
S = Friction for flow in pipe in foot per foot
WP = Wetted perimeter within pipe, in feet

Known parameters:

D =	1.50 ft.
R = (pipe diameter/4)	0.38 ft.
V (full) =	37.30 ft./sec
Q (full) =	65.92 cfs

Use Chart 1 (Atached) to obtain velocity for pipe flowing less than full:

Q (peak flow from TR55 calculations, attached) =	19.0 cfs
Q (full) =	65.9 cfs
Ratio of Q (actual) to Q (full) =	0.29
Ratio of V (actual) to V (full) from chart (attached) =	0.72
V (actual) =	27 ft/sec

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SCS ENGINEERS

July 26, 2002
File No. 09201010.01

Kim Ford, P.E.
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-2242

Subject: CCSWDC Landfill - Operation Permit Renewal
Pending Permit No.: 130542-002-SO, Sarasota County

Dear Mr. Ford:

Enclosed per John Morris' request on July 24, 2002 are the following revised pages of selected Operation Permit Renewal documents. We provided these to Mr. Morris via e-mail and fax.

- Pages 15 and 16 of the response letter originally dated 6/28/02.
- Section 2 of the Groundwater Monitoring Plan Addendum.
- Table 4-1a & b of the Groundwater Monitoring Plan Addendum.
- Table 6-1 of the Groundwater Monitoring Plan Evaluation Revised.

Please replace your original pages with these revised pages. If you have any questions about the information provided, please do not hesitate to contact us.

Sincerely,

Robert L. Westly
Senior Hydrogeologist
SCS ENGINEERS

John A. Banks, P.E.
Project Director
SCS ENGINEERS

JAB/RJD:jlh
Enclosures

cc: Gary Bennett, Sarasota County
Susan Pelz, P.E., FDEP Tampa
John Morris, P.G., FDEP Tampa

other detection wells and the background wells. It does not appear that the data supports the assertion that iron is not likely related to operations of the CCSWDC.

__Response__: See response to 10. b. regarding MW-8 and MW-9. MW-10 is farther from cell 2 than MW-9 and, consequently, there has been insufficient time for groundwater quality at MW-10 to be impacted by the landfill.

4) **It does not appear that the data supports the assertion that elevated concentrations of sodium were reported at detection well MW-11.**

__Response__: Acknowledged. The text has been revised.

5) **It is indicated that TDS occurs naturally in the surficial aquifer at the facility, however elevated TDS concentrations were not reported at all monitor wells (MW-4, MW-11 and MW-12). The localized occurrence of elevated TDS concentrations is not explained by this assertion.**

__Response__: Background data indicate TDS occurs naturally and varies from location to location. SCS further assessed the potential cause for the variability by reviewing available hydrogeologic reports for the region and performing a one-day evaluation of groundwater conductivity in the vicinity of MW-1. The results are included in Appendix D of the Groundwater Monitoring Plan Evaluation. SCS concludes that background TDS is variable and exceeds the drinking water standard at various locations unrelated to landfilling operations.

6) **It is indicated that elevated concentrations of vanadium were reported at well MW-4. Please indicate if the text should have referred to well MW-8. It does not appear that the data supports the assertion that the results of vanadium for all the other monitor wells were reported below the detection limit.**

__Response__: Agreed. The text for vanadium has been revised as follows: *"Vanadium was detected above the groundwater clean-up target level only at MW-8. Vanadium was observed at other monitoring wells below the target level and often below detection limits."*

c. **The discussion of trend analysis provided for some of the parameters appears to be inconsistent with the data provided by Sarasota County for**

the semi-annual sampling events and the plots provided in Appendix B. Please review the results for the following parameters and revise as appropriate:

1) **The discussion does not indicate that ammonia concentrations reported for detection wells MW-8, MW-9 and MW-10 appear to be significantly different than reported for the background wells.**

   <u>Response</u>: Ammonia was detected above the groundwater clean-up target level at MW-9 before the construction of the Class I landfill. However, the elevated concentrations of ammonia in MW-8 and MW-10 during the sampling events after the construction of the Class I landfill would not have been related to the landfill operations because there would have been insufficient time for potentially impacted groundwater to reach MW-8 and MW-10. The yard waste compost area to the south of MW-8 and MW-9 may be a contributing factor to groundwater quality at MW-8 and MW-9. Drainage from the yard waste compost area could be flowing towards MW-8 and MW-9, which could possibly be contributing to the presence of other constituents.

2) **It is indicated that the elevated concentrations of chloride, sodium and TDS at well MW-1 suggest the presence of mineralized ground water. However, it appears that insufficient data has been collected to distinguish between mineralized ground water and landfill leachate. The discussion does not indicate why relatively elevated concentrations of chloride, sodium and TDS are limited to the vicinity of well MW-1. The plot of sodium concentrations appears to omit the result for well MW-1 for the May 24, 1994 sampling event.**

   <u>Response</u>: SCS further assessed the potential cause for the elevated levels of chloride, sodium, and TDS by reviewing available hydrogeologic reports for the region and performing a one-day evaluation of groundwater conductivity in the vicinity of MW-1. The results are included in Appendix D of the Groundwater Monitoring Plan Evaluation. The plot of sodium concentrations for MW-1 has been revised to include the May 24, 1994 sampling event.

3) The discussion does not indicate that iron concentrations reported for detection wells MW-8, MW-9 and MW-10 appear to be significantly different than reported for the background wells.

   <u>Response</u>: Iron was detected above the secondary drinking water

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SCS ENGINEERS

June 28, 2002
File No. 09201010.01

Kim Ford, P.E.
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-2242

RECEIVED
JUN 28 2002
Department of Environmental Protection
SOUTHWEST DISTRICT
BY

Subject: CCSWDC Landfill - Operation permit Renewal
Pending Permit No.: 130542-002-SO, Sarasota County

Dear Mr. Ford:

On behalf of Sarasota County, SCS Engineers (SCS) submits the following responses to your request for additional information in a letter to Mr. Gary Bennett, dated March 29, 2002. For ease of review, the FDEP comments are in bold, followed by our response.

1. **62-701.320(7). Specific references for the location of documents or copies for the following: a) boundary survey; b) proof of ownership - deeds with legal description; c) description of recycling activities including a list of all recyclable materials collected at the site and a description of management procedures for each.**

   Response: Copies of the boundary survey and proof of property ownership are provided herein for inclusion in the permit application as Attachment E-3. A description of recycling activities is provided in the enclosed revised Section L Operations Plan, Attachment L-13.

2. **62-701.320(10). Revisions to the referenced documents. Supporting information for this pending permit renewal contains references to previous applications and Engineering Reports, and provides revisions, a) Reaffirm that the parts of the referenced documents that were not revised are still valid. b) Changes in the text being submitted as revisions should be provided as replacement pages with page numbers and the date of revision.**

   Response: A new Operations Plan is provided herein in its entirety as Section L of the permit application.

3. **62-701.330 (3) (d). Topographic map. a) An aerial (not more than1 year old) and topographic map with a scale not greater than 200 feet to the inch with 5-foot (or less) contour intervals is requested. This topographic map should verify landfill development in conformance with design drawings. b) Some of the referenced Attachment 10 Operation Drawings have been revised. One full sized set and one**

reduced set (for use as an attachment to the operations plan) with all revisions are requested. c) Plan views showing grades required for proper drainage along terrace swales are requested. d) Typical details for all temporary and permanent drainage devices (letdown structures, terraces, beams and swales) to convey stormwater from the top and sides of filled areas without erosion are requested.

Response: Attachment E-1 now includes the topographic map enclosed herein as requested. The Operations Plan, Attachment L-3 includes a complete set of the Operations Drawings.

4. **62-701.400(2). Drawings to show a) those areas including berms and sideslopes that have been filled to design dimensions; and b) following the proposed sequence for filling, which areas can be closed first.**

Response: The existing topographic map in Attachment E-1 provides the areas filled to design dimensions. The Operations Drawing in Attachment L-3 will show the proposed sequence of filling. The fill sequence drawings will be submitted in the near future.

5. **62-701.400(6) (c). Clarification regarding the above ground leachate storage tank including: a) a description of provisions for the removal of accumulated precipitation from the secondary containment area within 24 hours or when 10 percent of the storage capacity is reached, whichever occurs first, and b) a copy of the most recent inspection report for the interior inspection of the tank (not more than 3 years old) showing all items of deficiency have been corrected.**

Response: This information is provided in the revised Operations Plan Part L.2.h(2). The inspection report is included in Attachment L-7.

6. **62-701.400 (10) . Gas control system. Documentation is required to demonstrate that the landfill is exempt from installation of a gas control system and to verify that the landfill is in compliance with the air requirements listed in specific conditions #41 of the current solid waste operation permit.**

Response: Please see the attached letter provided to Sarasota County by SCS Engineers, confirming that the County will remain below regulatory thresholds for installation of a control system through 2005. Part L.2.h.1 of the Operations Plan has been updated to reflect this information.

7. **62-701.410(2). Specific references for the location of all related geotechnical reports and supporting documents (or copies).**

<u>Response</u>: A copy of the referenced report is provided herein. Section J of the Application is revised to refer to the specific report.

8. **62-101.500. A comprehensive operations plan. Upon completion of all revisions prior to permit renewal, the entire Operations Plan and its attachments should be resubmitted (without strikethroughs and underlining) with the date of the most recent revisions on each page.**

<u>Response</u>: As discussed above, a revised Section L, Operations Plan, with all attachments is provided herein.

9. **62-101.500(1). Training plan for landfill operators and spotters, a) This plan must demonstrate compliance with 62-701.320(15), (reference to 62-703 should be deleted). b) Confirm that <u>at least</u> one trained spotter will be at <u>each</u> working face at all times when the landfill receives waste to detect unauthorized wastes <u>from each load</u>. c) Describe how spotters will identify and manage any hazardous or prohibited materials. d) Include a list and schedule of classes that will be attended for training.**

<u>Response</u>: A landfill operator and spotter training plan is provided as Attachment L-1 to the Operations Plan. Methods for controlling unauthorized wastes are described in the Operations Plan part L.2.c.

10. **62-701.500 (2) (b). The referenced contingency plan appears to contain less detail for related activities than the operations plan. All relevant and current information should be included either as revisions to the referenced plan or as part of the new operations plan.**

<u>Response</u>: A revised Contingency Plan is included as Attachment L-2.

11. **62-701.500(2)(C). A list of all recyclable materials received at the site and a description of related management procedures for each.**

<u>Response</u>: A list of all recyclable materials received at the site and management procedures for each are included in Attachment L-13, Recycling Plan.

12. **62-101.500 (2) (f). The referenced drawings for the sequence of filling should be confirmed still valid or revised, and provided as part of the operations plan. What is the percent slope to be used for the top of each lift?**

<u>Response</u>: The top of each lift shall be 2 percent. Revised sequence of filling plans

will be submitted in the near future and included in Attachment L-3, Operation Drawings.

13. **62-701.500(2) (h). The referenced drawing of the leachate collection system should be provided as part of the operations plan. How will ponding of water within the containment berms be prevented?**

Response: The leachate collection system drawings are included in Attachment L-3. Some ponding behind the containment berms will occur after heavy rainfall. Prolonged ponding will be prevented by pumping the water to the sand drainage layer of leachate cleanout pipe. This is described in Part L.7.k. of the Operations Plan.

14. **62-701.500 (2) (j) A description for cleaning of the leachate collection system is requested.**

Response: The leachate collection system shall be cleaned at least once every five years as part of the video inspection process. This is described in Part L.8.h of the Operations Plan.

15. **62-701.500(3). A list of the documents to be kept as part of the operating record is requested.**

Response: The list is provided Part L.3 of the Operations Plan.

16. **62-101.500(6). The load checking inspection form should be included as an attachment to the operations plan.**

Response: This is included as Attachment L-5, Waste Load Inspection and Reporting Form.

17. **62-701.500(7)(e). A description and specifications for each type of initial cover are requested.**

Response: The requested information is provided as Attachment L-10, Initial Cover Specifications.

18. **62-701.500 (7)(g). Timeframes for applying final cover are requested. When will the first portion of Phase I (such as external slopes) be completed to designed dimensions? Confirmation of conformance to designed dimensions and details for filled portions of Phase I is requested.**

Response: Based on the existing topographic survey included in Attachment E-1, the landfill has been constructed substantially in accordance with the design dimensions. The areas completed to final design dimensions are highlighted on this drawing. The County proposed applying final cover to the north and east slopes of the landfill after June 2006. This will be shown in the Operation Drawings to be submitted in the near future and included in Attachment L-3.

19. **62-101.500(7)(j) Clarification regarding erosion control. a) Is stormwater management for unused cells controlled "by grading" or use of rain cell covers? b) The list of stormwater management controls for used cells should include 1) maintaining internal and external berms and 2) the use of terraces and letdown pipes. How will temporary tarps be used to separate stormwater from waste over waste filled areas? d) Typical details on a drawing for each type of erosion control and stormwater management control are requested.**

Response: Stormwater is managed on unused cells by pumping stormwater into the perimeter stormwater management system. Temporary tarps are not proposed for separation of stormwater over filled areas. Attachment L-3, Operations Drawings, provides typical details for erosion control and stormwater management features.

20. **62-701.500 (8) (g). The leachate report form should be included as an attachment to the operations plan.**

Response: This information is provided in Attachment L-11, Leachate Report Form and LCRS Inspection Form..

21. **62-701.500 (8) (h). The results of the most recent leachate collection systems cleaning and inspection are requested.**

Response: This information is provided in Attachment L-11, Leachate Report Form and LCRS Inspection Form.

22. **62-701.500(9). clarification regarding gas monitoring to demonstrate compliance with 62-701.530(2). a) Why is gas monitoring probe GP-4 located as shown on Figure L-1? Gas probes should be located between the Class I landfill and on-site structures. b) A gas probe should be located between the landfill and the material recovery facility. c) Why are the gas probes designed with such a large pipe screen so close to the surface? Typical details for gas probes show less than a 2—inch diameter pipe and a bentonite layer separating the screen from the surface. d) The design for a typical "temporary monitoring station" is requested. e) The reference to "property boundary" is unclear. The Department should be notified if the LEL is 100% or greater in any of the external gas probes located along the special exception boundary. f) What specific areas inside each structure will be**

monitored?

Response: Figure L-1 in Attachment L-3 is revised to show a new proposed location for GP-4. Figure L-4 LFG monitor probe is revised to reflect the gas probe design. The reference in the Operations Plan to temporary monitor station is changed to temporary monitor probe and the design will be the same as the new Figure L-4. The reference to property boundary is changed to "any monitor probe". Inside structures; low area, base boards, floor drains and floor mounted cabinets will be monitored.

23. **62-701.500, .510, and .530. Responses and required supporting information in response to Mr. John Morris' March 28, 2002 memorandum (attached). You way call Mr. Morris at (813) 744-6100, extension 336 to discuss the items in his memorandum.**

Response: Please see responses to the March 28, 2002 following response #24.

24. **62-701.900(1). Revisions to the application form. Section B.3. should indicate that total acres and available acres for Phase I only since only Phase I has been constructed.**

Response: This has been revised and a revised application form Section B is provided herein.

Please provide all responses that relate to engineering required for design and operation, signed and sealed by a professional engineer. All descriptions of operational procedures provided as part of responses should be included as revisions to the Operations Plan (Section L).

Responses to your request for additional information in a memo to Mr. Kim Ford from Mr. John Morris, dated March 28, 2002 follow (Item #23).

SECTION B – DISPOSAL FACILITY GENERAL INFORMATION

1. **B.12.: It is indicated that the property is recorded as a disposal site in the County Land Records. Please indicate if this has been done to complete the requirements of Rule 62-701.610(5), F.A.C. Please also provide a certified copy of the County record including the legal description and a scale-drawn map for that part of the property that has been so recorded.**

Response: Please see Attachment E-3 (enclosed) which provides the legal description of the special exception area approved by the Sarasota Board of County Commissioners.

<u>SECTION L – LANDFILL OPERATION REQUIREMENTS</u> (Rule 62-701.500, F.A.C.)
<u>Operations Plan, Sarasota County, Florida, CCSWDC, prepared by SCS Engineers, dated Feb.28, 2002</u>

2. **L.2.h.(2) – Leachate Management System**
   a. **Collection System - Please revise this section to refer to the figure requested in comment No. 5.**

      <u>Response</u>: This revision has been made.

   b. **It is indicated that the stormwater in the secondary containment of the leachate storage tank will be tested for specific conductance to determine the appropriate handling procedures. Please revise this section of the Operations Plan to also indicate that the retained stormwater will be managed as leachate if a visible sheen is present.**

      <u>Response</u>: This revision has been made.

   c. **Please provide a site map that indicates which pond will be checked for specific conductance prior to release of stormwater from the secondary containment of the leachate storage tank. Please also indicate on this site map where the stormwater from the secondary containment of the leachate storage tank will be released.**

      <u>Response</u>: Stormwater Pond No. 4 as shown on Figure L-1 will be checked for specific conductance prior to release of stormwater from the secondary containment of the storage tank. The stormwater from the secondary containment area is released to the stormwater drainage swale east of the tank on the south side of the perimeter road. This swale flows into Stormwater Pond No. 4.

   d. **Please revise this section of the Operations Plan to indicate that a log will be maintained to document releases of uncontaminated stormwater from the secondary containment of the leachate storage tank (date, specific conductance measurements, sheen observation).**

      <u>Response</u>: This revision has been made.

   e. **Leachate Monitoring – Please provide a revised leachate monitoring plan to reflect review comment Nos. 9.b., and 9.c.**

      <u>Response</u>: A revised Leachate Monitoring Plan is included as part of the

Groundwater Monitoring Plan Addendum and provided herein as Section M to the application.

3. **L.2.i. – Ground Water Monitoring System: Please provide a revised ground water monitoring plan to reflect the proposed changes as indicated in comment Nos. 13.a. through 13.f.**

   Response: The Groundwater Monitoring Plan Addendum is enclosed and shall be included as Section M of the Application.

4. **L.8.a. – Leachate Monitoring, Sampling and Analysis: Please revise this section to be consistent with the revisions requested in review comment No. 2.e.**

   Response: This revision has been made.

5. **L.8.b. – Leachate Collection and Removal System: Please provide a leachate sampling figure that reflects Attachment 10, Sheet 14, Detail E of the December 1996 Operations Permit Application for use as a permit figure (no larger than 11 x 14 inches).**

   Response: The figure is included in Attachment L-3, Operation Drawings.

6. **L.9. – Gas Monitoring Program**

   a. **Please indicate how existing gas probes G-4, G-5 and G-6 will be properly abandoned.**

      Response: The above grade protective casing will be removed, the well grouted to ground surface and the remaining pipe cut off at ground surface.

   b. **Please indicate where existing gas monitoring locations GM-6 and GM-7 are located and why it is considered appropriate that these locations no longer be monitored. Please include these locations on Figure L-1 if it is considered appropriate to maintain these gas monitoring locations.**

      Response: We do not understand the reference to GM-6 and GM-7. These gas monitor locations were never proposed or referenced to our knowledge.

   c. **Please revise Figure L-1 to reference the proposed gas probe identification number as GP-4t.**

      Response: The "t" on GP-4 was a typographic error. This has been corrected in the text.

d. **It is indicated that the gas probe locations will monitor subsurface gas migration at the <u>landfill perimeter</u>, but that a gas remediation plan will be submitted to the Department if landfill gas equals or exceeds the LEL at the <u>property boundary</u>. Please note that in the absence of gas probes at the property boundary, the data reported for the existing/proposed gas probes will be used to determine the need to prepare a gas remediation plan.**

<u>Response</u>: Acknowledged. The text has been revised to reflect his understanding.

7. **Attachment L-2 – Contaminated Soil Acceptance Criteria: Please revise the last sentence of this attachment to indicate that contaminated soil accepted at CCSWDC would be directly disposed in the lined active landfill cell, not used as initial cover, and <u>not stockpiled</u> at the site unless authorized in writing by the Department.**

<u>Response</u>: This revision has been made.

<u>SECTION M – WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS</u> (Rule 62-701.510, F.A.C.)

8. **M.1.a. through M.1.h.(2): Please revise each item in this section of the application form to reference the appropriate section in Appendix A (Ground Water Monitoring Plan Evaluation).**

<u>Response</u>: The application form has been revised in accordance with the following responses.

<u>Appendix A – Ground Water Monitoring Plan Evaluation, Central County Solid Waste Disposal Complex, Sarasota County, Florida, prepared by SCS Engineers, dated Feb.28, 2002</u>

9. **Section 2 – Summary of the Ground Water, Surface Water, and Leachate Monitoring Program**

a. **Please revise Note 2 of Table 2-2 to reference the current monitor well identification numbers. Please also revise Note 2 to indicate the date of preparation for the referenced document prepared by Ardaman & Associates, Inc.**

<u>Response</u>: The correct date for the Ardaman & Associates report is March 10, 1992. Note 2 of Table 2-2 has been revised and is included in the

Groundwater Monitoring Plan Evaluation Revision.

b. **It is indicated on Page 2-6 that a composite leachate sample is collected annually from the pump stations located at the landfill cells. Please note that it is not appropriate to collect composite samples for analysis of volatile organic compounds or for measurement of field parameters, and that individual leachate samples shall be required at each pump station of each landfill cell that contains wastes. In the event that the County desires approval from the Department to collect composite leachate samples from the pump stations for the required parameters other than volatile organics and field measurements, please provide a detailed procedure for review. Please provide a revised leachate monitoring plan to reflect these changes and the requirements of Rule 62-701.510(6)(c), F.A.C.**

Response: The leachate monitoring plan has been revised to indicate that field measurements will be performed at every active sump. Further, the leachate monitoring plan has been revised to indicate that the organics samples will be collected at every active sump. A composite sample will be collected from all sumps for analysis of inorganic parameters. A Groundwater Monitoring Plan Addendum is enclosed as Section M to the Application.

c. **Please revise Page 2-6 to indicate that the annual leachate samples shall include analysis of the parameters listed in 40 CFR Part 258, Appendix II.**

Response: The following has been added to Page 2-6: *"In addition, leachate samples are required to be analyzed annually for the parameters listed in 40 CFR Part 258, Appendix II."* This is also included in the enclosed Groundwater Monitoring Plan Addendum.

10. **Section 3 – Previous Land Use Effects on Ground Water at the CCSWDC**

a. **It is indicated that prior use of the property for cattle ranching may have resulted in the possible former use of a cattle dipping vat. It is noted that evidence of a known current cattle dipping vat has not been provided. Please note that in the absence of such a demonstration, the assumption that site-wide occurrences of arsenic in ground water are related to the previous cattle ranching activities cannot be supported.**

Response: Acknowledged. Soil used to construct the landfill may have had an arsenic component to it because soils used for fill were obtained from the property.

The County proposes that the FDEP issue the permit renewal with a specific condition directing the County to demonstrate the presence of arsenic in the soils and provide a report to the FDEP presenting the findings. In response to the condition the County will perform a soil sampling program to evaluate the presence of arsenic in the soils and effect on leachate and groundwater quality.

b. **It is indicated that the ground water data compiled for sampling events conducted at wells P-1 through P-14D prior to construction of the landfill at CCSWDC (Appendix A) indicate the occurrence of several inorganics and metals at detectable concentrations. It is further indicated that when these constituents are observed in the CCSWDC detection wells that it is unlikely that the constituents are related to the operation of the facility. However, as measurements for field parameters and results for quality assurance samples were not provided for the "pre-landfill" sampling events conducted during 1993, the representativeness of the samples cannot be evaluated. It is also noted that the relative concentrations reported for the individual parameters for the "pre-landfill" and "post-landfill" sampling events have not been considered. Please note that of the nine parameters detected in the "pre-landfill" sampling events, the occurrences of ammonia, arsenic, chloride and total dissolved solids, at a minimum, bears further evaluation.**

<u>Response</u>: Appendix A lists historical concentrations for the list of parameters on Page 3-1 of the Groundwater Monitoring Plan Evaluation plus total dissolved solids (TDS). The data include test wells prior to landfill construction and monitoring well data prior to and following initiation of landfill operations (June 1998).

These data indicate that by September 1998 (only three months following initiation of landfill operations), maximum values for arsenic, barium, and iron exceeded the pre-landfill ranges for these parameters. By April 2001, zinc also exceeded the pre-landfill ranges. The following summarizes the values:

	September 1998	April 2001
Arsenic:	63 mg/ in MW-9;	44 mg/l in MW-9
Barium:	396 ug/l in MW-8;	150 ug/l in MW-8
Iron:	50.5 mg/l in MW-9;	48 mg/l in MW-8
Zinc:		140 mg/l in MW-8.

MW-9 had relative high concentrations of arsenic in September 1998 and April 2001 (the concentration trend is decreasing with time) and relative high concentrations of iron in September 1998. Filling of the landfill through May 2001 was limited to cells 1 and 2. The closest MW-9 is to cell 2 is 700 feet (to the southwest corner). The maximum horizontal groundwater velocity estimated for the site is 33 feet per year indicating that it would require 21 years for groundwater to move from the southeast corner of cell 2 to MW-9. Consequently, the presence of arsenic and iron at the well are not due to landfilling operations at cells 1 or 2.

MW-8 is located approximately 76 feet from cell 2 and the shortest arrival time for groundwater from the edge of cell 2 would be 2.3 years. Consequently, the occurrence of the relative high concentration of barium in the well in September 1998 (three months following initiation of landfill operations) is not attributable to the presence of the landfill. Concentrations of iron have remained relatively constant between September 1998 and April 2001, so its source is not the landfill.

Zinc concentration is relatively high in the April 2001 sample from MW-8 and cannot currently be explained. However, its concentration remains well below the drinking water standard.

Iron is relatively high in the April 2001 sample from MW-8. However, the highest concentrations of iron in MW-8 are similar to concentrations in MW-9 which are not attributable to the landfill.

Ammonia concentrations are highest in MW-9 during landfill operations sampling events but are below the 1994 measurement. In addition, as previously discussed, there has been insufficient time for groundwater at MW-9 to be impacted by the landfill.

Chloride concentrations have remained relatively constant over the history of water quality data with concentrations in several of the wells highest in sampling events prior to initiation of landfill operations. This fact and the lack of sufficient travel time indicate chloride occurring in the down gradient wells also is not caused by the landfilling operations.

Similar arguments can be made for TDS concentrations. At MW-8, the 1994 sample concentration was lower than all but one of the later samples. However, the September 1998 sample concentration was higher than the subsequent samples. Again the lack of sufficient travel time to reach MW-8 indicates TDS data do not currently indicate groundwater effects caused by landfilling operations.

Additionally, the yard waste compost area to the south of MW-8 and MW-9 may be a contributing factor to groundwater quality at MW-8 and MW-9. Drainage from the yard waste compost area could be flowing towards MW-8 and MW-9, which could possibly be contributing to the presence of other constituents. Section 3 of the Groundwater Monitoring Plan Evaluation has been revised to reflect this statement.

We continue to conclude that, based on the current data, landfilling operations are not detrimentally impacting groundwater quality hydraulically down gradient from landfill cells.

11. Section 4 – Water Quality Monitoring Findings

a. Some of the results provided in Appendix A (Ground Water Quality Data) for the "period of record" appear to be inconsistent with the data provided by Sarasota County for the semi-annual ground water sampling events. Please review the following items and revise as appropriate:

1) All "post-landfill" wells are missing the organic parameters for April 1999.

Response: Appendix A (Groundwater Quality Data) has been updated with the organic parameters values for the April 1999 sampling event.

2) **MW-1:** **Conductivity for November 1999**
TDS for October 2000
Turbidity for October 2000
MW-2: **Nitrate for March 2000**
Missing a notation that the well was purged dry and not sampled in April 2001
MW-3: **TDS for April 1999**
MW-8: **TDS for April 1999**
Thallium for April 1999
MW-9: **Thallium for April 1999**
Conductivity for November 1999
MW-10: **Thallium for April 1999**
Turbidity for October 2000
MW-11: **Thallium for April 1999**
MW-12: **Thallium for April 1999**

Response: Appendix A (Groundwater Quality Data) has been corrected where appropriate. There was no change to the turbidity value for October 2000 for MW-1. MW-3 was not sampled. However, TDS was corrected for MW-4 for the April 1999 sampling event. There was no change in the conductivity value for MW-9 during the November 1999 sampling event.

3) **Please revise the shading used on the tables in Appendix A to reflect any changes related to the previous review comment. Please revise the tables in Appendix A so that the shaded cells on the copies provided to the Department are more noticeable.**

<u>**Response**</u>: The shading has been revised on the tables in Appendices A, C, and E.

b. **The discussion of regulatory exceedances for some of the parameters appears to be inconsistent with the data provided by Sarasota County for the semi-annual sampling events and the summary tables provided in Appendix A. Please review the results for the following parameters and revise as appropriate:**

1) **It is noted that ammonia and arsenic concentrations reported for "post-landfill" sampling events are significantly higher than reported for "pre-landfill" sampling events. It does not appear that the data supports the assertion that ammonia and arsenic concentrations in the current monitor wells are related to previous land use.**

<u>**Response**</u>: See response to 10. b.

2) **It is indicated that elevated concentrations reported for antimony and cadmium at MW-8 during April 1999 may have been related to sample turbidity. It does not appear the data supports this link between turbidity and metals concentrations as an even higher turbidity value was reported for MW-8 during September 2001 but concentrations of antimony and cadmium were reported to be below the method detection limit.**

<u>**Response**</u>: The observation that turbidity and metals were related was intended to be a general observation about the data. It is acknowledged that some measurements my not show the relationship depending on hydrologic conditions at the time of sampling.

3) **It is noted that iron concentrations reported for detection wells MW-8, MW-9 and MW-10 are significantly higher than reported for the**

other detection wells and the background wells. It does not appear that the data supports the assertion that iron is not likely related to operations of the CCSWDC.

Response: See response to 10. b. regarding MW-8 and MW-9. MW-10 is farther from cell 2 than MW-9 and, consequently, there has been insufficient time for groundwater quality at MW-10 to be impacted by the landfill.

4) **It does not appear that the data supports the assertion that elevated concentrations of sodium were reported at detection well MW-11.**

Response: Acknowledged. The text has been revised.

5) **It is indicated that TDS occurs naturally in the surficial aquifer at the facility, however elevated TDS concentrations were not reported at all monitor wells (MW-4, MW-11 and MW-12). The localized occurrence of elevated TDS concentrations is not explained by this assertion.**

Response: Background data indicate TDS occurs naturally and varies from location to location. SCS further assessed the potential cause for the variability by reviewing available hydrogeologic reports for the region and performing a one-day evaluation of groundwater conductivity in the vicinity of MW-1. The results are included in Attachment A to this response. SCS concludes that background TDS is variable and exceeds the drinking water standard at various locations unrelated to landfilling operations.

6) **It is indicated that elevated concentrations of vanadium were reported at well MW-4. Please indicate if the text should have referred to well MW-8. It does not appear that the data supports the assertion that the results of vanadium for all the other monitor wells were reported below the detection limit.**

Response: Agreed. The text for vanadium has been revised as follows: *"Vanadium was detected above the groundwater clean-up target level only at MW-8. Vanadium was observed at other monitoring wells below the target level and often below detection limits."*

c. **The discussion of trend analysis provided for some of the parameters appears to be inconsistent with the data provided by Sarasota County for**

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the semi-annual sampling events and the plots provided in Appendix B. Please review the results for the following parameters and revise as appropriate:

1) **The discussion does not indicate that ammonia concentrations reported for detection wells MW-8, MW-9 and MW-10 appear to be significantly different than reported for the background wells.**

   __Response__: Ammonia was detected above the groundwater clean-up target level at MW-9 before the construction of the Class I landfill. However, the elevated concentrations of ammonia in MW-8 and MW-10 during the sampling events after the construction of the Class I landfill would not have been related to the landfill operations because there would have been insufficient time for potentially impacted groundwater to reach MW-8 and MW-10. The yard waste compost area to the south of MW-8 and MW-9 may be a contributing factor to groundwater quality at MW-8 and MW-9. Drainage from the yard waste compost area could be flowing towards MW-8 and MW-9, which could possibly be contributing to the presence of other constituents.

2) **It is indicated that the elevated concentrations of chloride, sodium and TDS at well MW-1 suggest the presence of mineralized ground water. However, it appears that insufficient data has been collected to distinguish between mineralized ground water and landfill leachate. The discussion does not indicate why relatively elevated concentrations of chloride, sodium and TDS are limited to the vicinity of well MW-1. The plot of sodium concentrations appears to omit the result for well MW-1 for the May 24, 1994 sampling event.**

   __Response__: SCS further assessed the potential cause for the elevated levels of chloride, sodium, and TDS by reviewing available hydrogeologic reports for the region and performing a one-day evaluation of groundwater conductivity in the vicinity of MW-1. The results are included in Attachment I to this response. The plot of sodium concentrations for MW-1 has been revised to include the May 24, 1994 sampling event.

3) **The discussion does not indicate that iron concentrations reported for detection wells MW-8, MW-9 and MW-10 appear to be significantly different than reported for the background wells.**

   __Response__: Iron was detected above the secondary drinking water

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standard at MW-10 before the construction of the Class I landfill. However, the elevated concentrations of iron in MW-8 and MW-9 during the sampling events after the construction of the Class I landfill would not have been related to the landfill operations because there would have been insufficient time for potentially impacted groundwater to reach MW-8 and MW-9. The yard waste compost area to the south of MW-8 and MW-9 may be a contributing factor to groundwater quality at MW-8 and MW-9. Drainage from the yard waste compost area could be flowing towards MW-8 and MW-9, which could possibly be contributing to the presence of other constituents.

d. **Some of the results provided in Appendix C (Leachate Quality) appear to be inconsistent with the data provided by Sarasota County for the semi-annual leachate sampling events. Please review the following items and revise as appropriate:**

1) **The results for the March 2000 sampling event are included twice while the results for the March 2001 sampling event are omitted.**

Response: Appendix C (Leachate Quality) has been revised with the sampling results for the March 2001 sampling event.

2) **The field parameter measurements should not be reported as "ND" for the Nov. 1999, March 2000 and Oct. 2000 sampling events.**

Response: The field parameter measurements have been revised for the Nov. 1999, March 2000, and Oct. 2000 sampling events.

3) **Nov. 1999 sampling event – 1,4-dichlorobenzene and 1,2-dichloroethane**

Response: The correct concentration of 1,4-dichlorobenzene for the Nov. 1999 sampling event is 7.4 ug/l. The 1,2-dichloroethane concentration was correct in the table. The table has been revised.

4) **Nov. 2000 sampling event -- nitrate**

Response: The nitrate concentration for the Nov. 2000 sampling event was correctly reported in the table.

e. **The discussion provides a comparison of the concentrations of chloride, sodium and TDS in samples collected from well MW-1 with leachate**

samples, and includes an assertion that the occurrence of these parameters in the leachate does not likely relate to the concentrations reported for the <u>detection</u> wells. This assertion does not appear to be supported for the following reasons.

- **A demonstration to distinguish between potentially mineralized ground water and landfill leachate has not been provided (see review comment No.11.c.2).**

  <u>Response</u>: The leachate and background water quality data relationships were evaluated using ion-concentration diagrams.[1] Diagrams were constructed using concentrations for arsenic, chloride, sodium, and iron obtained during the April 2001 sampling event for the background and detection wells and during the March 2000 sampling event for the leachate. The diagrams are included in Appendix D of the Groundwater Monitoring Plan Evaluation Revision. Three diagrams are provided, Figures D-1, D-2, and D-3, and each will be discussed below.

  Figure D-1 shows plots of cumulative percent of the four parameters, arsenic, chloride, sodium, and iron found in leachate, detection wells MW-8 and MW-9, and background wells MW-1 and MW-4. Three types of water quality are indicated by the plots based on the shape of the diagrams. Water at MW-1 and MW-4 is similar with respect to cumulative percent of the parameters listed and water is similar at MW-8 and MW-9. Both types of water found at these wells are different from the leachate quality. The absolute water quality at MW-1 and MW-4 is different but the shape of the curves indicate the ratios of parameter constituents is similar. This indicates that the water at MW-4 may be a diluted form of the water found at MW-1.

  Figure D-2 shows similar ion concentration diagrams as Figure D-1 but the MW-4 plot has been removed and a predicted plot of ion concentration has been added to reflect a mixture of water from MW-1 with leachate. A three-to-one mixture was calculated in an attempt to match the diagrams for MW-8 and MW-9. The shape of the mixture diagram indicates that water in MW-8 and MW-9 is not a combination of water from MW-1 and leachate. The MW-8 and MW-9 curves indicate that the type of water is similar at the two wells but the source appears not to be leachate mixing with MW-1 water as it flows under the landfill.

  Figure D-3 is similar to Figure D-2 but MW-4 water is shown along with its

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[1] John D. Hem. *Study and Interpretation of the Chemical Characteristics of Natural Water.* United States Geological Survey Water-Supply Paper 2254. 1992.

mixture with leachate. The shape of the mixture curve indicates that the type of water found at MW-8 and MW-9 is less related to MW-4 than it is to MW-1.

While the ion-concentration diagrams indicate that water quality at MW-8 and MW-9 cannot be explained by the effect of leachate on background water, the number of parameters used for the analysis is limited. The County proposes to add the following inorganic parameters to the groundwater monitoring program to provide additional data for evaluating the relationship of leachate to groundwater quality: sodium, potassium, calcium, magnesium, sulfate, bicarbonate, carbonate. These parameters have been included in the Groundwater Monitoring Plan Addendum and the Groundwater Monitoring Plan Revision includes this discussion.

The County proposes that the FDEP issue the permit renewal with a specific condition directing the County to further demonstrate the relationship between leachate and groundwater quality and provide the results in the next biennial report. In response to the condition the County will prepare ion-balance diagrams using the results from the additional inorganic parameters and assess the source of the water in the detection monitoring wells.

- **The localized occurrence of potentially mineralized ground water at well MW-1 has not been discussed.**

  Response: SCS further assessed the potential cause for the elevated levels of chloride, sodium, and TDS by reviewing available hydrogeologic reports for the region and performing a one-day evaluation of groundwater conductivity in the vicinity of MW-1. The results are included in the Groundwater Monitoring Plan Evaluation Addendum. The evaluation indicates that groundwater quality in the vicinity of MW-1 is somewhat mineralized and tends to be less mineralized in lower areas with a greater tendency for flooding.

- **The impact of potentially mineralized ground water at well MW-1 on ground water quality reported for the detection wells has not been evaluated.**

  Response: See previous responses under 11. e.

- **The "other constituents in the leachate more likely to be detected" have not been identified.**

Response: The other constituents in the leachate that are more likely to be detected in the detection wells not related to background groundwater quality are benzene and/or vinyl chloride. These are found in the leachate at concentrations as much as 14 times their drinking water standards and each is mobile in groundwater. Benzene is particularly mobile under anaerobic conditions and vinyl chloride is particularly mobile under aerobic conditions. The presence and mobility of these constituents suggests that one or both would be present in groundwater adjacent to the landfill cells if the groundwater were being impacted. Neither of these constituents has been detected in any of the monitoring wells. Section 4 of the Groundwater Monitoring Plan Evaluation has been revised to identify these constituents.

f. Some of the results provided in Appendix D (Surface Water Quality) appear to be inconsistent with the data provided by Sarasota County for the semi-annual surface water sampling events. Please review the following items and revise as appropriate:

1) The results of the March 2001 sampling event for stations B1 and B3 are omitted.

Response: Appendix E (Surface Water Quality) has been revised to include the March 2001 sampling event for stations B1 and B5. Station B3 was not sampled during the March 2001 sampling event.

2) The results of the Nov. 1999 sampling event for station B2 were not included in the semi-annual report provided by Sarasota County. Please verify that the data included in the summary table for this sampling event is appropriate.

Response: Although not originally provided in the semi-annual report, data for the November 1999 sampling event for station B2 were available and were added to the revised groundwater monitoring plan evaluation.

12. Section 5 – Ground Water Levels and Flow

a. It is indicated that the influence of the two extreme results of the ten hydraulic tests conducted on surficial aquifer wells (P-1 and P-4) was reduced by using a geometric mean. Please note that unless there is evidence that the hydraulic tests or the construction of wells P-1 or P-4 are considered to be non-representative of the surficial aquifer, it is not considered appropriate to bias the data set. Please revise the ground water

velocity calculations by using an arithmetic mean of all ten hydraulic test results for the surficial aquifer.

<u>Response</u>: The arithmetic mean of all 10 tests changes the calculated maximum groundwater velocity from 33 ft/yr to 85 ft/yr. The reason for this increase is the single value for P-1 of 159 ft/d. The 159 ft/d value was determined for aquifer material described as "silty fine sand." Review of representative values of hydraulic conductivity published in <u>Groundwater Hydrology</u>, 1980, Table 3.1, by John Wiley & Sons, Inc., lists the hydraulic conductivity for silt at 0.08 meters/day (0.02 ft/d) and fine sand at 2.5 meters/day (8.2 ft/d).

-The description of "silty fine sand," and the published representative values for hydraulic conductivity indicate the 159 ft/d value is too high to accurately represent silty fine sand.

-The 159 ft/d value is inconsistent with the magnitude of nine other values for the surficial aquifer.

-The P-1 site where the 159 ft/d values was measured is located approximately 2,500 feet west of the landfill while several of the other sites are located on and around the landfill.

The arithmetic mean for the nine sites (without P-1) is 8.1 ft/d, which is consistent with the representative value for fine sand. This is the descriptor used in each of the lithologic descriptions for all 10 test sites. This value is similar to the geometric mean value calculated from eight tests after removing the highest and lowest value from the series. The arithmetic mean for the nine sites would reduce the calculated maximum groundwater velocity calculation from 33 to 29 ft/yr. In our opinion, the 33 ft/yr calculation continues to be a reasonable estimate of the maximum groundwater velocity in the surficial aquifer based on the available data.

b. **It is noted that the summary of ground water elevations provided in Appendix E (Water Level Data and Potentiometric Maps) appears to be inconsistent with data provided by Sarasota County for the semi-annual sampling events. Please check the elevation reported at well MW-9 for Nov. 1999.**

<u>Response</u>: A math error was found in the data for the semi-annual Nov. 1999 sampling event. The data provided in Appendix F (Water Level Data and

Potentiometric Maps) is correct.

c. **It is noted that contour maps E-2 and E-3 appear to be strongly affected by the elevation reported at well MW-9. Please also note that the semi-annual report prepared by Sarasota County dated January 10, 2002 indicated that an incorrect elevation has been reported at MW-9 since the well was repaired (date of repair not provided). Please verify that the ground water elevations reported for MW-9 reflect the measuring point elevation change and modify the contour maps, gradient calculation, and ground water velocity calculation as necessary.**

Response: The groundwater elevations reported for MW-9 do reflect the measuring point elevation change. The contour maps, gradient calculation, and groundwater velocity calculations used the most current elevation data. However, it is acknowledged that MW-9 strongly affects the contour maps. Following installation of replacement monitoring wells and the associated surveying, a new contour map of the surficial aquifer will be prepared to check the representativeness of the previous maps. If the new contour map appears to substantively affect hydrogeologic evaluations presented in the groundwater monitoring plan evaluation or in the enclosed responses, additional evaluation will be performed and submitted to the FDEP.

d. **Please indicate if existing monitor wells MW-3, MW-5, MW-6 and MW-7, and any other wells or piezometers are available to be included in routine ground water level measurements. Please indicate if including surface water elevations for the staff gauges located on Figure 2-1 would help to further characterize ground water flow in the surficial aquifer.**

Response: Monitoring Wells MW-6 and MW-7 were abandoned. The monitoring program has been revised to include monitoring Wells MW-3 and MW-5 in the routine groundwater level measurements. The Groundwater Monitoring Plan Addendum is enclosed.

13. Section 6 – Adequacy of Monitoring Program

a. **The statement that all well screens with the exception of MW-9 intercept the seasonal low water level appears to be inconsistent with Table 6-1, which indicates that the well screens are always submerged at MW-2, MW-4 and MW-12. Please review and revise as appropriate.**

Response: Table 6-1 has been revised to reflect the most current construction details. Based on the table, the following wells have screens which are submerged at various times during the period of record. Consequently, MW-1, MW-2, MW-4, MW-11, and MW-12 should be replaced to correct this condition.

b. **The statement that a water sample has been able to be collected from each well is inconsistent with the semi-annual reports prepared by Sarasota County. Please note that samples have not been collected from well MW-2 for the April 2001 and September 2001 sampling events. Please refer to the semi-annual report prepared by Sarasota County dated January 10, 2002 that includes a proposal to replace well MW-2 and revise this section as appropriate. The development of an alternate well location and construction details for the proposed replacement well should be submitted for review and approval as part of the permit renewal.**

Response: The text has been revised to indicate that MW-2 was purged dry in April 2001. MW-2 will be replaced as indicated below and included in the Groundwater Monitoring Plan Addendum. Proposed construction characteristics are included in the Addendum in Table 4-1. The replacement well will be installed immediately adjacent to the MW-2 location and MW-2 will be abandoned.

c. **It is indicated that wells MW-1, MW-2, MW-4, MW-11 and MW-12 may need to be replaced with wells that are constructed to intercept the water table surface. Please provide alternate well locations, identification numbers, and construction details (including a justification of proposed top and bottom well screen elevations) to meet the requirements of Rule 62-701.510(3)(d)3, F.A.C.**

Response: These monitoring wells will be replaced with monitoring wells that have screens that intercept the historical high and low water table surfaces. Table 4-1 of the Groundwater Monitoring Plan Addendum lists the proposed construction characteristics of the wells. With the exception of replacement wells for MW-11 and MW-12, all replacement wells will be constructed immediately adjacent to the wells they are replacing the original wells will be abandoned. Because of limitations of land surface elevation there are times when some of the replacement monitoring well screens will be submerged. However, with the replacement of these wells we are decreasing the frequency of submergence. Replacement wells for MW-11 and MW-12 will be constructed near them but within approximately 50 feet of the waste cells.

d. **It is indicated that the existing detection wells were located more than 50 feet from the edge of the liner due cell layout and access roads, and it is**

estimated to take less than six months for potential contaminants to reach the edge of the zone of discharge. It is proposed that the zone of discharge be expanded to accommodate the detection well siting constraints. Please note that the zone of discharge is defined by rule, cannot be modified at a District level by letter or permit, but must be authorized by an alternate procedure. Please revise this section to either relocate the detection wells closer to the edge of the liner or increase the ground water sampling frequency to comply with the intent of Rules 62-701.510(3)(a) and (3)(b), F.A.C.

Response: The text has been revised to indicate that at 33 ft/yr, or 16.5 feet per six months (the frequency of sampling), contaminants could potentially reach the edge of the zone of discharge in less than six months only from MW-12. MW-12 will be replaced as discussed above and at that time moved to provide an adequate distance from the edge of the zone of discharge. Although MW-11 is located an adequate distance from the zone of discharge, it also will be replaced due to screen submergence conditions. The replacement well will be moved to within 50 feet of the waste cell.

e. **It is indicated that termination of monitoring at the surface water stations other than B2 and B4R should be considered. Please revise this section to indicate if the County will request a reduction in the number of surface water monitoring stations.**

Response: The section has been revised to reflect the County's request to remove all except B2 and B4R surface water monitoring stations from the monitoring plan.

f. **As indicated in review comment No. 11.e., the Department does not wholly accept the assertion that leachate does not appear to be contributing to contaminants found in the surficial aquifer. Please revise this section to be consistent with the revisions to leachate sampling presented in Section 2 of the Ground Water Monitoring Plan Evaluation regarding sampling locations, sample compositing, sampling frequency and parameters.**

Response: The section has been revised to reflect proposed changes in the groundwater monitoring plan to improve its effectiveness.

14. **Section 7 – Landfill Design and Operation Effectiveness: As indicated in review comment Nos. 11.b. and 11.c., the Department does not wholly accept the assertion that parameters reported in the detection wells have not resulted from landfill activities. Please revise this section to reference the trends reported for ammonia**

(elevated at MW-9), arsenic (elevated at MW-9, increasing at MW-8), cadmium (elevated and erratic at MW-8), iron (increasing at MW-8, elevated at MW-9), lead (increasing at MW-8), and vanadium (increasing at MW-8).

Response: Sections prior to Section 7 provide findings. However, a paragraph has been added to Section 7 that reflects the concerns regarding findings at MW-8 and MW-9 and the proposed modifications to the groundwater monitoring program to improve its effectiveness.

If you have any question on the information provided, please do not hesitate to contact us.

Sincerely,

6/28/02

John A. Banks, P.E.
Project Manager
SCS ENGINEERS

/for

Raymond J. Dever, P.E., DEE
Vice President
SCS ENGINEERS

JAB/RJD:jlh
Enclosures

cc: Gary Bennett, Sarasota County
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SCS ENGINEERS

November 9, 2001
File No. 09201010.03

CORRES
FILE

Mr. Gary Bennett
Solid Waste Operations Manager
Solid Waste Operations Division
4000 Knights Trail Road
Nokomis, Florida 34275

Subject: Updated Annual NMOC Emission Rates (Tier 2)
Central County Solid Waste Disposal Complex

Dear Mr. Bennett:

SCS Engineers (SCS) is pleased to present this update of projected non-methane organic compound (NMOC) emissions from the subject site. The purpose of this letter is to confirm the findings in the Tier 2 report (dated December 4, 2000) by verifying that annual NMOC emissions for the period 2000-2004 are less than 50 Mg/yr.

The Central County Solid Waste Disposal Complex (CCSWDC) is subject to the EPA's New Source Performance Standards (NSPS) guidelines, because its design capacity (about 2.8 million tons) is greater than 2.5 million megagrams (Mg). As a result, the Landfill has estimated its annual NMOC emissions via Tier 2 sampling, which was conducted in September 2000 (see Tier 2 report dated December 4, 2000). At that time, the NMOC emission rate for 2000 was estimated to be 7.1 Mg, based on the Tier 2 NMOC concentration of 247 parts per million (ppm) and the waste in place at the time.

The NSPS requires landfills to estimate annual NMOC emissions on a yearly basis. Alternatively, landfills are permitted to project anticipated emissions in five-year increments. As such, SCS has projected the annual NMOC emissions for the CCSWDC for the period 2000 through 2004 using the EPA's Landfill Gas Emission Model (LandGEM). The maximum NMOC emission during this period is 18.7 Mg/yr in 2004, which is less than the NSPS threshold limit of 50 Mg/yr. Therefore, unless actual waste acceptance rates during this period exceed the projected rate of 300,000 tons per year, no further action is required until 2005, at which time the CCSWDC is required to repeat Tier 2 sampling to update its site-specific NMOC concentration. A copy of our modeling results, showing projected NMOC emission rates, is attached.

Following your review of this letter, should you have any questions or desire more information, please do not hesitate to contact us.

Sincerely,

for Joshua G. Roth
Project Engineer

John A. Banks, P.E
Project Manager
SCS ENGINEERS

JGR/JAB/jr

PROJECTION OF ANNUAL NMOC EMISSIONS
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

Model Parameters
Lo : 170.00 m^3 / Mg (Tier 2 Default Value)
k : 0.05 1/yr (Tier 2 Default Value)
NMOC : 247.00 ppmv (Tier 2 Site-Specific Testing)
Methane : 50.0 % volume
Year Opened : 1998

Year	Filling Rate (tons)	Refuse in Place (Mg)	NMOC Emission Rate (Mg/yr)
1998	99,450	0	0
1999	251,192	90,220	1.4
2000	264,221	318,100	4.7
2001	300,000	557,800	8.1
2002	300,000	830,000	11.8
2003	300,000	1,102,000	15.3
2004	300,000	1,374,000	18.7
2005	300,000	1,646,000	21.9
2006	300,000	1,918,000	24.9

Notes:
1. Future filling rates conservatively estimated to be 300,000 tons per year.
2. Fill history based on information provided by Sarasota County.
3. NMOC concentration based on Tier 2 sampling conducted in September 2000.
4. Emissions estimates made using the EPA's Landfill Gas Emission Model (LandGEM).

February 28, 2002

D.E.P.

MAR 0 1 2002

Southwest District Tampa

OPERATION PERMIT RENEWAL APPLICATION CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA

Prepared for:

Sarasota County Environmental Services
Solid Waste Operations
4000 Knights Trail Road
Nokomis, Florida 34275

Prepared by:

SCS Engineers
3012 U.S. Highway 301 North, Suite 700
Tampa, Florida 33619
(813) 621-0080

File No. 09201010.01
February 28, 2001

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A CCSWDC Biennial Water Quality Monitoring Report

February 28, 2002

SECTION A

FDEP SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION FORM

D.E.P.

MAR 0 1 2002

Southwest District Tampa

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

DEP Form #	62-701.900(1)
Form Title	Solid Waste Management Facility Permit
Effective Date	05-27-01
DEP Application No.	(Filled by DEP)

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

APPLICATION INSTRUCTIONS AND FORMS

INSTRUCTIONS TO APPLY FOR A SOLID WASTE MANAGEMENT FACILITY PERMIT

I. General

Solid Waste Management Facilities shall be permitted pursuant to Section 403.707, Florida Statutes,(FS) and in accordance with Florida Administrative Code (FAC) Chapter 62-701. A minimum of four copies of the application shall be submitted to the Department's District Office having jurisdiction over the facility. The appropriate fee in accordance with Rule 62-701.315, FAC, shall be submitted with the application by check made payable to the Department of Environmental Protection (DEP).

Complete appropriate sections for the type of facility for which application is made. Entries shall be typed or printed in ink. All blanks shall be filled in or marked "not applicable" or "no substantial change". Information provided in support of the application shall be marked "submitted" and the location of this information in the application package indicated. The application shall include all information, drawings, and reports necessary to evaluate the facility. Information required to complete the application is listed on the attached pages of this form.

II. Application Parts Required for Construction and Operation Permits

A. Landfills and Ash Monofills - Submit parts A,B, D through T
B. Asbestos Monofills - Submit parts A,B,D,E,F,G,J,L,N, P through S, and T
C. Industrial Solid Waste Facilities - Submit parts A,B, D through T
D. Non-Disposal Facilities - Submit parts A,C,D,E,J,N,S and T

NOTE: Portions of some parts may not be applicable.

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

III. Application Parts Required for Closure Permits

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

NOTE: Portions of some parts may not be applicable.

IV. Permit Renewals

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

V. **Application Codes**

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

VI. **LISTING OF APPLICATION PARTS**

PART A: GENERAL INFORMATION

PART B: DISPOSAL FACILITY GENERAL INFORMATION

PART C: NON-DISPOSAL FACILITY GENERAL INFORMATION

PART D: PROHIBITIONS

PART E: SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL

PART F: LANDFILL PERMIT REQUIREMENTS

PART G: GENERAL CRITERIA FOR LANDFILLS

PART H: LANDFILL CONSTRUCTION REQUIREMENTS

PART I: HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS

PART J: GEOTECHNICAL INVESTIGATION REQUIREMENTS

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PART M: WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS

PART N: SPECIAL WASTE HANDLING REQUIREMENTS

PART O: GAS MANAGEMENT SYSTEM REQUIREMENTS

PART P: LANDFILL CLOSURE REQUIREMENTS

PART Q: CLOSURE PROCEDURES

PART R: LONG TERM CARE REQUIREMENTS

PART S: FINANCIAL RESPONSIBILITY REQUIREMENTS

PART T: CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

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

Please Type or Print

A. GENERAL INFORMATION

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

[✓] Disposal
- [✓] Class I Landfill
- [ ] Class II Landfill
- [ ] Class III Landfill
- [ ] Ash Monofill
- [ ] Asbestos Monofill
- [ ] Industrial Solid Waste
- [ ] Other Describe: ______

[ ] Non-Disposal
- [ ] Incinerator For Non-biomedical Waste
- [ ] Waste to Energy Without Power Plant Certification
- [ ] 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

3. Classification of application:
- [ ] New
- [✓] Renewal
- [ ] Substantial Modification
- [ ] Intermediate Modification
- [ ] Minor Modification

4. Facility name: Central County Solid Waste Disposal Complex

5. DEP ID number: SO58-299180 County: Sarasota

6. Facility location (main entrance): North End Knights Trail Road

7. Location coordinates:

Section: 1-4 & 9-16 Township: 38S Range: 19E

Latitude: 27 ° 12 ' 00 " Longitude: 82 ° 23 ' 00 "

8. Applicant name (operating authority): Solid Waste Operations

Mailing address: 4000 Knights Trail Road | Nokomis | FL | 34275
Street or P.O. Box | City | State | Zip

Contact person: Gary Bennett Telephone: (941) 486-2600

Title: Solid Waste Operations Manager

gbennett@co.sarasota.fl.us
E-Mail address (if available)

9. Authorized agent/Consultant: SCS Engineers

Mailing address: 3012 U.S. Highway 301 North, Suite 700 | Tampa | FL | 33619
Street or P.O. Box | City | State | Zip

Contact person: John Banks Telephone: (813) 621-0080

Title: Project Manager

jbanks@scsengineers.com
E-Mail address (if available)

10. Landowner(if different than applicant): Same

Mailing address: Same
Street or P.O. Box | City | State | Zip

Contact person: Same Telephone: (___) Same

Same
E-Mail address (if available)

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

12. Population to be served:

Current: 422,630 Five-Year Projection: 451,590

13. Date site will be ready to be inspected for completion: Opened January 1998

14. Expected life of the facility: 39 years

15. Estimated costs:

Total Construction: $ 38,870,000 Closing Costs: $ 40,000,000

16. Anticipated construction starting and completion dates:

From: 10/95 To: 12/97

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

_____ yds^3/day 860 tons/day _____ gallons/day

B. DISPOSAL FACILITY GENERAL INFORMATION

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

   The disposal facility consists of five (5) phases. Phase I consists of five (5) cells with approximate dimensions of 1,300 feet by 400 feet. The cells are lined with a composite liner of 60 mil HDPE and 12 inches of clay (with a permeability of K<1x10-8 cm/sec).

2. Facility site supervisor: Gary Bennett

   Title: Solid Waste Operations Manager Telephone: (941) 486-2600

   gbennett@co.sarasota.ft.us
   E-Mail address (if available)

3. Disposal area: Total 55 acres; Used 44 acres; Available 11 acres.

4. Weighing scales used: [✔] Yes [ ] No

5. Security to prevent unauthorized use: [✔] Yes [ ] No

6. Charge for waste received: ________ $/yds^3 63.77 $/ton

7. Surrounding land use, zoning:

   [✔] Residential
   [✔] Agricultural
   [ ] Commercial
   [ ] Industrial
   [ ] None
   [ ] Other Describe: Government Use

8. Types of waste received:

   [✔] Residential
   [✔] Commercial
   [ ] Incinerator/WTE ash
   [✔] Treated biomedical
   [✔] Water treatment sludge
   [ ] Air treatment sludge
   [✔] Agricultural
   [✔] Asbestos
   [ ] Other Describe: ________
   [✔] C & D debris
   [✔] Shredded/cut tires
   [✔] Yard trash
   [ ] Septic tank
   [✔] Industrial
   [✔] Industrial sludge
   [✔] Domestic sludge

9. Salvaging permitted: [ ] Yes [✔] No

10. Attendant: [✔] Yes [ ] No Trained operator: [✔] Yes [ ] No

11. Spotters: Yes [✔] No [ ] Number of spotters used: 1

12. Site located in: [ ] Floodplain [ ] Wetlands [ ] Other ________

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
JUN 28 2002
SOUTHWEST DISTRICT TAMPA

13. Property recorded as a Disposal Site in County Land Records: [ ] Yes [✔] No

14. Days of operation: Monday - Saturday

15. Hours of operation: 8:00 a.m. - 5:00 p.m.

16. Days Working Face covered: Monday - Saturday

17. Elevation of water table: 16.5 to 20.0 Ft. (NGVD 1929)

18. Number of monitoring wells: 8

19. Number of surface monitoring points: 7

20. Gas controls used: [ ] Yes [✔] No Type controls: [ ] Active [ ] Passive

Gas flaring: [ ] Yes [✔] No Gas recovery: [ ] Yes [✔] No

21. Landfill unit liner type:

[ ] Natural soils
[ ] Single clay liner
[ ] Single geomembrane
[✔] Single composite
[ ] Slurry wall
[ ] Other Describe: ______
[ ] Double geomembrane
[ ] Geomembrane & composite
[ ] Double composite
[ ] None

22. Leachate collection method:

[✔] Collection pipes
[✔] Geonets
[ ] Well points
[ ] Perimeter ditch
[ ] Other Describe: ______
[✔] Sand layer
[✔] Gravel layer
[ ] Interceptor trench
[ ] None

23. Leachate storage method:

[✔] Tanks
[ ] Surface impoundments
[ ] Other Describe: ______

24. Leachate treatment method:

[ ] Oxidation
[ ] Secondary
[ ] Advanced
[ ] None
[✔] Other Off-site treatment
[ ] Chemical treatment
[ ] Settling

25. Leachate disposal method:

[ ] Recirculated
[✔] Transported to WWTP
[ ] Injection well
[ ] Evaporation
[ ] Other ______
[ ] Pumped to WWTP
[ ] Discharged to surface water
[ ] Percolation ponds

26. For leachate discharged to surface waters:

Name and Class of receiving water: N/A

27. Storm Water:

Collected: [✔] Yes [ ] No

Type of treatment: Retention Ponds

Name and Class of receiving water: Cow Pen Slough, Class III

28. Environmental Resources Permit (ERP) number or status: 407932.01

C. NON-DISPOSAL FACILITY GENERAL INFORMATION

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

   Not Applicable
   ____
   ____
   ____

2. Facility site supervisor: ______________________________

   Title: ______________________ Telephone: (___) ______________________

   ____
   E-Mail address (if available)

3. Site area: Facility __________ acres; Property __________ acres

4. Security to prevent unauthorized use: [ ] Yes [ ] No

5. Site located in: [ ] Floodplain [ ] Wetlands [ ] Other __________

6. Days of operation: ______________________________

7. Hours of operation: ______________________________

8. Number of operating staff: __________

9. Expected useful life: __________ Years

10. Weighing scales used: [ ] Yes [ ] No

11. Normal processing rate: __________ yd^3/day __________ tons/day __________ gal/day

12. Maximum processing rate: __________ yd^3/day __________ tons/day __________ gal/day

13. Charge for waste received: ______________________________

14. Storm Water Collected: [ ] Yes [ ] No

    Type of treatment: ______________________________

    Name and Class of receiving water: ______________________________

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

    ____

16. Final residue produced:

    ________ % of normal processing rate ________ % of maximum processing rate

    ________ Tons/day ________ Tons/day

    Disposed of at:

    Facility name: ______________________ County: ______________________

17. Estimated operating costs: $ ________________

Total cost/ton: $ ____________________ Net cost/ton: $ ____________________

18. Provide a site plan, at a scale not greater than 200 feet to the inch, which shows the facility location and identifies the proposed waste and final residue storage areas, total acreage of the site, and any other features which are relevant to the prohibitions or location restrictions in Rule 62-701.300, FAC, such as water bodies or wetlands on or within 200 feet of the site, and potable water wells on or within 500 feet of the site.

19. Provide a description of how the waste and final residue will be managed to not be expected to cause violations of the Department's ground water, surface water or air standards or criteria

20. Provide an estimate of the maximum amount of waste and final residue that will be store on-site.

21. Provide a detailed description of the technology use at the facility and the functions of all processing equipment that will be utilized. The descriptions shall explain the flow of waste and residue through all the proposed unit operations and shall include: (1) regular facility operations as they are expected to occur; (2) procedures for start up operations, and scheduled and unscheduled shut down operations; (3) potential safety hazards and control methods, including fire detection and control; (4) a description of any expected air emissions and wastewater discharges from the facility which may be potential pollution sources; (5) a description and usage rate of any chemical or biological additives that will be used in the process; and (6) process flow diagrams for the facility operations.

22. Provide a description of the loading, unloading and processing areas.

23. Provide a description of the leachate control system that will be used to prevent discharge of leachate to the environment and mixing of leachate with stormwater. Note: Ground water monitoring may be required for the facility depending on the method of leachate control used.

24. Provide an operation plan for the facility which includes: (1) a description of general facility operations, the number of personnel responsible for the operations including their respective job descriptions, and the types of equipment that will be used at the facility; (2) procedures to ensure any unauthorized wastes received at the site will be properly managed; (3) a contingency plan to cover operation interruptions and emergencies such as fires, explosions, or natural disasters; (4) procedures to ensure operational records needed for the facility will be adequately prepared and maintained; and (5) procedures to ensure that the wastes and final residue will be managed to not be expected to cause pollution.

25. Provide a closure plan that describes the procedures that will be implemented when the facility closes including: (1) estimated time to complete closure; (2) procedures for removing and properly managing or disposing of all wastes and final residues; (3) notification of the Department upon ceasing operations and completion of final closure.

D. PROHIBITIONS (62-701.300, FAC)

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

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

S	LOCATION	N/A	N/C		
✔	Section E.1			1.	Four copies, at minimum, of the completed application form, all supporting data and reports; (62-701.320(5)(a),FAC)
✔	Section E.2			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)
✔	Section E.3			3.	A letter of transmittal to the Department; (62-701.320(7)(a),FAC)
✔	Section E.4			4.	A completed application form dated and signed by the applicant; (62-701.320(7)(b),FAC)
✔	Section E.5			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)
✔	Section E.6			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)
	Closure Plan-Section E.7 Operations Plan-Section L	✔		7.	Operation Plan and Closure Plan; (62-701.320(7)(e)1,FAC)
			✔	8.	Contingency Plan; (62-701.320(7)(e)2,FAC)
				9.	Plans or drawings for the solid waste management facilities in appropriate format (including sheet size restrictions, cover sheet, legends, north arrow, horizontal and vertical scales, elevations referenced to NGVD 1929) showing; (62-702.320(7)(f),FAC)
✔	Section E.9 & Attachment E-1			a.	A regional map or plan with the project location;
✔	Attachment E-1			b.	A vicinity map or aerial photograph no more than 1 year old;
			✔	c.	A site plan showing all property boundaries certified by a registered Florida land surveyor;

S	LOCATION	N/A	N/C		PART E CONTINUED
			✔	d.	Other necessary details to support the engineering report.
			✔	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)
			✔	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)
✔	Section E.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)
✔	Section E.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)
			✔	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)
			✔	15.	Explain how the operator training requirements will be satisfied for the facility; (62-701.320(15), FAC)

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

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

S	LOCATION	N/A	N/C		PART F CONTINUED
	Section F.4	✔			f. Special drainage devices if necessary;
			✔		g. Fencing;
			✔		h. Equipment facilities.
				5.	A report on the landfill describing the following; (62-701.330(3)(e),FAC)
✔	Section F.5.a				a. The current and projected population and area to be served by the proposed site;
✔	Section F.5.b				b. The anticipated type, annual quantity, and source of solid waste, expressed in tons;
✔	Section F.5.c & Attachment F-2				c. The anticipated facility life;
✔	Section F.5.d				d. The source and type of cover material used for the landfill.
✔	Section F.6 & Attachment F-3			6.	Provide evidence that an approved laboratory shall conduct water quality monitoring for the facility in accordance with Chapter 62-160,FAC; (62-701.330(3)(h),FAC)
			✔	7.	Provide a statement of how the applicant will demonstrate financial responsibility for the closing and long-term care of the landfill; (62-701.330(3)(i),FAC)

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

S	LOCATION	N/A	N/C		
			✔	1.	Describe (and show on a Federal Insurance Administration flood map, if available) how the landfill or solid waste disposal unit shall not be located in the 100-year floodplain where it will restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain unless compensating storage is provided, or result in a washout of solid waste; (62-701.340(4)(b),FAC)
			✔	2.	Describe how the minimum horizontal separation between waste deposits in the landfill and the landfill property boundary shall be 100 feet, measured from the toe of the proposed final cover slope; (62-701.340(4)(c),FAC)
			✔	3.	Describe what methods shall be taken to screen the landfill from public view where such screening can practically be provided; (62-701.340(4)(d),FAC)

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

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

S	LOCATION	N/A	N/C	PART H CONTINUED
				c. Double liners; (62-701.400(3)(c),FAC)
	Section H	✔		(1) Upper and lower geomembrane thicknesses and properties;
	Section H	✔		(2) Design leachate head for primary LCRS to limit the head to one foot above the liner;
	Section H	✔		(3) Lower geomembrane sub-base design;
	Section H	✔		(4) Leak detection and secondary leachate collection system minimum design criteria (k $\geq$ 10 cm/sec, head on lower liner $\leq$ 1 inch, head not to exceed thickness of drainage layer);
				d. Standards for geosynthetic components; (62-701.400(3)(d),FAC)
	Section H	✔		(1) Field seam test methods to ensure all field seams are at least 90 percent of the yield strength for the lining material;
	Section H	✔		(2) Geomembranes to be used shall pass a continuous spark test by the manufacturer;
	Section H	✔		(3) Design of 24-inch-thick protective layer above upper geomembrane liner;
	Section H	✔		(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.
	Section H	✔		(5) HDPE geomembranes, if used, meet the specifications in GRI GM13;
	Section H	✔		(6) PVC geomembranes, if used, meet the specifications in PGI 1197;
	Section H	✔		(7) Interface shear strength testing results of the actual components which will be used in the liner system;
	Section H	✔		(8) Transmissivity testing results of geonets if they are used in the liner system;
	Section H	✔		(9) Hydraulic conductivity testing results of geosynthetic clay liners if they are used in the liner system;

PART H CONTINUED

S	LOCATION	N/A	N/C		
				e.	Geosynthetic specification requirements; (62-701.400(3)(e),FAC)
	Section H	✔		(1)	Definition and qualifications of the designer, manufacturer, installer, QA consultant and laboratory, and QA program;
	Section H	✔		(2)	Material specifications for geomembranes, geocomposites, geotextiles, geogrids, and geonets;
	Section H	✔		(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;
	Section H	✔		(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;
	Section H	✔		(5)	Geotextile and geogrid specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials and any overlying materials;
	Section H	✔		(6)	Geonet and geocomposite specifications including handling and placement, conformance testing, stacking and joining, repair, and placement of soil materials and any overlying materials;
	Section H	✔		(7)	Geosynthetic clay liner specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil material and any overlying materials;
				f.	Standards for soil components (62-710.400(3)(f),FAC):
		✔		(1)	Description of construction procedures including overexcavation and backfilling to preclude structural inconsistencies and procedures for placing and compacting soil component in layers;

S	LOCATION	N/A	N/C	PART H CONTINUED
	Section H	✔		(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;
	Section H	✔		(3) Procedures for testing in-situ soils to demonstrate they meet the specifications for soil liners;
				(4) Specifications for soil component of liner including at a minimum:
	Section H	✔		(a) Allowable particle size distribution, Atterberg limits, shrinkage limit;
	Section H	✔		(b) Placement moisture and dry density criteria;
	Section H	✔		(c) Maximum laboratory-determined saturated hydraulic conductivity using simulated leachate;
	Section H	✔		(d) Minimum thickness of soil liner;
	Section H	✔		(e) Lift thickness;
	Section H	✔		(f) Surface preparation (scarification);
	Section H	✔		(g) Type and percentage of clay mineral within the soil component;
	Section H	✔		(5) Procedures for constructing and using a field test section to document the desired saturated hydraulic conductivity and thickness can be achieved in the field.
				3. Leachate collection and removal system (LCRS); (62-701.400(4),FAC)
				a. The primary and secondary LCRS requirements; (62-701.400(4)(a),FAC)
	Section H	✔		(1) Constructed of materials chemically resistant to the waste and leachate;
	Section H	✔		(2) Have sufficient mechanical properties to prevent collapse under pressure;
	Section H	✔		(3) Have granular material or synthetic geotextile to prevent clogging;
	Section H	✔		(4) Have method for testing and cleaning clogged pipes or contingent designs for rerouting leachate around failed areas;

S	LOCATION	N/A	N/C	PART H CONTINUED
				b. Primary LCRS requirements; (62-701.400(4)(b),FAC)
	Section H	✔		(1) Bottom 12 inches having hydraulic conductivity $\geq 1 \times 10^{-3}$ cm/sec;
	Section H	✔		(2) Total thickness of 24 inches of material chemically resistant to the waste and leachate;
	Section H	✔		(3) Bottom slope design to accomodate for predicted settlement;
	Section H	✔		(4) Demonstration that synthetic drainage material, if used, is equivalent or better than granular material in chemical compatibility, flow under load and protection of geomembrane liner.
				4. Leachate recirculation; (62-701.400(5),FAC)
	Section H	✔		a. Describe general procedures for recirculating leachate;
	Section H	✔		b. Describe procedures for controlling leachate runoff and minimizing mixing of leachate runoff with storm water;
	Section H	✔		c. Describe procedures for preventing perched water conditions and gas buildup;
	Section H	✔		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;
	Section H	✔		e. Describe methods of gas management in accordance with Rule 62-701.530, FAC;
	Section H	✔		f. If leachate irrigation is proposed, describe treatment methods and standards for leachate treatment prior to irrigation over final cover and provide documentation that irrigation does not contribute significantly to leachate generation.

S	LOCATION	N/A	N/C	PART H CONTINUED
				5. Leachate storage tanks and leachate surface impoundments; (62-701.400(6),FAC)
				a. Surface impoundment requirements; (62-701.400(6)(b),FAC)
	Section H	✔		(1) Documentation that the design of the bottom liner will not be adversely impacted by fluctuations of the ground water;
	Section H	✔		(2) Designed in segments to allow for inspection and repair as needed without interruption of service;
				(3) General design requirements;
	Section H	✔		(a) Double liner system consisting of an upper and lower 60-mil minimum thickness geomembrane;
	Section H	✔		(b) Leak detection and collection system with hydraulic conductivity $\geq$ 1 cm/sec;
	Section H	✔		(c) Lower geomembrane placed on subbase $\geq$ 6 inches thick with k $\leq 1x10^{-5}$ cm/sec or on an approved geosynthetic clay liner with k $\leq 1x10^{-7}$ cm/sec;
	Section H	✔		(d) Design calculation to predict potential leakage through the upper liner;
	Section H	✔		(e) Daily inspection requirements and notification and corrective action requirements if leakage rates exceed that predicted by design calculations;
	Section H	✔		(4) Description of procedures to prevent uplift, if applicable;
	Section H	✔		(5) Design calculations to demonstrate minimum two feet of freeboard will be maintained;
	Section H	✔		(6) Procedures for controlling disease vectors and off-site odors.

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

S	LOCATION	N/A	N/C	PART H CONTINUED
	Section H	✔		(a) Interstitial space monitoring at least weekly;
	Section H	✔		(b) Corrosion protection provided for primary tank interior and external surface of outer shell;
	Section H	✔		(c) Interior tank coatings compatible with stored leachate;
	Section H	✔		(d) Cathodic protection inspected weekly and repaired as needed;
	Section H	✔		(3) Describe an overfill prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overfilling and provide for weekly inspections;
	Section H	✔		(4) Inspection reports available for department review.
	Section H	✔		d. Schedule provided for routine maintenance of LCRS; (62-701.400(6)(e),FAC)
				6. Liner systems construction quality assurance (CQA); (62-701.400(7),FAC)
	Section H	✔		a. Provide CQA Plan including:
	Section H	✔		(1) Specifications and construction requirements for liner system;
	Section H	✔		(2) Detailed description of quality control testing procedures and frequencies;
	Section H	✔		(3) Identification of supervising professional engineer;
	Section H	✔		(4) Identify responsibility and authority of all appropriate organizations and key personnel involved in the construction project;
	Section H	✔		(5) State qualifications of CQA professional engineer and support personnel;
	Section H	✔		(6) Description of CQA reporting forms and documents;

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

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

S	LOCATION	N/A	N/C		
				1.	Submit a hydrogeological investigation and site report including at least the following information:
			✔	a.	Regional and site specific geology and hydrogeology;
			✔	b.	Direction and rate of ground water and surface water flow including seasonal variations;
			✔	c.	Background quality of ground water and surface water;
			✔	d.	Any on-site hydraulic connections between aquifers;
			✔	e.	Site stratigraphy and aquifer characteristics for confining layers, semi-confining layers, and all aquifers below the landfill site that may be affected by the landfill;
			✔	f.	Description of topography, soil types and surface water drainage systems;
			✔	g.	Inventory of all public and private water wells within a one-mile radius of the landfill including, where available, well top of casing and bottom elevations, name of owner, age and usage of each well, stratigraphic unit screened, well construction technique and static water level;
		✔		h.	Identify and locate any existing contaminated areas on the site;
			✔	i.	Include a map showing the locations of all potable wells within 500 feet, and all community water suupply wells within 1000 feet, of the waste storage and disposal areas;
			✔	2.	Report signed, sealed and dated by PE or PG.

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

S	LOCATION	N/A	N/C		
				1.	Submit a geotechnical site investigation report defining the engineering properties of the site including at least the following:
			✔	a.	Description of subsurface conditions including soil stratigraphy and ground water table conditions;
			✔	b.	Investigate for the presence of muck, previously filled areas, soft ground, lineaments and sink holes;
			✔	c.	Estimates of average and maximum high water table across the site;
				d.	Foundation analysis including:
			✔	(1)	Foundation bearing capacity analysis;
			✔	(2)	Total and differential subgrade settlement analysis;
			✔	(3)	Slope stability analysis;
			✔	e.	Description of methods used in the investigation and includes soil boring logs, laboratory results, analytical calculations, cross sections, interpretations and conclusions;
			✔	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.
			✔	2.	Report signed, sealed and dated by PE or PG.

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

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

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

✔	Section L.1			1.	Provide documentation that landfill will have at least one trained operator during operation and at least one trained spotter at each working face; (62-701.500(1),FAC)
				2.	Provide a landfill operation plan including procedures for: (62-701.500(2), FAC)
✔	Section L.2.a				a. Designating responsible operating and maintenance personnel;
			✔		b. Contingency operations for emergencies;
✔	Section L.2.c				c. Controlling types of waste received at the landfill;
			✔		d. Weighing incoming waste;
			✔		e. Vehicle traffic control and unloading;
✔	Section L.2.f				f. Method and sequence of filling waste;
			✔		g. Waste compaction and application of cover;
✔	Section L.2.h				h. Operations of gas, leachate, and stormwater controls;
			✔		i. Water quality monitoring.
✔	Section L.2.j				j. Maintaining and cleaning the leachate collection system;
✔	Section L.3			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)
✔	Section L.4			4.	Describe the waste records that will be compiled monthly and provided to the Department quarterly; (62-701.500(4),FAC)
✔	Section L.5			5.	Describe methods of access control; (62-701.500(5),FAC)
✔	Section L.6			6.	Describe load checking program to be implemented at the landfill to discourage disposal of unauthorized wastes at the landfill; (62-701.500(6),FAC)
				7.	Describe procedures for spreading and compacting waste at the landfill that include: (62-701.500(7),FAC)
			✔		a. Waste layer thickness and compaction frequencies;

S	LOCATION	N/A	N/C	PART L CONTINUED
✔	Section L.7.b			b. Special considerations for first layer of waste placed above liner and leachate collection system;
✔	Section L.7.c			c. Slopes of cell working face and side grades above land surface, planned lift depths during operation;
✔	Section L.7.d			d. Maximum width of working face;
				e. Description of type of initial cover to be used at the facility that controls:
✔	Section L.7.e			(1) Disease vector breeding/animal attraction
✔	Section L.7.e			(2) Fires
✔	Section L.7.e			(3) Odors
✔	Section L.7.e			(4) Blowing litter
✔	Section L.7.e			(5) Moisture infiltration
			✔	f. Procedures for applying initial cover including minimum cover frequencies;
			✔	g. Procedures for applying intermediate cover;
✔	Section L.7.h			h. Time frames for applying final cover;
✔	Section L.7.i			i. Procedures for controlling scavenging and salvaging.
✔	Section L.7.j			j. Description of litter policing methods;
✔	Section L.7.k			k. Erosion control procedures.
				8. Describe operational procedures for leachate management including; (62-701.500(8),FAC)
✔	Section L.8.a			a. Leachate level monitoring, sampling, analysis and data results submitted to the Department;
✔	Section L.8.b			b. Operation and maintenance of leachate collection and removal system, and treatment as required;
			✔	c. Procedures for managing leachate if it becomes regulated as a hazardous waste;
✔	Section L.8.d			d. Agreements for off-site discharge and treatment of leachate;
✔	Section L.8.e			e. Contingency plan for managing leachate during emergencies or equipment problems;

S	LOCATION	N/A	N/C	PART L CONTINUED
✔	Section L.8.f			f. Procedures for recording quantities of leachate generated in gal/day and including this in the operating record;
			✔	g. Procedures for comparing precipitation experienced at the landfill with leachate generation rates and including this information in the operating record;
✔	Section L.8.h			h. Procedures for water pressure cleaning or video inspecting leachate collection systems.
✔	Section L.9			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)
			✔	10. Describe procedures for operating and maintaining the landfill stormwater management system to comply with the requirements of Rule 62-701.400(9); (62-701.500(10),FAC)
				11. Equipment and operation feature requirements; (62-701.500(11),FAC)
✔	Section L.11.a			a. Sufficient equipment for excavating, spreading, compacting and covering waste;
			✔	b. Reserve equipment or arrangements to obtain additional equipment within 24 hours of breakdown;
			✔	c. Communications equipment;
✔	Section L.11.d			d. Dust control methods;
✔	Section L.11.e			e. Fire protection capabilities and procedures for notifying local fire department authorities in emergencies;
			✔	f. Litter control devices;
			✔	g. Signs indicating operating authority, traffic flow, hours of operation, disposal restrictions.
			✔	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)
			✔	13. Additional record keeping and reporting requirements; (62-701.500(13),FAC)

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

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

S	LOCATION	N/A	N/C		
✔	Section M			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;
✔	Section M			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)
			✔	b.	All sampling and analysis preformed in accordance with Chapter 62-160, FAC; (62-701.510(2)(b),FAC)
				c.	Ground water monitoring requirements; (62-701.510(3),FAC)
✔	App. A 6-1			(1)	Detection wells located downgradient from and within 50 feet of disposal units;
		✔		(2)	Downgradient compliance wells as required;
✔	App. A 6-1			(3)	Background wells screened in all aquifers below the landfill that may be affected by the landfill;
			✔	(4)	Location information for each monitoring well;
	App. A Fig. 2-1		✔	(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;
✔	App. A A 6-1			(6)	Well screen locations properly selected;
			✔	(7)	Procedures for properly abandoning monitoring wells;
		✔		(8)	Detailed description of detection sensors if proposed.

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

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

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

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

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

PART O CONTINUED

S	LOCATION	N/A	N/C		
	Section O.4	✔		d.	Description of procedures for condensate sampling, analyzing and data reporting provided;

	Section O.4	✔		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;
	Section O.4	✔		f.	Performance bond provided to cover closure costs if not already included in other landfill closure costs.

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

1. Closure schedule requirements; (62-701.600(2),FAC)

			✔	a.	Documentation that a written notice including a schedule for closure will be provided to the Department at least one year prior to final receipt of wastes;
			✔	b.	Notice to user requirements within 120 days of final receipt of wastes;
			✔	c.	Notice to public requirements within 10 days of final receipt of wastes.

2. Closure permit general requirements; (62-701.600(3),FAC)

			✔	a.	Application submitted to Department at least 90 days prior to final receipt of wastes;
				b.	Closure plan shall include the following:
			✔	(1)	Closure report;
			✔	(2)	Closure design plan;
			✔	(3)	Closure operation plan;
			✔	(4)	Closure procedures;
			✔	(5)	Plan for long term care;
			✔	(6)	A demonstration that proof of financial responsibility for long term care will be provided.

3. Closure report requirements; (62-701.600(4),FAC)

a. General information requirements;

	Section P.3	✔		(1)	Identification of landfill;

S	LOCATION	N/A	N/C			PART P CONTINUED
	Section P.3	✔			(2)	Location, description and vicinity map;
	Section P.3	✔			(3)	Total acres of disposal areas and landfill property;
	Section P.3	✔			(4)	Legal property description;
	Section P.3	✔			(5)	History of landfill;
	Section P.3	✔			(6)	Identification of types of waste disposed of at the landfill.
	Section P.3	✔		b.		Geotechnical investigation report and water quality monitoring plan required by Rule 62-701.330(3),FAC;
	Section P.3	✔		c.		Land use information report indicating: identification of adjacent landowners; zoning; present land uses; and roads, highways right-of-way, or easements.
	Section P.3	✔		d.		Report on actual or potential gas migration at landfills containing degradable wastes which would allow migration of gas off the landfill property;
	Section P.3	✔		e.		Report assessing the effectiveness of the landfill design and operation including results of geotechnical investigations, surface water and storm water management, gas migration and concentrations, condition of existing cover, and nature of waste disposed of at the landfill;
				4.		Closure design requirements to be included in the closure design plan: (62-701.600(5),FAC)
			✔	a.		Plan sheet showing phases of site closing;
			✔	b.		Drawings showing existing topography and proposed final grades;
			✔	c.		Provisions to close units when they reach approved design dimensions;
			✔	d.		Final elevations before settlement;
			✔	e.		Side slope design including benches, terraces, down slope drainage ways, energy dissipators and discussion of expected precipitation effects;
				f.		Final cover installation plans including:
			✔		(1)	CQA plan for installing and testing final cover;

S	LOCATION	N/A	N/C	PART P CONTINUED
			✔	(2) Schedule for installing final cover after final receipt of waste;
			✔	(3) Description of drought-resistant species to be used in the vegetative cover;
			✔	(4) Top gradient design to maximize runoff and minimize erosion;
			✔	(5) Provisions for cover material to be used for final cover maintenance.
				g. Final cover design requirements:
			✔	(1) Protective soil layer design;
			✔	(2) Barrier soil layer design;
			✔	(3) Erosion control vegetation;
			✔	(4) Geomembrane barrier layer design;
			✔	(5) Geosynthetic clay liner design if used;
			✔	(6) Stability analysis of the cover system and the disposed waste.
			✔	h. Proposed method of stormwater control;
			✔	i. Proposed method of access control;
			✔	j. Description of proposed final use of the closed landfill, if any;
			✔	k. Description of the proposed or existing gas management system which complies with Rule 62-701.530, FAC.
				5. Closure operation plan shall include: (62-701.600(6),FAC)
			✔	a. Detailed description of actions which will be taken to close the landfill;
			✔	b. Time schedule for completion of closing and long term care;
			✔	c. Describe proposed method for demonstrating financial responsibility;
			✔	d. Indicate any additional equipment and personnel needed to complete closure.

S	LOCATION	N/A	N/C		PART P CONTINUED
			✔		e. Development and implementation of the water quality monitoring plan required in Rule 62-701.510, FAC.
			✔		f. Development and implementation of gas management system required in Rule 62-701.530, FAC.
	Section P.6	✔		6.	Justification for and detailed description of procedures to be followed for temporary closure of the landfill, if desired; (62-701.600(7),FAC)

Q. CLOSURE PROCEDURES (62-701.610,FAC)

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

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

S	LOCATION	N/A	N/C		
	Section R.1	✔		1.	Maintaining the gas collection and monitoring system; (62-701.620(5), FAC)
	Section R.2	✔		2.	Right of property access requirements; (62-701.620(6),FAC)
	Section R.3	✔		3.	Successors of interest requirements; (62-701.620(7),FAC)
	Section R.4	✔		4.	Requirements for replacement of monitoring devices; (62-701.620(9),FAC)
	Section R.5	✔		5.	Completion of long term care signed and sealed by professional engineer (62-701.620(10), FAC).

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

S	LOCATION	N/A	N/C		
			✔	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).
			✔	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).
			✔	3.	Describe funding mechanisms for providing proof of financial assurance and include appropriate financial assurance forms; (62-701.630(5),(6),&(9), FAC).

T. CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

1. Applicant:

The undersigned applicant or authorized representative of Sarasota County ______________________ is aware that statements made in this form and attached information are an application for a Renewal of Operation Permit from the Florida Department of Environmental Protection and certifies that the information in this application is true, correct and complete to the best of his/her knowledge and belief. Further, the undersigned agrees to comply with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department. It is understood that the Permit is not transferable, and the Department will be notified prior to the sale or legal transfer of the permitted facility.

Signature of Applicant or Agent

Gary Bennett
Name and Title (please type)

gbennett@co.sarasota.fl.us
E-Mail address (if available)

4000 Knights Trail Road
Mailing Address

Nokomis, FL 34275
City, State, Zip Code

(941) 486-2600
Telephone Number

Date: 3-1-02

Attach letter of authorization if agent is not a governmental official, owner, or corporate officer.

2. Professional Engineer registered in Florida (or Public Officer if authorized under Sections 403.707 and 403.7075, Florida Statutes):

This is to certify that the engineering features of this solid waste management facility have been designed/examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgment, this facility, when properly maintained and operated, will comply with all applicable statutes of the State of Florida and rules of the Department. It is agreed that the undersigned will provide the applicant with a set of instructions of proper maintenance and operation of the facility.

Signature

John A. Banks, P.E., Project Manager
Name and Title (please type)

39397
Florida Registration Number
(please affix seal)

SCS Engineers, 3012 US Highway 301 N., Suite 700
Mailing Address

Tampa, FL 33619
City, State, Zip Code

jbanks@scsengineers.com
E-Mail address (if available)

(813) 621-0080
Telephone Number

Date: 2-28-02

February 28, 2002

SECTION B

DISPOSAL FACILITY GENERAL INFORMATION

General information about the Central County Solid Waste Disposal Complex (CCSWDC) is described on pages 4-8 of the Application Forms included in Section A.

February 28, 2002

SECTION C

NON-DISPOSAL FACILITY GENERAL INFORMATION

This section is not applicable to the CCSWDC facility.

February 28, 2002

SECTION D

PROHIBITIONS

D.1 SITING CRITERIA

These criteria have been satisfied, as the CCSWDC is an existing facility.

D.2 EXEMPTIONS

CCSWDC does not qualify for any of the exemptions contained in Rules 62-701.300 (12) through (16), F.A.C.

D.3 BURNING CRITERIA

In accordance with Rule 62-701.300(3), open burning is not permitted at CCSWDC except when it is in accordance with Chapter 62-256, F.A.C.

D.4 HAZARDOUS WASTE

No hazardous waste shall be disposed of at this facility in accordance with Rule 62-701.300 (4), F.A.C. Hazardous material will be identified through load inspections as indicated in the CCSWDC Operations Plan presented in Section L.

D.5 PCB DISPOSAL

Polychlorinated biphenols (PCB) materials or wastes containing PCB materials shall not be disposed of at this facility, in accordance with Rule 62-701.300 (5), F.A.C.

D.6 BIOMEDICAL WASTE

Treated biomedical waste is accepted at CCSWDC and is buried or covered immediately upon receipt. No untreated biomedical waste is accepted for disposal, in accordance with Rule 62-701.300 (6), F.A.C.

D.7 SURFACE WATER

CCSWDC is not constructed within 3,000 feet of Class I surface waters, in accordance with Rule 62-701.300(7), F.A.C.

D.8 SPECIAL WASTE FOR LANDFILLS

Lead-acid batteries, used oil, and whole waste tires are not disposed of at CCSWDC. Yard trash accepted at CCSWDC is not disposed of in lined areas of the landfill. White goods accepted at the CCSWDC are recycled. These materials will be identified through load inspections as indicated in the CCSWDC Operations Plan presented in Section L.

D.9 SPECIAL WASTE FOR WASTE-TO-ENERGY FACILITIES

This Prohibition is not applicable, as the CCSWDC is not a waste-to-energy facility.

D.10 LIQUIDS

Non-containerized liquid wastes will not be placed at CCSWDC unless the waste is a household waste or is leachate or condensate generated within the landfill unit, or byproducts of the leachate or gas treatment. Containers of liquids shall not be placed within the disposal unit unless the container is small, a household waste, or the container is designed to hold liquids for use other than storage. Acceptance of incidental liquids at CCSWDC will comply with the provisions outlined in Rule 62-701.300(10), F.A.C.

D.11 USED OIL

Used oil is not accepted at CCSWDC for disposal. However, used oil is collected at the CCSWDC for temporary storage and removal for proper offsite disposal. Materials used for maintenance or clean-up of oil spills, is accepted, in accordance with Rule 62-701.300(11), F.A.C.

February 28, 2002

SECTION E

D.E.P.
MAR 0 1 2002
Southwest District Tampa

SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL

E.1 APPLICATION FORM AND SUPPORTING DOCUMENTS

Four copies of the application form, supporting data and reports have been submitted.

E.2 ENGINEERING CERTIFICATION

This permit application has been certified, signed, and sealed by John A. Banks, P.E., a registered Engineer in the State of Florida (License No.39397). Please refer to the permit application for the signature and seal of the registered professional engineer.

E.3 TRANSMITTAL LETTER

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

E.4 APPLICATION FORMS

FDEP Form No. 62-701.900(1) effective 05-27-01, dated and signed is included with this submittal.

E.5 PERMIT FEE

A check in the amount of $10,000, payable to FDEP, has been submitted with this document.

E.6 ENGINEERING REPORT

This document meets the requirements of an engineering report required by Rule 62-701.320(7)(d), F.A.C. In addition, this report references all applicable information submitted previously in the Initial Operation Permit Application for the Sarasota County Central County Solid Waste Disposal Complex dated December 1996 (revised March 1997) and the Central County Solid Waste Disposal Complex Construction Permit Application dated July 12, 1993.

E.7 OPERATION AND CLOSURE PLAN

The CCSWDC Operation Plan is presented in Section L. The Landfill Closure Plan is not applicable at this time.

E.8 CONTINGENCY PLAN

No substantial changes are proposed to the Landfill contingency plan, nor related ancillary facilities as specified in the current operating permit. Contingency plans are included in the Operations Plan presented in Section L.

E.9 DRAWINGS

Attachment E-1 contains drawings for the solid waste management facility including a regional map with site location and site plan showing the facility layout.

E.10 PROOF OF OWNERSHIP

Sarasota County continues to maintain ownership of the CCSWDC property. No change of ownership has occurred since the previous Operations Permit Application submittal.

E.11 REDUCTION AND RECYCLING GOALS

Reduction and recycling goals for CCSWDC have not changed since the previous Operations Permit Application submittal.

E.12 ENFORCEMENT HISTORY

No enforcement actions have occurred at CCSWDC since the previous Operations Permit Application submittal.

E.13 PROOF OF PUBLICATION

Notice of application and proof of publication of such notice is not required for an Operations renewal per Rule 62-701.320(8), F.A.C.

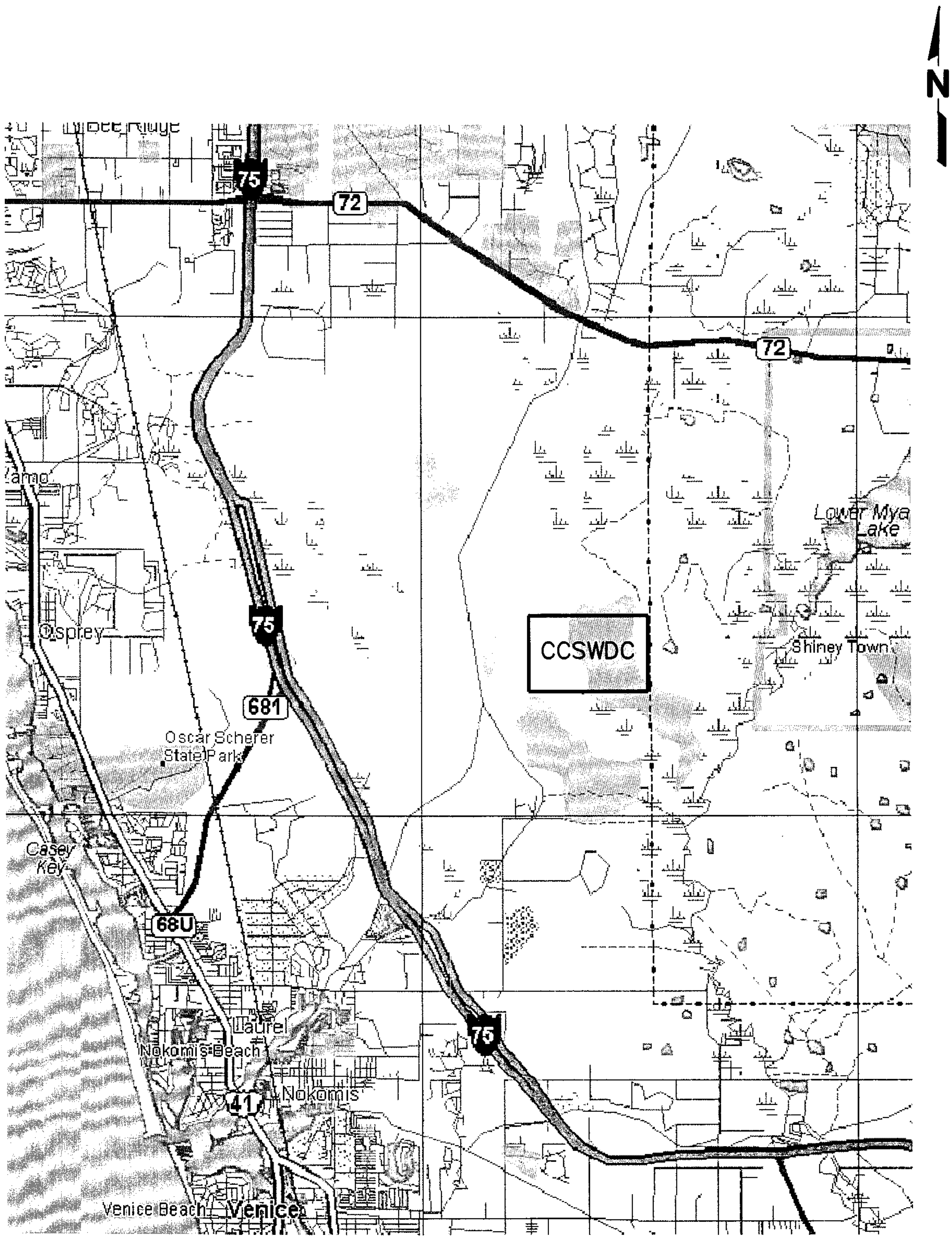
E.14 AIRPORT SAFETY

No substantial change in airport development in the vicinity of CCSWDC or to airport safety implemented at CCSWDC has occurred since the previous Operations Permit Application submittal.

E.15 OPERATOR TRAINING REQUIREMENTS

No substantial change in operator training at CCSWDC has occurred since the previous Operations Permit Application submittal. These requirements are described in the Operations Plan presented in Section L.

ATTACHMENT E-1



G:\PROJECT\Sarasota\0920101 0.01\V-q6-e1.dwg Feb 26, 2002 - 10:02am Layout Name: 8x11Regionalmap By: 2205kjq

SCS ENGINEERS

Figure E-1 Regional Map

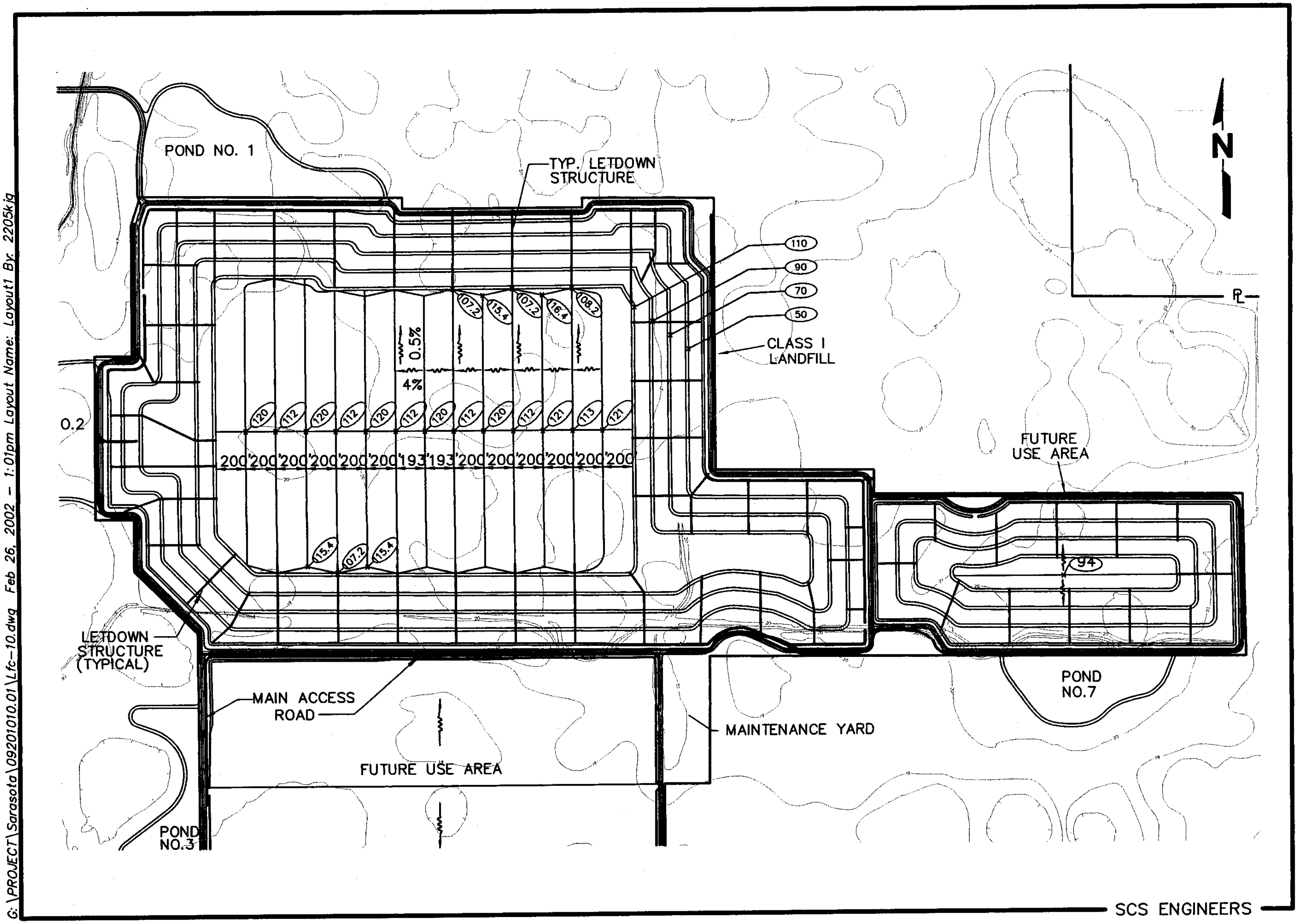


Figure E-3 Final Contours

QUIT-CLAIM DEED

RAMCO FORM 8

RECEIVED
APR 13 1992
Solid Waste Operations

This Quit-Claim Deed, *Executed this* 9 *day of* April *, A. D. 19* 92 *, by*
SARASOTA COUNTY, A POLITICAL SUBDIVISION OF THE STATE OF FLORIDA,
first party, to ALBRITTON GROVES, LTD., a Florida Limited Partnership

whose postoffice address is 5430 Proctor Road, Sarasota, FL 34233

second party:

(Wherever used herein the terms "first party" and "second party" shall include singular and plural, heirs, legal representatives, and assigns of individuals, and the successors and assigns of corporations, wherever the context so admits or requires.)

Witnesseth, *That the said first party, for and in consideration of the sum of* $ 10.00------ *, in hand paid by the said second party, the receipt whereof is hereby acknowledged, does hereby remise, release and quit-claim unto the said second party forever, all the right, title, interest, claim and demand which the said first party has in and to the following described lot, piece or parcel of land, situate, lying and being in the County of* Sarasota *State of* Florida *, to-wit:*

See attached Exhibit "A"

Subject to easements, restrictions and reservations of record and taxes for the current year.

To Have and to Hold *the same together with all and singular the appurtenances thereunto belonging or in anywise appertaining, and all the estate, right, title, interest, lien, equity and claim whatsoever of the said first party, either in law or equity, to the only proper use, benefit and behoof of the said second party forever.*

In Witness Whereof, *The said first party has signed and sealed these presents the day and year first above written.*

Signed, sealed and delivered in presence of:

ATTEST:
KAREN E. RUSHING, CLERK OF THE CIRCUIT COURT AND EX-OFFICIO CLERK OF THE BOARD OF COUNTY COMMISSIONERS OF SARASOTA COUNTY, FLORIDA
By: Clara A. Hendrickson
Deputy Clerk

BOARD OF COUNTY COMMISSIONERS OF SARASOTA COUNTY, FLORIDA
BY: [signature] L.S.
CHAIRMAN
(print name) Robert L. Anderson L.S.

STATE OF FLORIDA,
COUNTY OF Sarasota

I HEREBY CERTIFY that on this day, before me, an

O.R. 1910 PG 0787

EXHIBIT "A"

All of Section 1 (less the Northwest 1/4), all of Section 2 (less the Northeast 1/4), all of Sections 3, 4, 9, 10, 11, and 16, the West 1/2 of Section 12, the North 1/2 of Section 14, the North 1/2 of Section 15, the Northwest 1/4 and the South 3/4 of the Northeast 1/4 lying West of the centerline of the Myakka River in Section 13, all as located in Township 38 South, Range 19 East, Sarasota County, Florida.

AND

the West 100 feet of Sections 26 and 35, and the West 100 feet of that part of Section 23 lying South of the Sugar Bowl Road (State Road No. 72), Township 37 South, Range 19 East, Sarasota County, Florida.

LESS

a 10-acre parcel constituting the homestead of Michael and Julie Walton, which parcel shall be more specifically described prior to closing.

8 37 AM

FILED AND RECORDED

EXHIBIT "A"

Section 1 (less the Northwest 1/4), Section 2 (less the Northeast 1/4), Section 10, Section 11, the West 1/2 of Section 12, the North 1/2 of Section 14, the North 1/2 of Section 15, the Northwest 1/4 and the South 3/4 of the Northeast 1/4 lying West of the centerline of the Myakka River in Section 13, of Township 38 South, Range 19 East, Sarasota County, Florida, and the West 100 feet of Sections 26 and 35, and the West 100 feet of that part of Section 23 lying South of Sugar Bowl Road (State Road No. 72), Township 37 South, Range 19 East, Sarasota County, Florida.

2)

Warranty Deed

REAL PROPERTY OFFICER
SARASOTA COUNTY

The terms "Grantor" and "Grantee" shall include their respective heirs, devisees, personal representatives, successors and assigns, any gender shall include all genders, the plural number the singular and the singular, the plural

699756

This Indenture made this 23rd day of December A.D. 19 86 by and between

JAMES J. WALTON and JUNE WALTON, husband and wife, and June Walton aka Wyona June Walton

hereinafter referred to as Grantor, and

SARASOTA COUNTY

hereinafter referred to as Grantee, whose post office address is

Witnesseth: Grantor, in consideration of the sum of ten dollars and other valuable considerations to him in hand paid by Grantee, receipt of which is hereby acknowledged, does hereby grant, bargain, sell and convey to Grantee, his heirs and assigns forever, the following described property situate in Sarasota County, Florida:

All that certain property described on Exhibit "A" attached hereto and made a part hereof.

Subject to restrictions, reservations and easements of record and real estate taxes for 1987 and subsequent years.

Documentary Tax Pd. $ .55
Intangible Tax Pd. $
R. H. Hackney, Jr., Clerk, Sarasota County
By:
Deputy Clerk

together with all appurtenances, privileges, rights, interests, dower, reversions, remainders and easements thereunto appertaining. Grantor hereby covenants with Grantee that Grantor is lawfully seized of said property in fee simple; that it is free of encumbrances except as above stated; that Grantor has good right and lawful authority to convey same; and that Grantee shall have quiet enjoyment thereof. Grantor does hereby fully warrant the title to said property, and will defend the same against the lawful claims of all persons whomsoever.

In Witness Whereof, Grantor has signed and sealed this deed the date above written.

Signed, sealed and delivered
in the presence of:

Margaret Stone

James J. Walton (SEAL)
JAMES J. WALTON

June Walton (SEAL)
JUNE WALTON

Wyona June Walton (SEAL)
aka Wyona June Walton

(SEAL)

O.R. 1910 PG 0785

SECTION F

LANDFILL PERMIT GENERAL REQUIREMENTS

F.1 VICINITY MAP

No substantial change in the land use, local zoning, or significant features has occurred in the vicinity of CCSWDC since the previous Operations Permit Application submittal.

F.2 AIRPORT MAP

No change in airport development within a 5-mile radius of CCSWDC has occurred since the previous Operations Permit Application submittal.

F.3 PLOT PLAN

No substantial change to the CCSWDC plot plan showing landfill dimensions, locations of proposed and existing water quality monitoring wells, or locations of soil borings has occurred since the previous Operations Permit Application submittal.

A drawing showing the disposal areas and previously filled waste disposal areas are presented in Attachment F-1.

F.4 TOPOGRAPHIC PLAN

No substantial change to the CCSWDC drawing showing proposed fill areas, borrow areas, access roads, grades for drainage, lift cross-sections, fencing, or equipment facilities has occurred since the previous Operations Permit Application submittal.

No substantial changes to the borrow areas, access roads, drainage, lift cross-sections, or equipment facilities have occurred at CCSWDC since the previous Operations Permit Application submittal. Special drainage devices are shown on Sheet 16 of the Operations Drawings.

F.5 LANDFILL REPORT

F.5.a <u>Current and Projected Population</u>

Current and projected population data is included in the following table.

5-2-03

Table F-1. Sarasota County Current & Projected Population Data

1990	348,594
1999	404,106
2000	410,428
2005	440,474
2010	468,261
2015	497,142
2020	527,248

Population data for 1990 is based on information from the U.S. Bureau of Census while 1999 population data & 2000-2020 population projections are based on information from the Bureau of Economic and Business Research, College of Business Administration at the University of Florida.

F.5.b Waste Type, Quantity, and Source

CCSWDC is the final depository for municipal solid waste (MSW) in Sarasota County. MSW waste received at CCSWDC includes residential, commercial, treated biomedical, water treatment sludge, agricultural, asbestos, construction and demolition debris, shredded/cut tires, yard trash, industrial, industrial sludge, and domestic sludge wastes. No hazardous waste is accepted or deposited at CCSWDC. Sources of these wastes may include, but are not limited to, Sarasota, Venice, North Port, Longboat Key, and other unincorporated areas in Sarasota County.

The current (2001) quantity of waste requiring landfilling is estimated from total waste receipts recorded at CCSWDC. The projected future quantity of waste requiring landfilling is estimated to be a 3-percent increase in volume from the previous year. Long-term estimates of waste disposal at CCSWDC is including in the following table.

Table F-2. Sarasota County Current & Projected Waste Disposal Data (tons)

Year	Waste	Year	Waste	Year	Waste	Year	Waste
2001	267,395	2012	370,137	2023	512,356	2034	709,221
2002	275,417	2013	381,241	2024	527,727	2035	730,498
2003	283,679	2014	392,678	2025	543,559	2036	752,413
2004	292,190	2015	404,459	2026	559,866	2037	774,985
2005	300,955	2016	416,593	2027	576,662	2038	798,235
2006	309,984	2017	429,090	2028	593,962	2039	822,182
2007	319,283	2018	441,963	2029	611,780	2040	846,847
2008	328,862	2019	455,222	2030	630,134	2041	872,253
2009	338,728	2020	468,879	2031	649,038	2042	898,420
2010	348,890	2021	482,945	2032	668,509	2043	925,373
2011	359,356	2022	497,433	2033	688,564	2044	953,134

F.5.c Site Life Estimate

Based on the proposed final site topography, the site capacity was calculated to be 40,000,000 cubic yards (CY) as submitted in the application for construction. To date, approximately 1,950,000 CY have been consumed. Using the waste projections provided above, and historic estimates of in place waste density (approximately 1,100 lbs per CY) the anticipated life of CCSWDC is estimated to be 40 years. Attachment F-2 includes the details concerning the site life calculation.

F.5.d Source and Type of Cover Material

Clean soil used as initial or intermediate cover material at CCSWDC is provided by onsite borrow pits and stockpiled at various locations at the facility. Initial cover material also may consist partially of screened construction and demolition material, processed yard waste, shredded tires, composted yard waste fines mixed with soil, or any other FDEP approved initial cover material. Another type of initial cover includes the use of tarpaulins, pending weather conditions.

F.6 APPROVED LABORATORY

Attachment F-3 provides the current Quality Assurance Plan (QAP) approval for the laboratory currently performing water quality analysis for CCSWDC. If a different laboratory will be used in the future, a new QAP approval would be submitted to the Department for that laboratory.

F.7 FINANCIAL RESPONSIBILITY

No substantial change to the financial responsibility requirements for Sarasota County has occurred since the previous Operations Permit Application submittal.

February 28, 2002

ATTACHMENT F-1

PREVIOUSLY FILLED WASTE DISPOSAL AREAS

G:\PROJECT\Sarasota\09201010.04\011004Vg6e1c.dwg May 28, 2003 - 3:15pm Layout Name: Layout1 By: 1012bli

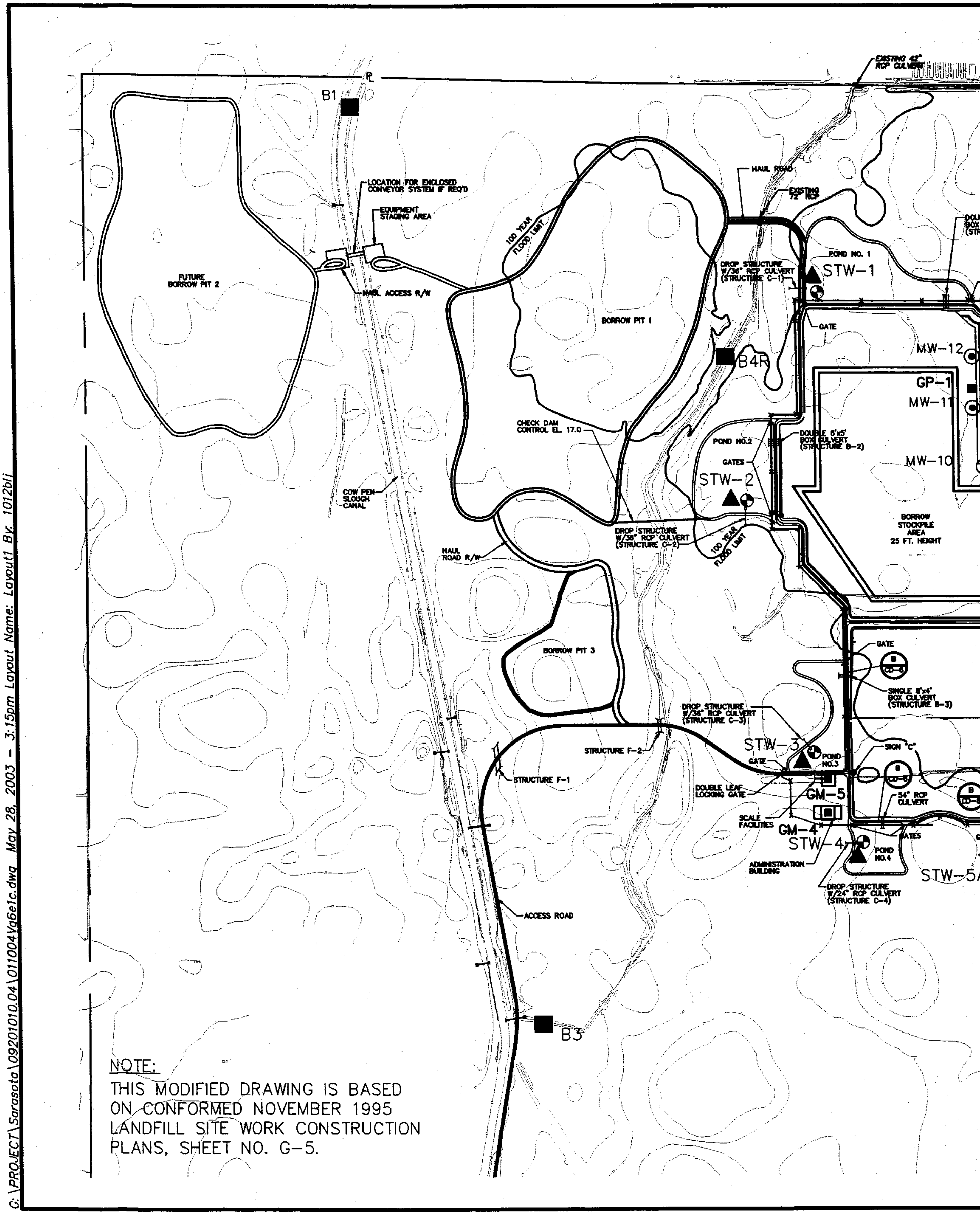
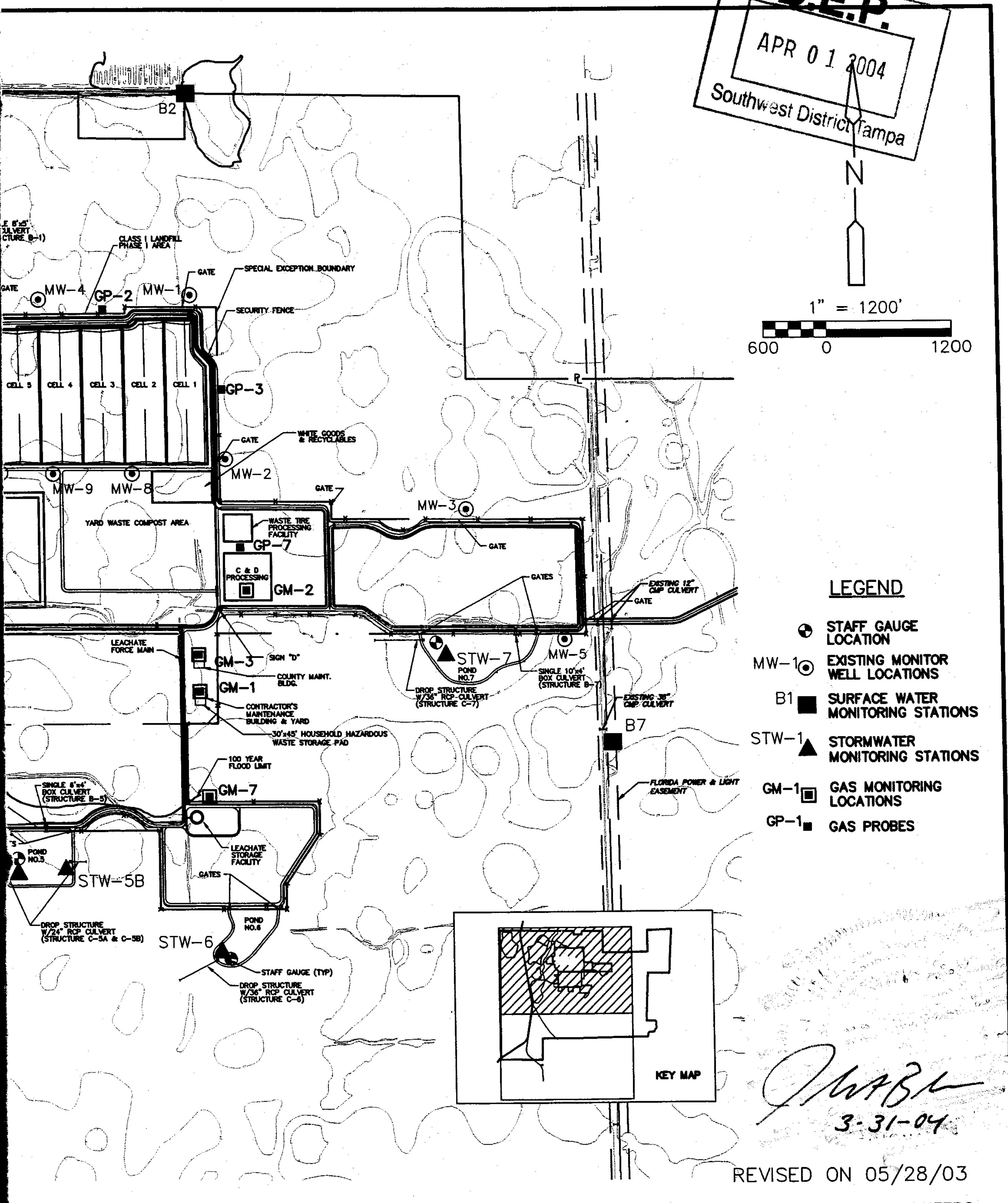


Figure E-2. Site Plan, Central County Solid Wa



3-31-04

REVISED ON 05/28/03

SCS ENGINEERS

ste Disposal Complex, Sarasota County, Florida.

February 28, 2002

ATTACHMENT F-2

CCSWDC SITE LIFE CALCULATION

ATTACHMENT F-2

SITE LIFE PROJECTION
Central County Solid Waste Disposal Complex

Original Site Volume (CY) 40,000,000

Volume Consumed Through 2001 (CY) 1,950,000

Year	Tons	Volume (CY)	Remaining Volume (CY)
2001	**267395**	**Consumed**	**38,050,000**
2002	275417	500758	37,549,242
2003	283679	515781	37,033,461
2004	292190	531254	36,502,207
2005	300955	547192	35,955,016
2006	309984	563607	35,391,408
2007	319284	580516	34,810,893
2008	328862	597931	34,212,961
2009	338728	615869	33,597,092
2010	348890	634345	32,962,747
2011	359357	653375	32,309,372
2012	370137	672977	31,636,395
2013	381241	693166	30,943,229
2014	392679	713961	30,229,268
2015	404459	735380	29,493,888
2016	416593	757441	28,736,447
2017	429090	780165	27,956,282
2018	441963	803569	27,152,713
2019	455222	827677	26,325,036
2020	468879	852507	25,472,529
2021	482945	878082	24,594,447
2022	497433	904424	23,690,023
2023	512356	931557	22,758,466
2024	527727	959504	21,798,962
2025	543559	988289	20,810,673
2026	559866	1017938	19,792,735
2027	576662	1048476	18,744,259
2028	593962	1079930	17,664,329
2029	611780	1112328	16,552,001
2030	630134	1145698	15,406,303
2031	649038	1180069	14,226,234
2032	668509	1215471	13,010,763
2033	688564	1251935	11,758,828
2034	709221	1289493	10,469,335
2035	730498	1328178	9,141,158
2036	752413	1368023	7,773,134
2037	774985	1409064	6,364,070
2038	798235	1451336	4,912,735
2039	822182	1494876	3,417,859
2040	846847	1539722	1,878,137
2041	872253	1585914	292,223
2042	898420	1633491	-1,341,268
2043	925373	1682496	-3,023,764
2044	953134	1732971	-4,756,735

Tonnages projected at 3% per year increase
Volume consumed based on an in-place density of 1100 pounds per cubic yard

Sitelife.xls

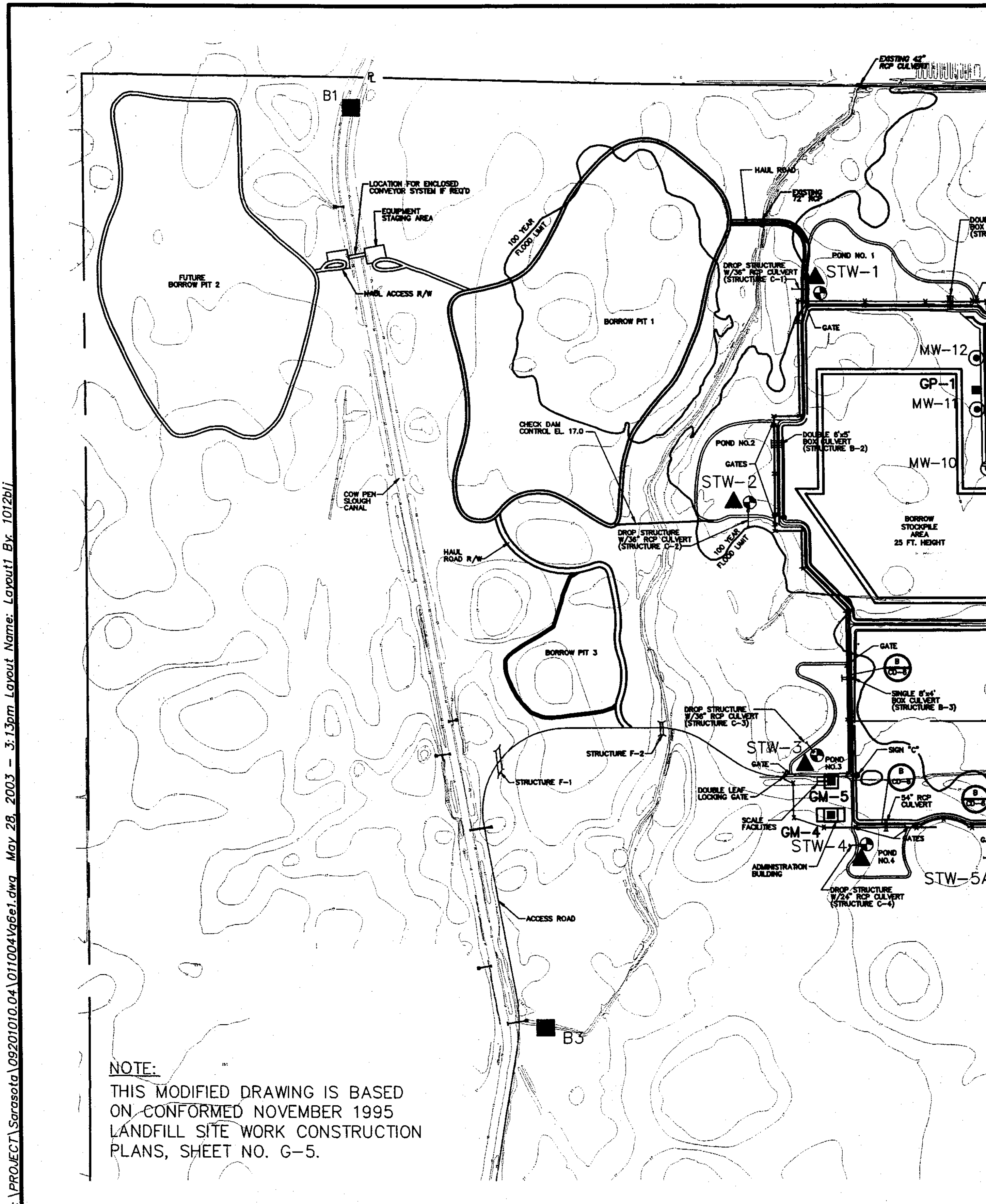


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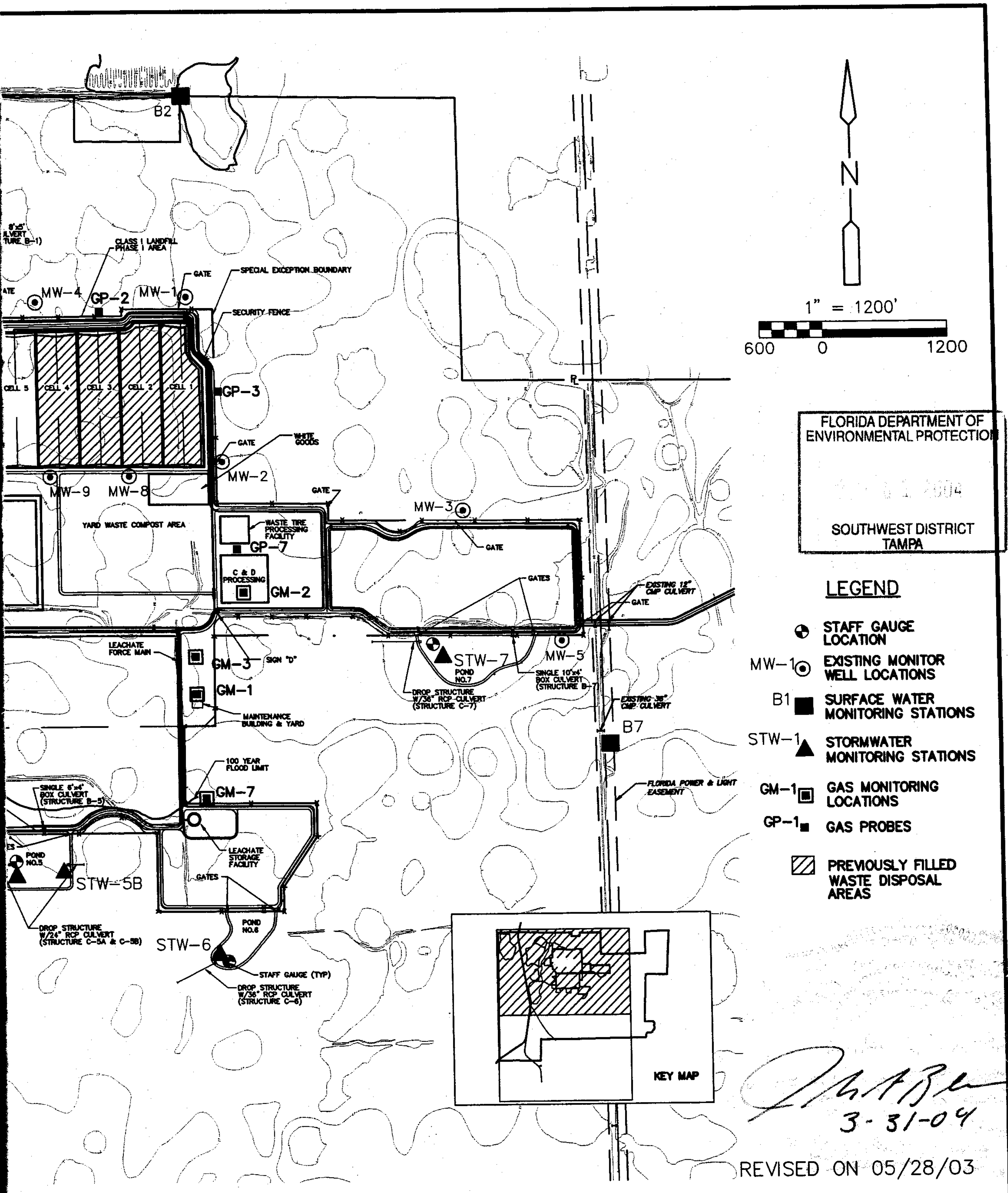
Figure F-1. Previously Filled Waste Disposal Ar



SCS ENGINEERS

as, Central County Solid Waste Disposal Complex, Sarasota County, Florida.

February 28, 2002

ATTACHMENT F-3

QUALITY ASSURANCE PLAN APPROVAL FOR CCSWDC LABORATORY

ACCREDITED IN ACCORDANCE WITH nelac

COPY

FLORIDA DEPARTMENT OF HEALTH

State of Florida, Department of Health
Bureau of Laboratories

This is to certify that

E83079

ELAB, Inc.
8 East Tower Circle
Ormond Beach, FL 32174

has complied with Florida Administrative Code 64E-1, for the examination of Environmental samples in the following categories:

SDWA - Microbiology, Primary Inorganic, Secondary Inorganic, Synthetic Organic Contaminants, Other Regulated Contaminants, Group I Unregulated Contaminants, Group II Unregulated Contaminants, Group III Unregulated Contaminants; CWA - Microbiology, Metals, General Chemistry, Volatile Organics, Extractable Organics, Pesticides-Herbicides-PCB's, Whole Effluent Toxicity; RCRA/CERCLA - Metals, General Chemistry, Volatile Organics, Extractable Organics, Pesticides-Herbicides-PCB's*************

Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are on file at the Bureau of Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

EFFECTIVE JULY 1, 2001 **THROUGH JUNE 30, 2002**

Ming S. Chan, Ph.D.
Bureau Chief, Bureau of Laboratories
Florida Department of Health
DH Form 1697, 3/98

NON - TRANSFERABLE - N 16 079

Jeb Bush
Governor

FLORIDA DEPARTMENT OF
HEALTH

Robert G. Brooks, M.D.
Secretary

THIS LISTING OF CERTIFIED ANALYTES SHOULD BE USED ONLY WHEN ASSOCIATED WITH A VALID CERTIFICATE ISSUED BY THE DEPARTMENT OF HEALTH

Laboratory Name:
ELAB INC.

Certification Number: E83079

EPA: FL00020
Effective Date: JANUARY 24, 2001
Supersedes previous analyte sheet(s) dated: OCTOBER 18, 2000

SAFE DRINKING WATER ACT

	MICROBIOLOGY	METHODS
N	Total Coliform & E. coli	SM9223B
N	Heterotrophic Plate Count	SM9215B

PRIMARY INORGANIC

	1. METALS	AA(FUR)	ICP	ICP/MS	OTHER
N	ANTIMONY	SM3113B			
N	ARSENIC	SM3113B	200.7		
N	BARIUM		200.7		
N	BERYLLIUM	SM3113B	200.7		
N	CADMIUM	SM3113B	200.7		
N	CHROMIUM	SM3113B	200.7		
N	LEAD	SM3113B			
N	MERCURY				245.1
N	NICKEL	SM3113B	200.7		
N	SELENIUM	SM3113B			
N	SODIUM		200.7		
N	THALLIUM	200.9			

	2. LEAD AND COPPER RULE	AA(FUR)	ICP	ICP/MS	OTHER
N	LEAD	SM3113B			
N	COPPER		200.7		
N	CALCIUM		200.7		
N	MAGNESIUM		200.7		
N	SILICA				SM4500Si D

		IC	ISE	UV-VIS	OTHER
N	ALKALINITY				SM2320B
N	pH		150.1		
N	ORTHO-PHOSPHATE	300.0		365.1	
N	SPECIFIC CONDUCTANCE				SM2510B

	3. CYANIDE	IC	ISE	UV-VIS	OTHER
N	CYANIDE			335.4	

	4. NITRATE AND NITRITE	IC	ISE	UV-VIS	OTHER
N	NITRATE	300.0		353.2	
N	NITRITE	300.0		353.2	
N	TOTAL NO2-NO3	300.0		353.2	

5. FLUORIDE & SULFATE

An "X" indicates certification for the analyte by the method(s) specified. An "N" further indicates certification compliant with the NELAC standards contained in 64E-1, F.A.C.

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N	FLUORIDE	300.0			
N	SULFATE	300.0			
	7. DISINFECTANT BY-PRODUCTS				
N	CHLORINE				SM4500CL D
N	TOTAL ORGANIC CARBON				SM5310B
N	UV-254 nm			SM5910B	
	SECONDARY INORGANIC	**AA(FUR)**	**ICP**	**UV-VIS**	**OTHER**
N	ALUMINUM		200.7		
N	CHLORIDE				300.0, 325.3, SM4500Cl- C
N	COLOR			110.2, SM2120B	
N	COPPER		200.7		
N	CORROSIVITY (Langlier Index)				SM2330B
N	FLUORIDE				300.0
N	IRON		200.7		
N	MANGANESE		200.7		
N	ODOR				140.1, SM2150B
N	pH				150.1
N	PERCHLORATE				314.0
N	SILVER		200.7		
N	SULFATE				300.0
N	SURFACTANTS (Foaming Agents)			425.1, SM5540C	
N	TOTAL DISSOLVED SOLIDS				160.1, SM2540C
N	ZINC		200.7		

	SYNTHETIC ORGANIC CONTAMINANTS	**GC**	**GC/MS**	**HPLC**
	1. INSECTICIDES			
N	ALACHLOR	505, 507, 508.1		
X	ATRAZINE	505		
N	CHLORDANE	505, 508.1		
N	ENDRIN	505, 508.1		
N	HEPTACHLOR	505, 508.1		
N	HEPTACHLOR EPOXIDE	505, 508.1		
N	LINDANE	505, 508.1		
N	METHOXYCHLOR	505, 508.1		
N	TOXAPHENE	505		
N	HEXACHLOROBENZENE	505, 508.1		
N	HEXACHLOROCYCLOPENTADIENE	505, 508.1		
N	SIMAZINE	505, 507, 508.1		
	2. HERBICIDES			
X	2,4-D	515.1		
X	PENTACHLOROPHENOL	515.1		
	2,4,5-TP (SILVEX)	515.1		
	DALAPON	515.1		

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FLORIDA DEPARTMENT OF HEALTH

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Governor

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N	DINOSEB	515.1	______	______
N	PICLORAM	515.1	______	______
	3. CARBAMATES			
N	CARBOFURAN			531.1
N	OXAMYL (VYDATE)			531.1
	4. DISINFECTANT BY-PRODUCTS/VOC'S			
N	1,2-DIBROMO-3-CHLOROPROPANE	504.1		
N	ETHYLENE DIBROMIDE	504.1		
	5. MISCELLANEOUS SOC'S			
N	DIQUAT			549.2
N	ENDOTHALL	______	548.1	
N	GLYPHOSATE			547
	6. PCB'S			
N	AROCLORS (PCB Screen)	505	______	
	7. ADIPATES AND PHTHALATES			
N	DI(2-ETHYLHEXYL) ADIPATE	______	525.2	
N	DI(2-ETHYLHEXYL) PHTHALATE	______	525.2	
	8. PAH			
N	BENZO(a)PYRENE		525.2	______
	9. HALOACETIC ACIDS			
N	BROMOACETIC ACID	552.1		
N	CHLOROACETIC ACID	552.1		
N	DIBROMOACETIC ACID	552.1		
N	DICHLOROACETIC ACID	552.1		
N	TRICHLOROACETIC ACID	552.1		
N	TOTAL HALOACETIC ACIDS	552.1		
	OTHER REGULATED CONTAMINANTS	**GC**	**GC/MS**	
	1. VOLATILE ORGANIC COMPOUNDS			
N	TRICHLOROETHYLENE	502.2	524.2	
N	TETRACHLOROETHYLENE	502.2	524.2	
N	CARBON TETRACHLORIDE	502.2	524.2	
N	VINYL CHLORIDE	502.2	524.2	
N	1,1,1-TRICHLOROETHANE	502.2	524.2	
N	1,2-DICHLOROETHANE	502.2	524.2	
N	BENZENE	502.2	524.2	

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N	p-DICHLOROBENZENE	502.2	524.2	
N	1,1-DICHLOROETHYLENE	502.2	524.2	
N	cis-1,2-DICHLOROETHYLENE	502.2	524.2	
N	1,2-DICHLOROPROPANE	502.2	524.2	
N	ETHYLBENZENE	502.2	524.2	
N	CHLOROBENZENE	502.2	524.2	
N	o-DICHLOROBENZENE	502.2	524.2	
N	STYRENE	502.2	524.2	
N	TOLUENE	502.2	524.2	
N	trans-1,2-DICHLOROETHYLENE	502.2	524.2	
N	TOTAL XYLENES	502.2	524.2	
N	DICHLOROMETHANE	502.2	524.2	
N	1,2,4-TRICHLOROBENZENE	502.2	524.2	
N	1,1,2-TRICHLOROETHANE	502.2	524.2	
	2. TRIHALOMETHANES			
N	BROMODICHLOROMETHANE	502.2	524.2	
X	BROMOFORM	502.2	524.2	
N	CHLORODIBROMOMETHANE	502.2	524.2	
N	CHLOROFORM	502.2	524.2	
N	TOTAL TRIHALOMETHANES	502.2	524.2	
	GROUP I UNREGULATED CONTAMINANTS	**GC**	**GC/MS**	**HPLC**
	1. CARBAMATES			
N	ALDICARB			531.1
N	ALDICARB SULFOXIDE			531.1
X	ALDICARB SULFONE			531.1
N	CARBARYL			531.1
N	3-HYDROXYCARBOFURAN			531.1
N	METHIOCARB			531.1
N	PROPOXUR (Baygon)			531.1
N	METHOMYL			531.1
	2. HERBICIDES			
N	DICAMBA	515.1		______
N	BENTAZON	515.1		______
N	2,4-DB	515.1		______
N	3,5-DICHLOROBENZOIC ACID	515.1		______
N	DICHLORPROP	515.1		______
N	5-HYDROXYDICAMBA	515.1		______
N	2,4,5-T	515.1		______
	3. INSECTICIDES			
N	ALDRIN	505, 508.1		
N	BUTACHLOR	507	______	
N	DIELDRIN	505, 508.1	______	
N	EPTC	507	______	

An "X" indicates certification for the analyte by the method(s) specified. An "N" further indicates certification compliant with the NELAC standards contained in 64E-1, F.A.C.

FLORIDA DEPARTMENT OF HEALTH

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Governor

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EPA: FL00020
Effective Date: JANUARY 24, 2001
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N	METOLACHLOR	507, 508.1	
N	METRIBUZIN	507, 508.1	
N	MOLINATE	507	
N	PROPACHLOR	508.1	
N	TERBACIL	507	
N	BROMACIL	507	
N	AMETRYN	507	
N	ATRATON	507	
N	BUTYLATE	507	
N	CARBOXIN	507	
N	CHLORPROPHAM	507	
N	2-CHLOROBIPHENYL		525.2
N	DICHLORVOS	507	
N	DIPHENAMID	507	
N	ETHOPROP (Prophos)	507	
N	FENAMIPHOS	507	
N	FENARIMOL	507	
N	METHYL PARAOXON	507	
N	MEVINPHOS	507	
N	MGK 264	507	
N	NAPROPAMIDE (Devrinol)	507	
N	2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL		525.2
N	2,2',3',4,6-PENTACHLOROBIPHENYL		525.2
N	PROPAZINE	507	
N	SIMETRYN	507	
N	STIROFOS (Tetrachlorvinphos)	507	
N	TEBUTHIURON	507	
N	TERBUTRYN	507	

4. HALOACETIC ACIDS

N	BROMOACETIC ACID	552.1
N	BROMOCHLOROACETIC ACID	552.1
N	CHLOROACETIC ACID	552.1
N	DIBROMOACETIC ACID	552.1
N	DICHLOROACETIC ACID	552.1
N	TRICHLOROACETIC ACID	552.1

GROUP II UNREGULATED CONTAMINANTS **GC**

1. VOLATILE ORGANIC COMPOUNDS

N	BROMOBENZENE	502.2	524.2
N	BROMODICHLOROMETHANE	502.2	524.2
X	BROMOFORM	502.2	524.2
N	BROMOMETHANE	502.2	524.2
N	CHLOROETHANE	502.2	524.2
N	CHLOROFORM	502.2	524.2
N	CHLOROMETHANE	502.2	524.2
N	DIBROMOCHLOROMETHANE	502.2	524.2
X	DICHLORODIFLUOROMETHANE	502.2	524.2
N	p-CHLOROTOLUENE	502.2	524.2

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N	DIBROMOMETHANE	502.2	524.2
N	1,1-DICHLOROETHANE	502.2	524.2
N	cis-1,3-DICHLOROPROPENE	502.2	524.2
N	trans-1,3-DICHLOROPROPENE	502.2	524.2
N	1,3-DICHLOROPROPANE	502.2	524.2
N	2,2-DICHLOROPROPANE	502.2	524.2
N	TRICHLOROFLUOROMETHANE	502.2	524.2
N	1,2,3-TRICHLOROPROPANE	502.2	524.2
N	m-DICHLOROBENZENE	502.2	524.2
N	1,1,1,2-TETRACHLOROETHANE	502.2	524.2
N	1,1,2,2-TETRACHLOROETHANE	502.2	524.2
N	METHYL tert-BUTYL ETHER	502.2	524.2
N	1,1-DICHLOROPROPENE	502.2	524.2
N	o-CHLOROTOLUENE	502.2	524.2
N	BROMOCHLOROMETHANE	502.2	524.2
N	n-BUTYLBENZENE	502.2	524.2
N	sec-BUTYLBENZENE	502.2	524.2
N	tert-BUTYLBENZENE	502.2	524.2
N	DBCP	502.2	524.2
N	EDB	502.2	524.2
N	HEXACHLOROBUTADIENE	502.2	524.2
N	ISOPROPYLBENZENE	502.2	524.2
N	4-ISOPROPYLTOLUENE	502.2	524.2
N	NAPHTHALENE	502.2	524.2
N	n-PROPYLBENZENE	502.2	524.2
N	1,2,3-TRICHLOROBENZENE	502.2	524.2
N	1,2,4-TRIMETHYLBENZENE	502.2	524.2
N	1,3,5-TRIMETHYLBENZENE	502.2	524.2

	GROUP III UNREGULATED CONTAMINANTS	GC	GC/MS
	1. BASE/NEUTRAL EXTRACTABLES		
N	BUTYL BENZYL PHTHALATE	________	525.2, 625
N	DI-n-BUTYL PHTHALATE	________	525.2, 625
N	DIETHYL PHTHALATE	________	525.2, 625
N	DIMETHYL PHTHALATE	________	525.2, 625
N	2,4-DINITROTOLUENE	________	525.2, 625
N	DI-n-OCTYL PHTHALATE	________	625
N	ISOPHORONE	________	525.2, 625
N	INDENO(123-cd)PYRENE		525.2
	2. ACID EXTRACTABLES		
N	2-CHLOROPHENOL	________	625
N	2-METHYL-4,6-DINITROPHENOL	________	625
N	PHENOL	________	625
N	2,4,6-TRICHLOROPHENOL	________	625

CLEAN WATER ACT

MICROBIOLOGY	METHODS

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N	FECAL COLIFORM	SM9222D	SM9221E
X	TOTAL COLIFORM	SM9222B	
N	FECAL STREPTOCOCCUS	SM9230C	
N	ENTEROCOCCI	1600	

	METALS	AA (FL or CV)	AA (FUR)	ICP or DCP	HYDRIDE	OTHER
N	ALUMINUM			200.7		
N	ANTIMONY		204.2	200.7		
N	ARSENIC		206.2, 7060	200.7, 6010		
N	BARIUM			200.7		
N	BERYLLIUM		210.2	200.7		
N	BORON			200.7		
N	CADMIUM		213.2, 7131	200.7, 6010		
N	CALCIUM			200.7		
N	CHROMIUM		218.2	200.7		
N	COBALT			200.7		
N	COPPER		220.2, 7211	200.7, 6010		
N	HARDNESS (calculation)			200.7, SM2340B		
N	IRON			200.7		
N	LEAD		239.2, 7421	200.7, 6010		
N	MAGNESIUM			200.7		
N	MANGANESE			200.7		
N	MERCURY	245.1, 7470				
N	MOLYBDENUM			200.7, 6010		
N	NICKEL		249.2, 7521	200.7, 6010		
N	POTASSIUM			200.7		
N	SELENIUM		270.2, 7740	200.7, 6010		
N	SILVER		272.2	200.7		
N	SODIUM			200.7		
N	THALLIUM		279.2	200.7		
X	TIN			200.7		
N	VANADIUM			200.7		
N	ZINC			200.7, 6010		

GENERAL CHEMISTRY — **METHODS**

1. NUTRIENTS

N	AMMONIA - N	350.1	
N	TOTAL KJELDAHL NITROGEN	351.2	
N	NITRATE - N	300.0, 353.2	
N	NITRATE-NITRITE - N	300.0, 353.2	
N	NITRITE - N	300.0, 353.2	
N	ORGANIC NITROGEN	351.2 - 350.1	
N	UN-IONIZED AMMONIA	DEP SOP 10-3-83	
N	ORTHOPHOSPHATE - P	300.0, 365.1	
N	TOTAL PHOSPHORUS	365.1, 365.4	

2. DEMANDS

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N	5 DAY BOD	405.1
N	5 DAY CARBON BOD	SM5210B
N	COD	410.4
N	TOC	415.1, SM5310B

3. MINERALS & OTHER INORGANICS

N	ACIDITY	305.1
N	ALKALINITY	310.1, SM2320B
N	BROMIDE	300.0
X	CHROMIUM(VI)	SM3500Cr D
N	CHLORIDE	300.0, 325.3, SM4500Cl- C
N	CHLORINE (residual)	330.1, SM4500CL D
N	CHLOROPHYLLS	SM10200H
N	COLOR	110.2, SM2120B
N	CONDUCTIVITY	120.1, SM2510B
N	CORROSIVITY (Langlier Index)	SM2330B
N	CYANIDE (Total)	335.3, 335.4
N	CYANIDE (Amenable to CL2)	335.1
N	FLUORIDE	300.0
N	pH	150.1
N	OIL & GREASE	1664
N	DISSOLVED OXYGEN	360.1
N	PETROLEUM HYDROCARBONS	1664
N	TOTAL PHENOLS	420.2, 420.4
N	TOTAL RESIDUE (TS)	160.3, SM2540B
N	FILTERABLE RESIDUE (TDS)	160.1, SM2540C
N	NON-FILTERABLE RESIDUE (TSS)	160.2, SM2540D
N	VOLATILE RESIDUE	160.4
N	SALINITY	SM2520B
N	DISSOLVED SILICA	370.1
N	SULFATE	300.0
N	SULFIDE	376.1, 376.2
N	SURFACTANTS	425.1, SM5540C
N	TURBIDITY	180.1, SM2130B

	VOLATILE ORGANICS	GC	GC/MS	HPLC
	1. PRIORITY POLLUTANTS			
N	ACROLEIN	______	624	
N	ACRYLONITRILE	______	624	
N	BENZENE	602	624	
N	BROMODICHLOROMETHANE	601	624	
N	BROMOFORM	601	624	
N	BROMOMETHANE	601	624	
N	CARBON TETRACHLORIDE	601	624	
N	CHLOROBENZENE	601, 602	624	
N	CHLOROETHANE	601	624	
N	2-CHLOROETHYL VINYL ETHER	601	624	
N	CHLOROFORM	601	624	
	CHLOROMETHANE	601	624	

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N	DIBROMOCHLOROMETHANE	601	624		
N	DBCP	504			
N	1,2-DIBROMOETHANE (EDB)	504			
N	1,2-DICHLOROBENZENE	601, 602	624		
N	1,3-DICHLOROBENZENE	601, 602	624		
N	1,4-DICHLOROBENZENE	601, 602	624		
N	DICHLORODIFLUOROMETHANE	601			
N	1,1-DICHLOROETHANE	601	624		
N	1,2-DICHLOROETHANE	601	624		
N	1,1-DICHLOROETHENE	601	624		
N	T-1,2-DICHLOROETHENE	601	624		
N	1,2-DICHLOROPROPANE	601	624		
N	C-1,3-DICHLOROPROPENE	601	624		
N	T-1,3-DICHLOROPROPENE	601	624		
N	ETHYLBENZENE	602	624		
X	METHYLENE CHLORIDE	601	624		
N	1,1,2,2-TETRACHLOROETHANE	601	624		
N	TETRACHLOROETHENE	601	624		
N	TOLUENE	602	624		
N	1,1,1-TRICHLOROETHANE	601	624		
N	1,1,2-TRICHLOROETHANE	601	624		
N	TRICHLOROETHENE	601	624		
N	TRICHLOROFLUOROMETHANE	601	624		
N	VINYL CHLORIDE	601	624		
	2. PHARMACEUTICAL AND OIL INDUSTRY EFFLUENTS				
N	TOTAL XYLENES	602	624		
	EXTRACTABLE ORGANICS	**GC**	**GC/MS**	**HPLC**	**OTHER**
	1. PRIORITY POLLUTANTS				
N	ACENAPHTHENE		625	610	
N	ACENAPHTHYLENE		625	610	
N	ANTHRACENE		625	610	
N	BENZIDINE		625		
N	BENZ(A)ANTHRACENE		625	610	
N	BENZO(B)FLUORANTHENE		625	610	
N	BENZO(K)FLUORANTHENE		625	610	
N	BENZO(G,H,I)PERYLENE		625	610	
N	BENZO(A)PYRENE		625	610	
N	BENZYL BUTYL PHTHALATE		625		
N	BIS(2-CHLOROETHOXY)METHANE		625		
N	BIS(2-CHLOROETHYL) ETHER		625		
N	BIS(2-CHLOROISOPROPYL) ETHER		625		
N	BIS(2-ETHYLHEXYL) PHTHALATE		625		
N	4-BROMOPHENYL PHENYL ETHER		625		
N	4-CHLORO-3-METHYLPHENOL		625		
N	2-CHLORONAPHTHALENE		625		
N	2-CHLOROPHENOL		625		
N	4-CHLOROPHENYL PHENYL ETHER		625		

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N	CHRYSENE		625	610	
N	DIBENZ(A,H)ANTHRACENE		625	610	
N	1,2-DICHLOROBENZENE		625		
N	1,3-DICHLOROBENZENE		625		
N	1,4-DICHLOROBENZENE		625		
N	3,3'-DICHLOROBENZIDINE		625		
N	2,4-DICHLOROPHENOL		625		
N	DIETHYL PHTHALATE		625		
N	2,4-DIMETHYLPHENOL		625		
N	DIMETHYL PHTHALATE		625		
N	DI-N-BUTYL PHTHALATE		625		
N	DI-N-OCTYL PHTHALATE		625		
N	2,4-DINITROPHENOL		625		
N	2,4-DINITROTOLUENE		625		
N	2,6-DINITROTOLUENE		625		
N	FLUORANTHENE		625	610	
N	FLUORENE		625	610	
N	HEXACHLOROBENZENE		625		
N	HEXACHLOROBUTADIENE		625		
N	HEXACHLOROCYCLOPENTADIENE		625		
N	HEXACHLOROETHANE		625		
N	INDENO(1,2,3-cd)PYRENE		625	610	
N	ISOPHORONE		625		
N	2-METHYL-4,6-DINITROPHENOL		625		
N	NAPHTHALENE		625	610	
N	NITROBENZENE		625		
N	2-NITROPHENOL		625		
N	4-NITROPHENOL		625		
N	N-NITROSODIMETHYLAMINE		625		
N	N-NITROSODI-N-PROPYLAMINE		625		
N	N-NITROSODIPHENYLAMINE		625		
N	PENTACHLOROPHENOL		625		
X	PHENANTHRENE		625	610	
N	PHENOL		625		
N	PYRENE		625	610	
N	1,2,4-TRICHLOROBENZENE		625		
N	2,4,6-TRICHLOROPHENOL		625		

	PESTICIDES-HERBICIDES-PCB'S	GC	GC/MS	HPLC
	1. ORGANOCHLORINE PESTICIDES & PCB's			
N	ALDRIN	608		
N	alpha-BHC	608		
N	beta-BHC	608		
N	delta-BHC	608		
N	gamma-BHC (Lindane)	608		
N	CHLORDANE	608		
N	CHLOROBENZILATE	608.1		
N	4,4'-DDD	608		
N	4,4'-DDE	608		
N	4,4'-DDT	608		

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N	DICHLORAN	608.2		
N	DIELDRIN	608		
N	ENDOSULFAN I	608		
N	ENDOSULFAN II	608		
N	ENDOSULFAN SULFATE	608		
N	ENDRIN	608		
N	ENDRIN ALDEHYDE	608		
N	HEPTACHLOR	608		
N	HEPTACHLOR EPOXIDE	608		
N	METHOXYCHLOR	608.2		
N	PENTACHLORONITROBENZENE	608.1		
N	TOXAPHENE	608		
N	PCB-1016	608		
N	PCB-1221	608		
X	PCB-1232	608		
N	PCB-1242	608		
X	PCB-1248	608		
N	PCB-1254	608		
N	PCB-1260	608		

3. HERBICIDES

X	2,4-D	615		
N	2,4-DB	615		
N	DALAPON	615		
X	DICAMBA	615		
N	DICHLORPROP	615		
N	DINOSEB	615		
X	2,4,5-T	615		
X	2,4,5-TP (Silvex)	615		
N	MCPA	615		
N	MCPP	615		

WHOLE EFFLUENT TOXICITY

1. FRESHWATER ACUTE TOXICITY (EPA/600/4-90/027F) Ref. Toxicant

N	Ceriodaphnia dubia	CdCl2
N	Daphnia magna	CdCl2
N	Pimephales promelas	CdCl2
N	Cyprinella leedsi	CdCl2

2. FRESHWATER CHRONIC TOXICITY (EPA/600/4-91/003)

N	Pimephales promelas (EPA 1000)	SODIUM DODECYL SULFATE
N	Ceriodaphnia dubia (EPA 1002)	NaCl

3. SALTWATER ACUTE TOXICITY (EPA/600/4-90/027F)

N	Mysidopsis bahia	CdCl2
N	Cyprinodon variegatus	CdCl2
N	Menidia beryllina	CdCl2

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4. SALTWATER CHRONIC TOXICITY (EPA/600/4-91/002)

N	Champia parvula (EPA 1009)	CuSO4

RESOURCE CONSERVATION & RECOVERY ACT / COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, & LIABILITY ACT

	METALS	AA (FL or CV)	AA (FUR)	ICP	HYDRIDE	ICP/MS
N	ALUMINUM			6010		
N	ANTIMONY		7041	6010		
N	ARSENIC		7060	6010		
N	BARIUM			6010		
N	BERYLLIUM		7091	6010		
N	BORON			6010		
N	CADMIUM		7131	6010		
N	CALCIUM			6010		
N	CHROMIUM		7191	6010		
N	COBALT			6010		
N	COPPER		7211	6010		
N	IRON			6010		
N	LEAD		7421	6010		
N	MAGNESIUM			6010		
N	MANGANESE			6010		
N	MERCURY	7470, 7471				
N	MOLYBDENUM			6010		
N	NICKEL		7521	6010		
N	POTASSIUM			6010		
N	SELENIUM		7740	6010		
N	SILVER		7761	6010		
X	SODIUM			6010		
N	STRONTIUM			6010		
N	THALLIUM		7841	6010		
N	TIN			6010		
N	VANADIUM			6010		
N	ZINC			6010		

	GENERAL CHEMISTRY	
N	BROMIDE	9056
N	CHLORIDE	9056, 9253
N	TOTAL CYANIDE	9012
N	CYANIDE AMENABLE TO CL2	9012
N	CONDUCTIVITY	9050
N	FLUORIDE	9056
N	pH	9040, 9045
N	NITRATE	9056
N	NITRITE	9056
N	TOTAL NITRATE-NITRITE	9056
	TOTAL PHENOLS	9066
	ORTHO-PHOSPHATE	9056

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N	SULFATE	9056
N	TOTAL SULFIDE	9030/9034
N	WASTE IGNITABILITY	1010, 1030
N	TOXICITY CHARACTERISTIC LEACHING PROCEDURE	1311
N	SYNTHETIC PRECIPITATION LEACHING PROCEDURE	1312
N	PAINT FILTER LIQUIDS TEST	9095

	VOLATILE ORGANICS	GC	GC/MS	HPLC
N	ACETONE		8260	
N	ACETONITRILE		8260	
N	ACROLEIN		8260	
N	ACRYLONITRILE		8260	
N	ALLYL CHLORIDE		8260	
N	BENZENE	8021	8260	
N	BROMOBENZENE	8021	8260	
N	BROMOCHLOROMETHANE	8021	8260	
N	BROMODICHLOROMETHANE	8021	8260	
N	BROMOFORM	8021	8260	
N	BROMOMETHANE	8021	8260	
N	n-BUTYLBENZENE	8021	8260	
N	sec-BUTYLBENZENE	8021	8260	
N	tert-BUTYLBENZENE	8021	8260	
N	CARBON DISULFIDE		8260	
N	CARBON TETRACHLORIDE	8021	8260	
N	CHLOROBENZENE	8021	8260	
N	CHLOROETHANE	8021	8260	
N	2-CHLOROETHYL VINYL ETHER	8021		
N	CHLOROFORM	8021	8260	
N	CHLOROMETHANE	8021	8260	
N	2-CHLOROTOLUENE	8021	8260	
N	4-CHLOROTOLUENE	8021	8260	
N	DIBROMOCHLOROMETHANE	8021	8260	
N	DBCP	8011, 8021	8260	
N	1,2-DIBROMOETHANE (EDB)	8011, 8021	8260	
N	DIBROMOMETHANE	8021	8260	
N	1,2-DICHLOROBENZENE	8021	8260	
N	1,3-DICHLOROBENZENE	8021	8260	
N	1,4-DICHLOROBENZENE	8021	8260	
N	cis-1,4-DICHLORO-2-BUTENE		8260	
N	trans-1,4-DICHLORO-2-BUTENE		8260	
N	DICHLORODIFLUOROMETHANE	8021	8260	
N	1,1-DICHLOROETHANE	8021	8260	
N	1,2-DICHLOROETHANE	8021	8260	
N	1,1-DICHLOROETHENE	8021	8260	
N	C-1,2-DICHLOROETHENE	8021	8260	
N	T-1,2-DICHLOROETHENE	8021	8260	
N	1,2-DICHLOROPROPANE	8021	8260	
N	1,3-DICHLOROPROPANE	8021	8260	
N	2,2-DICHLOROPROPANE	8021	8260	
N	1,1-DICHLOROPROPENE	8021	8260	
N	C-1,3-DICHLOROPROPENE	8021	8260	
N	T-1,3-DICHLOROPROPENE	8021	8260	

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N	p-DIOXANE		8260	
N	ETHANOL		8260	
N	ETHYLBENZENE	8021	8260	
N	ETHYL METHACRYLATE		8260	
N	HEXACHLOROBUTADIENE	8021	8260	
N	2-HEXANONE		8260	
N	ISOBUTYL ALCOHOL		8260	
N	ISOPROPYLBENZENE	8021	8260	
N	p-ISOPROPYLTOLUENE	8021	8260	
N	METHACRYLONITRILE		8260	
N	METHYL tert-BUTYL ETHER	8021	8260	
N	METHYLENE CHLORIDE	8021	8260	
N	METHYL ETHYL KETONE		8260	
N	METHYL IODIDE		8260	
N	METHYL METHACRYLATE		8260	
N	4-METHYL-2-PENTANONE (MIBK)		8260	
N	NAPHTHALENE	8021	8260	
N	PENTACHLOROETHANE		8260	
N	PROPIONITRILE		8260	
N	n-PROPYLBENZENE	8021	8260	
N	STYRENE	8021	8260	
N	1,1,1,2-TETRACHLOROETHANE	8021	8260	
N	1,1,2,2-TETRACHLOROETHANE	8021	8260	
N	TETRACHLOROETHENE	8021	8260	
N	TOLUENE	8021	8260	
N	1,2,3-TRICHLOROBENZENE	8021	8260	
N	1,2,4-TRICHLOROBENZENE	8021	8260	
N	1,1,1-TRICHLOROETHANE	8021	8260	
N	1,1,2-TRICHLOROETHANE	8021	8260	
N	TRICHLOROETHENE	8021	8260	
N	TRICHLOROFLUOROMETHANE	8021	8260	
N	1,2,3-TRICHLOROPROPANE	8021	8260	
N	1,2,4-TRIMETHYLBENZENE	8021	8260	
N	1,3,5-TRIMETHYLBENZENE	8021	8260	
N	VINYL ACETATE		8260	
N	VINYL CHLORIDE	8021	8260	
N	TOTAL XYLENES	8021	8260	

	EXTRACTABLE ORGANICS	GC	GC/MS	HPLC	LC/MS	GC/FTIR
N	ACENAPHTHENE		8270	8310		
N	ACENAPHTHYLENE		8270	8310		
N	ACETOPHENONE		8270			
N	2-AMINO-4,6-DINITROTOLUENE			8330		
N	4-AMINO-2,6-DINITROTOLUENE			8330		
N	ANTHRACENE		8270	8310		
N	BENZIDINE		8270			
N	BENZ(A)ANTHRACENE		8270	8310		
N	BENZOIC ACID		8270			
N	BENZO(B)FLUORANTHENE		8270	8310		
N	BENZO(K)FLUORANTHENE		8270	8310		
N	BENZO(G,H,I)PERYLENE		8270	8310		
N	BENZO(A)PYRENE		8270	8310		

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Certification Number: E83079
EPA: FL00020
Effective Date: JANUARY 24, 2001
Supersedes previous analyte sheet(s) dated: OCTOBER 18, 2000

N	BENZYL ALCOHOL		8270				
N	BENZYL BUTYL PHTHALATE		8270				
N	BIS(2-CHLOROETHOXY)METHANE		8270				
N	BIS(2-CHLOROETHYL) ETHER		8270				
N	BIS(2-CHLOROISOPROPYL) ETHER		8270				
N	BIS(2-ETHYLHEXYL) PHTHALATE		8270				
N	4-BROMOPHENYL PHENYL ETHER		8270				
N	CARBAZOLE		8270				
N	4-CHLOROANILINE		8270				
N	4-CHLORO-3-METHYLPHENOL		8270				
N	2-CHLORONAPHTHALENE		8270				
N	2-CHLOROPHENOL		8270				
N	4-CHLOROPHENYL PHENYL ETHER		8270				
N	CHRYSENE		8270	8310			
N	DIBENZ(A,H)ANTHRACENE		8270	8310			
N	DIBENZOFURAN		8270				
N	1,2-DICHLOROBENZENE		8270				
N	1,3-DICHLOROBENZENE		8270				
N	1,4-DICHLOROBENZENE		8270				
N	3,3'-DICHLOROBENZIDINE		8270				
N	2,4-DICHLOROPHENOL		8270				
N	2,6-DICHLOROPHENOL		8270				
N	DIETHYL PHTHALATE		8270				
N	2,4-DIMETHYLPHENOL		8270				
N	DIMETHYL PHTHALATE		8270				
N	DI-N-BUTYL PHTHALATE		8270				
N	DI-N-OCTYL PHTHALATE		8270				
N	1,3-DINITROBENZENE			8330			
N	2,4-DINITROPHENOL		8270				
N	2,4-DINITROTOLUENE		8270	8330			
N	2,6-DINITROTOLUENE		8270	8330			
N	DIPHENYLAMINE		8270				
N	1,2-DIPHENYLHYDRAZINE		8270				
N	FLUORANTHENE		8270	8310			
N	FLUORENE		8270	8310			
N	HEXACHLOROBENZENE		8270				
N	HEXACHLOROBUTADIENE		8270				
N	HEXACHLOROCYCLOPENTADIENE		8270				
N	HEXACHLOROETHANE		8270				
N	HMX			8330			
N	INDENO(1,2,3-cd)PYRENE		8270	8310			
N	ISOPHORONE		8270				
N	2-METHYL-4,6-DINITROPHENOL		8270				
N	2-METHYLNAPHTHALENE		8270				
N	2-METHYLPHENOL		8270				
N	4-METHYLPHENOL		8270				
N	NAPHTHALENE		8270	8310			
N	2-NITROANILINE		8270				
N	3-NITROANILINE		8270				
N	4-NITROANILINE		8270				
N	NITROBENZENE		8270	8330			
N	2-NITROPHENOL		8270				
N	4-NITROPHENOL		8270				

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N	PCB-1260	8082
N	ATRAZINE	8141
N	AZINPHOS METHYL (GUTHION)	8141
N	AZINPHOS ETHYL	8141
N	BOLSTAR	8141
N	CARBOPHENOTHION	8141
N	CHLORFENVINPHOS	8141
N	CHLORPYRIFOS	8141
N	COUMAPHOS	8141
N	DEMETON-O	8141
N	DEMETON-S	8141
N	DIAZINON	8141
N	DICHLOFENTHION	8141
N	DICHLORVOS	8141
N	DIMETHOATE	8141
N	DIOXATHION	8141
X	DISULFOTON	8141
N	EPN	8141
N	ETHION	8141
N	ETHOPROP	8141
N	FAMPHUR	8141
N	FENSULFOTHION	8141
N	FENTHION	8141
N	LEPTOPHOS	8141
N	MALATHION	8141
N	MERPHOS	8141
N	MEVINPHOS	8141
N	MONOCROTOPHOS	8141
N	NALED	8141
N	PARATHION ETHYL	8141
N	PARATHION METHYL	8141
N	PHORATE	8141
N	PHOSMET	8141
N	PHOSPHAMIDON	8141
N	RONNEL	8141
N	STIROFOS	8141
N	SULFOTEPP	8141
N	TEPP	8141
N	TERBUFOS	8141
N	THIONAZIN	8141
N	TOKUTHION	8141
N	TRICHLORONATE	8141
N	2,4-D	8151
N	2,4-DB	8151
N	2,4,5-T	8151
N	2,4,5-TP (SILVEX)	8151
N	ACIFLUORFEN	8151
N	BENTAZON	8151
N	DALAPON	8151
N	DICAMBA	8151
N	DICHLORPROP	8151
N	DINOSEB	8151
N	MCPA	8151

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N	N-NITROSODIMETHYLAMINE		8270			
N	N-NITROSODI-N-PROPYLAMINE		8270			
N	N-NITROSODIPHENYLAMINE		8270			
N	2-NITROTOLUENE			8330		
N	3-NITROTOLUENE			8330		
N	4-NITROTOLUENE			8330		
N	PENTACHLOROPHENOL		8270			
N	PHENANTHRENE		8270	8310		
N	PHENOL		8270			
N	PYRENE		8270	8310		
N	RDX			8330		
N	2,3,4,6-TETRACHLOROPHENOL		8270			
N	TETRYL			8330		
N	1,2,4-TRICHLOROBENZENE		8270			
N	2,4,5-TRICHLOROPHENOL		8270			
N	2,4,6-TRICHLOROPHENOL		8270			
N	1,3,5-TRINITROBENZENE			8330		
N	2,4,6-TRINITROTOLUENE			8330		
N	TOTAL PETROLEUM HYDROCARBONS	FL-PRO				
N	GASOLINE-RANGE ORGANICS	8015				
N	DIESEL-RANGE ORGANICS	8015				

	PESTICIDES-HERBICIDES-PCB'S	GC	GC/MS	HPLC	LC/MS
N	ALDRIN	8081			
N	alpha-BHC	8081			
N	beta-BHC	8081			
N	delta-BHC	8081			
N	gamma-BHC (Lindane)	8081			
N	a-CHLORDANE	8081			
N	g-CHLORDANE	8081			
N	CHLORDANE (technical)	8081			
N	4,4'-DDD	8081			
N	4,4'-DDE	8081			
N	4,4'-DDT	8081			
N	DIELDRIN	8081			
N	ENDOSULFAN I	8081			
N	ENDOSULFAN II	8081			
N	ENDOSULFAN SULFATE	8081			
N	ENDRIN	8081			
X	ENDRIN ALDEHYDE	8081			
N	ENDRIN KETONE	8081			
N	HEPTACHLOR	8081			
N	HEPTACHLOR EPOXIDE	8081			
N	HEXACHLOROBENZENE	8081			
N	METHOXYCHLOR	8081			
N	TOXAPHENE	8081			
N	PCB-1016	8082			
N	PCB-1221	8082			
N	PCB-1232	8082			
N	PCB-1242	8082			
N	PCB-1248	8082			
N	PCB-1254	8082			

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N	MCPP	8151			
N	4-NITROPHENOL	8151			
N	PENTACHLOROPHENOL	8151			
N	PICLORAM	8151			

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COPY

FLORIDA DEPARTMENT OF HEALTH

State of Florida, Department of Health
Bureau of Laboratories

This is to certify that

E84167

Benchmark EnviroAnalytical, Inc.
653 Tenth Street East
Palmetto, FL 34221

has complied with Florida Administrative Code 64E-1, for the examination of Environmental samples in the following categories:

SDWA - Microbiology, Primary Inorganic; CWA - Microbiology, Metals, General Chemistry; RCRA/CERCLA- Metals*************

Continued certification is contingent upon successful on-going compliance with FAC Rule 64E-1 regulations. Specific methods and analytes certified are on file at the Bureau of Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

EFFECTIVE JULY 1, 2001 **THROUGH JUNE 30, 2002**

Ming S. Chan, Ph.D.
Bureau Chief, Bureau of Laboratories
Florida Department of Health
DH Form 1629, 3/98

NON - TRANSFERABLE - F 350 167

FLORIDA DEPARTMENT OF HEALTH

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John O. Agwunobi, M.D., M.B.A
Secretary

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BENCHMARK ENVIROANALYTICAL, INC.

Certification Number: E84167

EPA: FL00289
Effective Date: October 23, 2001
Supersedes previous analyte sheet(s) dated: October 22, 2001

N	IRON	7380				
N	LEAD	7420	7421			
N	MAGNESIUM	7450				
N	MANGANESE	7460	7461			
N	MERCURY	7471				
N	MOLYBDENUM		7481			
N	NICKEL	7520	7521			
N	POTASSIUM	7610				
N	SELENIUM		7740			
N	SILVER	7760	7761			
N	SODIUM	7770				
N	THALLIUM	7840	7841			
N	ZINC	7950				

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N	NITRITE - N	SM4500NO2 B
N	ORGANIC NITROGEN	351.2-350.2
N	UN-IONIZED AMMONIA	DEP SOP 10-3-83
N	ORTHOPHOSPHATE - P	365.3
N	TOTAL PHOSPHORUS	365.3

2. DEMANDS

N	5 DAY BOD	SM5210B
N	5 DAY CARBON BOD	SM5210B
N	COD	410.4
N	TOC	415.1

3. MINERALS & OTHER INORGANICS

N	ALKALINITY	310.1
N	CHLORIDE	SM4500Cl- C
N	CHLORINE (residual)	330.5
N	CHLOROPHYLLS	445.0
N	COLOR	110.2
N	CONDUCTIVITY	120.1
N	FLUORIDE	340.2
N	HARDNESS	130.2
N	pH	150.1
N	OIL & GREASE	413.1, 1664
N	SPECIFIC OXYGEN UPTAKE RATE	SM2710B
N	PETROLEUM HYDROCARBONS	1664
N	TOTAL PHENOLS	420.1
N	FILTERABLE RESIDUE (TDS)	160.1
N	NON-FILTERABLE RESIDUE (TSS)	160.2
N	SETTLEABLE RESIDUE	160.5
N	TOTAL/FIXED/VOLATILE SOLIDS	SM2540G
N	SULFATE	375.4
N	SULFIDE	376.1
N	SURFACTANTS	SM5540C
N	TURBIDITY	180.1

RESOURCE CONSERVATION & RECOVERY ACT / COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, & LIABILITY ACT

	METALS	AA (FL or CV)	AA (FUR)	ICP	HYDRIDE	ICP/MS
N	Aluminum	7020				
N	ANTIMONY		7041			
N	ARSENIC		7060			
N	BARIUM		7081			
N	BERYLLIUM	7090	7091			
N	CADMIUM	7130	7131			
X	CALCIUM	7140				
N	CHROMIUM	7190	7191			
N	COBALT	7200	7201			
N	COPPER	7210	7211			

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N	MANGANESE	SM3113B	______	______	SM3111B
N	ODOR				140.1
N	pH				150.1
N	SILVER	SM3113B	______	______	SM3111B
N	SULFATE			______	375.4
N	SURFACTANTS (Foaming Agents)			SM5540C	
N	TOTAL DISSOLVED SOLIDS				160.1
N	ZINC		______	______	SM3111B

CLEAN WATER ACT

	MICROBIOLOGY		METHODS
N	FECAL COLIFORM	SM9222D	SM9221C
N	TOTAL COLIFORM	SM9222B	SM9221B
N	FECAL STREPTOCOCCUS	SM9230C	______
N	ENTEROCOCCI	______	1600

	METALS	AA (FL or CV)	AA (FUR)	ICP or DCP	HYDRIDE	OTHER
N	ALUMINUM	202.1	202.2	______	______	______
N	ANTIMONY	204.1	204.2	______	______	______
N	ARSENIC	______	206.2, 7060	______	______	______
N	BARIUM	______	208.2	______	______	______
N	BERYLLIUM	210.1	210.2	______	______	______
N	CADMIUM	213.1, 7130	213.2, 7131	______	______	______
N	CALCIUM	215.1	______	______	______	______
N	CHROMIUM	218.1	218.2	______	______	______
N	COBALT	219.1	219.2	______	______	______
N	COPPER	220.1, 7210	220.2, 7211	______	______	______
N	IRON	236.1	236.2	______	______	______
N	LEAD	239.1, 7420	239.2, 7421	______	______	______
N	MAGNESIUM	242.1	______	______	______	______
N	MANGANESE	243.1	243.2	______	______	______
N	MERCURY	245.1, 7471	______	______	______	______
N	MOLYBDENUM	246.1	246.2, 7481	______	______	______
N	NICKEL	249.1, 7520	249.2, 7521	______	______	______
N	POTASSIUM	258.1, 7610	______	______	______	______
N	SELENIUM	______	270.2, 7740	______	______	______
N	SILVER	272.1	272.2	______	______	______
N	SODIUM	273.1	______	______	______	______
N	THALLIUM	279.1	279.2	______	______	______
N	ZINC	289.1, 7950	289.2	______	______	______

GENERAL CHEMISTRY — **METHODS**

1. NUTRIENTS

N	AMMONIA - N	350.2	
N	TOTAL KJELDAHL NITROGEN	351.2	
N	NITRATE - N	353.2	______
N	NITRATE-NITRITE - N	353.2	______

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SAFE DRINKING WATER ACT

	MICROBIOLOGY	METHODS
X	Total Coliform	SM9222B
X	Fecal Coliform or E. coli	SM9221E
X	Total Coliform & E. coli	SM9223B

PRIMARY INORGANIC

	1. METALS	AA(FUR)	ICP	ICP/MS	OTHER
N	ANTIMONY	SM3113B			
N	ARSENIC	SM3113B			
N	BARIUM	SM3113B			
N	BERYLLIUM	SM3113B			
N	CADMIUM	SM3113B			
N	CHROMIUM	SM3113B			
N	LEAD	SM3113B			
N	MERCURY				245.1
N	NICKEL	SM3113B			
N	SELENIUM	SM3113B			
N	SODIUM				SM3111B
N	THALLIUM	200.9			

	2. LEAD AND COPPER RULE	AA(FUR)	ICP	ICP/MS	OTHER
N	LEAD	SM3113B			
N	COPPER	SM3113B			

	4. NITRATE AND NITRITE	IC	ISE	UV-VIS	OTHER
N	NITRATE			353.2	
N	NITRITE			SM4500NO2 B	
N	TOTAL NO2-NO3			353.2	

	5. FLUORIDE & SULFATE	IC	ISE	UV-VIS	OTHER
N	FLUORIDE		SM4500F C		

	SECONDARY INORGANIC	AA(FUR)	ICP	UV-VIS	OTHER
N	ALUMINUM	SM3113B			
N	CHLORIDE				SM4500Cl- C
N	COLOR			110.2	
N	COPPER				SM3111B
N	FLUORIDE				340.2
N	IRON				SM3111B

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ENVIRONMENTAL ASSOCIATES LTD. Water Source ID Sheet

Name of Next-Day Service	Tracking Number	Date Shipped

SEND ALL SAMPLES FOR NEXT-DAY DELIVERY BY UPS or FED.EX. (Please Do Not Use Fed Ex. Pickup Code)

Client Information

City/ Utility	[illegible]	Agency/Engineering Firm	
Contact Person	[illegible]	Contact Person	
Address	1301 [illegible] Sarasota Fl 34232	Address	
Phone	941-378-6925	Phone	
FAX		FAX	
Send report to above address	Yes ✓ No	Send report to above address	Yes No

Billing Information

NOTE: ----> To Insure Proper Billing Please Include P.O.# !!

Address is the same as City/ Utility ☐ Agency/Engineering Firm ☐ (Check one only)

If address is different, please make changes below.

Office		Purchase Order No.	
Contact Person		Are Voucher Forms Required	Yes No
Address		If voucher is needed, it must be furnished with this form.	Req. #
Phone		FAX#	Special Instructions

Sample Information

NOTE: ----> *The total number of gallons sampled must be** * recorded for us to process samples.

Collector of Sample	C. Rodriguez	Meter Reading	
Date Sampled	12/19/01	Finish	64 10:25
Water Source Location	[illegible]	Start	59 9:40
Sample Taken From	[illegible]	Total Gallons -->	

Water Source ID

In order to speed sample processing please fill out this section. (please indicate with a mark)

Tests Requested:

		Select Method:	Select Method:
Drinking Water:	Giardia & Cryptosporidium:	EPA-ICR	EPA1623
	Enteric Virus Analysis:	EPA-ICR	Other
	Microscopic Particle Analysis to Determine Filter Plant Efficiency		
	Microscopic Particle Analysis to determine Groundwater Under Surface Water Influence		
	Microscopic Particle Analysis to Characterize Source Water		
	Algal Analysis	Laser Particle Counting	Other
Waste Water & Biosolids:	Enteric Viruses	Salmonella	Coliform
	Helminth Ova	Coliphage	Giardia & Crypto.

I	Surface Water:	Impoundment	River	Other	
II	Filtered Water:	Type Filter Plant			
III	Ground Water:	Spring	Infil Gallery	Artesian Well	Dug Well
		If Well:	Depth	Distance From River/Stream/Lake	
IV	Waste Water:	Influent	Effluent	Biosolid	

Field Measurements	Date	Turbidity	pH	Total Cl	Free Cl	Water Temp	TC/100ml	FC/100ml	HPC/ml
Setup	12/19/01	.20	6.9	5.0					
Pickup	12/19/01	.[illegible]	6.87	5.0		24.7			

Comments

*** PLEASE INDICATE WHETHER RUSH SERVICE IS REQUIRED***	1 day	2 days
Please indicate the requested rush service:	3 days	Weekend

Telephone Result	Yes	No	Telephone No.
FAX Result	Yes	No	FAX No.

ENVIRONMENTAL ASSOCIATES LTD. Water Source ID Sheet

Name of Next-Day Service	Tracking Number	Date Shipped

SEND ALL SAMPLES FOR NEXT-DAY DELIVERY BY UPS or FED.EX. (Please Do Not Use Fed Ex. Pickup Code)

Client Information

City/ Utility	Sarasota Co. Util. Svcs
Contact Person	C. Rodriguez
Address	1301 Cattlemen Rd Sarasota, FL. 34232
Phone	941-378-6225
FAX	
Send report to above address	Yes ✓ No

Agency/Engineering Firm	
Contact Person	
Address	
Phone	
FAX	
Send report to above address	Yes No

Billing Information

NOTE: ----> To Insure Proper Billing Please Include P.O.# !!

Address is the same as City/ Utility ☐ Agency/Engineering Firm ☐ (Check one only)

If address is different, please make changes below.

Office	
Contact Person	
Address	
Phone	

Purchase Order No.	
Are Voucher Forms Required	Yes No
If voucher is needed, it must be furnished with this form.	Req. #
FAX#	Special Instructions

Sample Information

Collector of Sample	C. Rodriguez
Date Sampled	12/19/01
Water Source Location	Central County
Sample Taken From	Control Monitor

NOTE: ---> *The total number of gallons sampled must be** * recorded for us to process samples.

Meter Reading		
Finish	60	12:32
Start	30	11:42
Total Gallons -->	30	

Water Source ID

In order to speed sample processing please fill out this section. (please indicate with a mark)

Tests Requested:

		Select Method:	Select Method:
Drinking Water:	Giardia & Cryptosporidium:	EPA-ICR	EPA1623
	Enteric Virus Analysis:	EPA-ICR	Other
	Microscopic Particle Analysis to Determine Filter Plant Efficiency		
	Microscopic Particle Analysis to determine Groundwater under Surface Water Influence		
	Microscopic Particle Analysis to Characterize Source Water		
	Algal Analysis	Laser Particle Counting	Other
Waste Water & Biosolids:	Enteric Viruses	Salmonella	Coliform
	Helminth Ova	Coliphage	Giardia & Crypto

I	Surface Water:	Impoundment	River	Other	
II	Filtered Water:	Type Filter Plant			
III	Ground Water:	Spring	Infill Gallery	Artesian Well	Dug Well
		If Well	Depth	Distance From River/Stream/Lake	
IV	Waste Water:	Influent	Effluent	Biosolid	

Field Measurements	Date	Turbidity	pH	Total Cl	Free Cl	Water Temp	TC/100ml	FC/100ml	HPC/ml
Setup	12/18/01		7.53	5.0		24.6			
Pickup	12/19/01		7.60	5.0		24.7			

Comments:

*** PLEASE INDICATE WHETHER RUSH SERVICE IS REQUIRED***

Please indicate the requested rush service:	1 day	2 days
	3 days	Weekend

Telephone Result	Yes	No	Telephone No.
FAX Result	Yes	No	FAX No.

MAIN OFFICE
24 Oak Brook Drive • Ithaca, NY 14850 • (607) 272-8902 • Fax (607) 256-7092 • www.EAL-Labs.com • E-Mail: SusanBoutros@EAL-Labs.com

Environmental Associates Ltd.
24 Oak Brook Drive, Ithaca, NY 14850
(607) 272-8902 Fax (607) 256-7092

Chain of Custody Form

Project No.

Project Name: Venice Gardens, LLC

Samplers (signature): [signature]

Station Number	Station Location	Date	Time	Particle Counts	Giardia & Crypto	G&C Method 1623	MPA	Virus	Helminth ova	Fecal coliform	Salmonella	Other
	Venice Gardens	12/19/01	10:30			✓						
	[illegible]	12/19/01	12:32			✓						

Relinquished by:	Date	Time	Relinquished by:	Date	Time
[signature]	12/19/01		[signature]	12/19	1345
Relinquished by: Theresa Breheny	12/19/01	16:00	Received for Environmental Associates Ltd. by:		
Shipping Service & Tracking Number			Comments:		

Elab, Inc.
8 East Tower Circle
Ormond Beach, FL 32174
(904)672-5668 ● FAX (904)673-4001

ELAB, Inc.

(INSTRUCTIONS ON BACK OF THIS FORM)

CHAIN OF CUSTODY RECORD

No. E 43521

FOR LAB USE ONLY
Condition of Contents:
Temp. of Contents: ____ C (or Received on Ice, ROI) Condition of Seals: ____

FOR LAB USE ONLY
Submission No.

1. Client: (Company or Individual) [illegible]

Address: 1301 [illegible]
City [illegible] State [illegible] Zip Code [illegible]
Phone: ( ) [illegible]
Fax: ( )

2. Report to: (if different from above) [illegible]

Address:
City State Zip Code
Phone: ( )
Fax: ( )

18. Report Type:
- ✓ Routine
- Standard QC
- Datapackage

19. Turnaround Time
- ✓ Standard
- Rush: / /

3. Client Project Name: [illegible]
4. Client Project No.: [illegible]
5. P.O. No.:
6. Custody Seal No.:
7. Sampled By: [illegible]
8. Shipping Method:

Water Sample Codes (for Item 13)	Container Codes (for Item 16)
DW = Drinking Water	V = VOA vial
GW = Ground Water	G = glass
SW = Surface Water	P = plastic
PW = Processed Water	M = micro bag/cup
WW = Waste Water	O = other

14. No. of Containers
15. Preservatives: C
16. Containers: [illegible]
17. Analyses Requested: [illegible] | [illegible] TCL

Preservative Codes (for Item 15)
- C = Cool Only
- H = Hydrochloric Acid
- M = Monochloroacetic Acid
- N = Nitric Acid
- OH = Sodium Hydroxide
- S = Sulfuric Acid
- T = Sodium Thiosulfate

Item	9. Sample ID or No.	10. Sample Description	11. Date	Time	12. Comp.	Grab	13. Water (Codes)	Air	Soil	Sludge	Other	14. No. of Containers	17. Analyses		20 REMARK	LAB USE ONLY LAB SAMPLE NO.
1		[illegible]	[illegible]	0945		✓			✓			2	A	B		
2		[illegible]	[illegible]	1245		✓			✓			2	A	C		
3		[illegible]	[illegible]	1345		✓			✓			2	A	C		
4		[illegible]	[illegible]	1400		✓			✓			2	A	C		
5		[illegible]	[illegible]	1100		✓			✓			2	A	C		
6		[illegible]	[illegible]	1130		✓			✓			2	A	C		
7		Duplicate	[illegible]	—		✓			✓			2	A	C		
8																
9																
10																

21.	RELINQUISHED BY	DATE	TIME	22. RECEIVED BY	DATE	TIME
1	[illegible]	[illegible]	1700			
2						
3						
4						

FOR LAB USE ONLY
Sampling Fee: ________ Hrs.
Equipment Rental Fee: ________
Profile No.: Quote No.:

DISTRIBUTION: White with report; Blue, Green, Yellow to labs; Gold to submitter

Revised: 1/99

AYRES ASSOCIATES

FAX TRANSMITTAL

To:	Cesar Rodrigez	From:	Clayton Hamilton
Company:	Sarasota County Env. Services	Date:	December 19, 2001
Department:		Project No.:	00-0000.00
Fax Number:	941 378-6273	Re:	NPDES
Number of Pages (Including this Transmittal):	2		

Remarks:

Attached is a copy of the COC for the sediment samples collected for the NPDES project.

The sample are being forwarded to ELAB. If you have any questions please do not hesitate to contact me at 813 978-8688.

Engineers/Planners/Scientists
8675 Hidden River Parkway, Suite 200, Tampa, FL 33637, (813) 978-8688, FAX (813) 978-9369

Bullish Report

Ticker: ZKID
Rating: Strong Buy
Target Price: $10

Go Ahead, Run With The Bulls!

Stock Symbol	Pink Sheets: ZKID
Rating	Strong Buy
Current Price	$1
12 Month Target Price	$10.00

For more information visit:
www.bullishreport.com
or
www.zkidnetwork.com

ZKID

The First Virtual Private Network for Kids that provides Safety and Security.
ZKID is targeting a age group of 4 to 10 – which currently accounts for 20% of the nations retail purchasing power - a whopping $55 Billion Dollars!

Dear Investors and Parents:

It may not be a stellar holiday season for retail sales, but investors can still find small cap stocks to put in their stockings. The Federal Reserve just cut U.S. interest rates to levels we haven't seen in 40-years. Small to mid-cap companies offer the most promise next year because they are nimble and respond quickly to changes in demand. Small to mid-cap companies will snap back in the economic recovery, analysts say. Based on the economic climate, we are concentrating on a small list of small cap stocks that you can participate in before the New Year to give your portfolio a boost for the New Year!

*****Our Current recommendation is: ZKID *****

zKid Network (ZKID) ZKid Network is a children's community based *Virtual Private Network*, utilizing advanced server technology, with a fully integrated 3D animated client application called KidsKeep™. KidsKeep provides kid-safe connectivity to the Internet, as well as the child's passport to the fun that a waits in zKid Network's Virtual Private Network. Let your child surf the Information SuperHighway in a safe, secure, and fun environment.

ZKid Network was designed as a media content company to protect children in today's Internet environment; providing a conduit for education, entertainment and exploration of the information age. Simply put, the zKid Network gives parents the greatest amount of security as their children utilize the vast resources available in today's exciting, complex, and sometimes disturbing and immoral Internet environment.

The Market

AOL and many other major ISP's derived most of their revenue from subscriptions. The Internet is growing daily and an age group that is embracing the Internet with lightning speed is kids ages 4 to 10. Our youth represent the cybergurus of today. This presents a major problem as children are exposed to pornographic and other highly objectionable materials. This is where zKid Network (ZKID) has its niche. They provide a safe community in which to browse and surf through as well as learn.

Reasons to buy this stock

1) The WhiteHouse.gov official web site has recommended Magic Windows, a Monthly magazine for which ZKID network has the exclusive online rights to publish the magazine online while being a clear acquisition target for ZKID network. for children.

2) 40 Million Americans are on the Internet.. Capturing only 1% of that market, can achieve 400, 000 Subscribers which easily give ZKID $40 Million in sales a year. This allows for a conservative stock valuation of $7 per share.

3) One way of obtaining subscribers is through a strategic alliance with a major consumer brand company.

Final Word

Imagine if you invested in **AOL** in the early days? Well, those days are over however **ZKID** network provides similar information for a core age group. This emerging company has a comparable business model that is targeted and virtually untapped on the Internet. Do not miss this opportunity, once Wall Street finds out what they have planned it will not be trading at these levels much longer!

Wet Chemistry Laboratory Data Sheet
Total Dissolved Solids
160.1 / SM 2540C

Analyst Name: MPM Supervisor Review:

Date Analysis: 10/22/01 Approval Date:

Batch # : TDS

LIMS Run No:

Enable Blank Correction ? (Y or N) : Y

Magnitude of Blank Corection (g) : -0.0004

Sub-Samp #	Dish #	Dish Wt. (g)	Spec. Cond.	Samp. Vol (mL)	1st Dry Wt (g)	2nd Dry Wt (g)	TDS (mg/L)	QC / Comments
Blank 1	82	70.5859	N/A	N/A	70.5863	70.5863	0.0004	
Blank 2	66	67.0173	N/A	N/A	67.0177	67.0177	0.0004	
LFB TV=300	47	83.6320		100	83.6619	83.6619	295	QC Within Acceptable Limits, 90-110%
10569 1	11	67.1179	1464.0	10	67.1286	67.1287	1035	
10569 2	33	81.7795	1465.0	10	81.7915	81.7914	1155	
10569 3	93	72.2914	1338.0	10	72.3018	72.3019	1005	
10569 4	72	82.5271	1457.0	10	82.5389	82.5389	1140	
10575 1	40	71.7086	364.0	50	71.7216	71.7216	252	
10575 1D	3	67.1399	364.0	50	67.1524	67.1525	243	
10576 1	93	67.0464	1.0	100	67.0463	67.0466	< 5.0	
10576 2	70	69.4557	1.0	100	69.4556	69.4557	< 5.0	
10464 2	25	66.2622	1266.0	10	66.2785	66.2785	1590	RERUN FROM 10/18/01. *
10464 2D	6	68.4752	1266.0	10	68.4916	68.4916	1600	Spec.Cond. Mismatch, Check For Error *
10464 4	70	69.6148	138.0	100	69.6323	69.6323	171	RERUN FROM 10/19/01. *
10464 4D	50	66.7521	138.0	100	66.7704	66.7704	179	Spec.Cond. Mismatch, Check For Error *
10484 6	84	67.1259	5400.0	10	67.1860	67.1860	5970	ORANGE TINT SAMPLE *
10484 6D	67	66.7549	5400.0	10	66.8143	66.8143	5900	CLOUDY SAMPLE *

REQUEST FOR CHECK OR RE-ANALYSIS

TRACKING #: 460 Date: 12-14-01

Department: ☐ Metals ☐ Semi-VOC ☐ VOC ☑ Wet Chemistry

Initiated By: ☐ Asya ☐ Myrna ☐ Marianne ☐ Sheila W. ☐ Jeff ☑ Joe ☐ Paul ☐ QA

☐ Re-Check (no re-run required) ☐ Requires a QC sheet
☐ Re-Analysis (repeat procedure)

	Sample No.	Parameter	Method No.	Initial Results	Initial Run Date	Confirmed or New Results	date rerun if applicable
1	6110464-2	TDS	160.1	1600	10/22	1600	Rachel [illegible] 10/19/01
2							
3							
4							
5							

Reasons: ~~Did we check~~ Result reported is about 2X historical data. Please check data - Rerun if still have sample -

J

☑ Requested by client
☐ Disparity with historical data
☐ Does not agree with other parameters
☐ Positive results for a field generated blank (Trip Blank, Equip Blank, Field Blank)
☐ Corrections required on QC Sheets
☐ Replicates do not match
☐ Results above MCL

Supervisor Comments/Initials: Sample was rechecked 3X. Once on 10/19 and duplicates on 10/22 with all results the same -

☐ Confirms original results
☐ Different results
☐ LIMS results changed/updated
☐ Data entry error
☐ QC Report is provided

Re-Check Date (if applicable): ____________

Date Completed: ____________

Original on Blue Paper

SECTION G

GENERAL CRITERIA FOR LANDFILLS

G.1 100 YEAR FLOOD PLAIN

~~Demonstration that~~ The CCSWDC disposal limits are not within the 100-year floodplain. ~~was provided in the previous Operations Permit Application submittal. No substantial change in this information has occurred since the previous Operations Permit Application submittal.~~

G.2 DISTANCE FROM BOUNDARY

~~Demonstration that~~ The CCSWDC disposal limits and landfill property boundary maintains a minimum of 100 feet of horizontal separation ~~was provided in the previous Operations Permit Application submittal. No substantial change in this information has occurred since the previous Operations Permit Application submittal.~~

G.3 SCREENING

~~Demonstration of the use of screening at~~ The CCSWDC ~~was provided in the previous Operations Permit Application submittal. No substantial change in this information has occurred since the previous Operations Permit Application submittal.~~ is screened from public view by a substantial buffer area containing mature pine trees.

February 28, 2002

SECTION H

LANDFILL CONSTRUCTION REQUIREMENTS

This section is not applicable to this application for the renewal of the Operations Permit.

February 28, 2002

SECTION I

HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS

The needed requirements of this section are addressed n Appendix A, the CCSWDC Biennial Water Quality Monitoring Report.

~~June 21~~September 13, 2002

SECTION J

GEOTECHNICAL INVESTIGATION REQUIREMENTS

J.1 GEOTECHNICAL SITE INVESTIGATION REPORT

No substantial change to the geotechnical and ~~investigation~~hydrogeological conditions at CCSWDC has occurred since the ~~previous Operations Permit Application submittal~~geotechnical and hydrogeological investigations of the site were completed. The report "Geotechnical Evaluation and Interim Hydrogeological Survey, Sarasota County Central Landfill Complex, Sarasota, Florida" by Ardaman and Associates, May 31, 1990 was submitted to the Department in support of the permit modification request granted November 2, 1998. The report titled "Geotechnical Evaluation and Hydrogeological Survey and Groundwater Monitoring Plan Sarasota Central Landfill Complex, Sarasota County, Florida" by Ardaman and Associates, Inc., March 10, 1992, was previously submitted to the Department in support of the construction permit application for this facility. A copy of this report was provided to the Department on June 30, 2002.

J.2 SIGNED AND SEALED REPORT

~~No substantial change to the geotechnical investigations at CCSWDC has occurred since the previous Operations Permit Application submittal, thus a signed and sealed report is not included.~~All above referenced documents were signed and sealed at the time of submittal to the Department.

March 30, 2004

File No. 09201010.15

MEMORANDUM

D.E.P.
APR 01 2004
Southwest District Tampa

TO: **File**

FROM: **John Banks**

3-31-04

SUBJECT: Slope Stability Analysis for Sarasota County Central Landfill

The input data used in the slope stability model is outlined below;

SURFACE PROFILES

The slope stability analyses for the Central County Landfill (Landfill) were conducted based on the bottom liner configuration as shown on CDM drawing's, dated September 1996, specifically sheet Numbers LFC-56, LFC-57, LFC-58, LFC-59, LFC-60, LFC-61, and LFC-62 and the revised side slope configuration developed by SCS Engineers and submitted for permit modification in 1998. The slope stability modeling was conducted along potential failure planes traversing through the north and south sides of the Landfill. In this direction, the failure planes would run parallel to the bottom slope (i.e. worst case). The lowest elevation of the bottom-liner, based upon the CDM drawings, is Elevation 26 on the north side and Elevation 28 on the south side of the Landfill. The highest final buildout elevation is based upon the SCS drawings is Elevation 120.0. The location for the slope stability sections is contained in Attachment A.

BOTTOM CONTAINMENT SYSTEM

The bottom containment system was modeled as a smooth 60-mil geomembrane and geocomposite layer. The geomembrane and geocomposite layer will generally have the lowest interface shear strength values for the bottom containment system. Test results from a direct shear test (similar stress range, same type of materials, and wet interface conditions) were used to estimate the interface friction shear strength of the geomembrane/geocomposite interface. Using the results from the similar direct shear test, a peak interface friction angle of 10 degrees was used for the model. The results of the direct shear test used to approximate the interface shear strength are included in Attachment B.

FOUNDATION SOILS

Below the bottom containment system, a 12-inch low permeability clay layer was constructed. The soils below the low permeability clay layer are a mixture of poorly graded to fine sands, sandy clays, and clays. A review of the boring logs, specifically boring logs TH-22 and TH-15 completed by Ardaman and Associates, indicates the upper 15 feet of soils have an average SPT blow count of approximately 22. The first SPT N-values recorded on the logs are not considered representative of the soils since the upper sand layers would have been disturbed and compacted during construction of the cell. Below 15 feet, all the sand and clays layers are very dense sands and stiff clays with SPT blow counts typically exceeding 50 blows per 5 inches. A review of the original slope stability models conducted by Ardaman, only used one layer, with a very conservative value of zero cohesion and 30 degree friction angle, to represent the foundation soils. The high blow counts of 22 to above 50 indicates very dense sands and stiff clay with typical values shear strengths exceeding 30 degrees. SCS also performed the slope stability analyses in this memo using one subsurface soil layer with a 30 degree friction angle. This will be very conservative considering the high SPT blow counts encountered in the subsurface soils. A boring location map and the boring logs for the soils are contained in Attachment C.

ESTIMATED WASTE UNIT WEIGHTS

The in-place unit weight of the waste material, daily cover soils, and water was estimated assuming a typical waste composition and typical waste moisture contents. The waste composition was taken from the FDEP's publication entitled, "Solid Waste Management in Florida 2000-2001". Initial moisture contents were estimated based upon the type of waste material and typical waste moisture contents. The waste composition matrix for Sarasota County and typical moisture contents are contained in Attachment D.

The dry unit weight (solids) was estimate by removing the initial moisture content from the waste. To estimate the unit weight for the mix of waste, sand, and water in the landfill, the unit weight of the waste material was adjusted by increasing the moisture content of the waste material to 40 percent by weight. Daily cover soils were also adjusted to the maximum moisture content based upon borrow study test results conducted by Ardaman. The individual waste layers are 10 feet high and a 6-inch daily cover layer was estimated between the waste layers. The total height of the waste and daily cover layer was estimated from the maximum buildout elevation of the landfill (minus intermediate cover, closure cap, and drainage sand). All layers were assumed to be saturated. The resultant stress due to the wet waste and saturated cover soils was divided by the total waste thickness to estimate a composite unit weight for the slope stability models. A composite unit weight for the waste material of 66 pounds per cubic foot (pcf) was estimated. This was rounded up to 70 pcf for the slope stability modeling. The composite unit weight calculations are included in Attachment E.

EQUIPMENT LOADS

A CAT D8R Series II WHA dozer was used for equipment loading. The equipment loading calculations are included in Attachment F.

ESTIMATED WASTE SHEAR STRENGTH PROPERTIES

Typical MSW shear strength values range from 26 to 40 degree with some residual cohesion. This is a broad range of values, so to estimate the actual minimum shear strength properties of the waste material a slope stability model of the landfill, with know conditions (slopes and equipment loading) was used to back calculate or estimate the minimum shear strength of the waste material. The minimum shear strength values estimated would produce a Factor of Safety equal to 1.0 since any lower shear strength values would produce a Factor of Safety lower than 1.0 and stability of the waste would not be maintained. **Note: This method of back calculating shear strength values is very conservative since no slippage or slope failures have been recorded at the site thus actual conditions for failure are not modeled. The actual shear strength values are in excess of the values computed.** The shear strength value, back calculated, is 34.1 degrees friction with zero cohesion. The slope stability model used to estimate the in-place shear strength of the waste is contained in Attachment G.

SLOPE STABILITY RESULTS

Potential failure planes along the liner system were modeled as a non-circular (block) failure analysis to simulate potential slip failure planes between geosynthetic components of the liner system. Potential failure planes through the waste mass were modeled using a circular failure analysis from outside the toe of slope to the upper surface of the landfill. All circular failure planes passed through the foundation soils and waste material. Results of the slope stability model are included in Attachment H.

BLOCK ANALYSIS (Failure along the geosynthetic layers)
Results of the Block Slope Stability Analyses are contained in Attachment H.

1. Random Block Analysis South Side

Without Equipment Load
Density of waste = 70 lbs/cubic foot
Liner interface friction angle = 10°
C=0 psf, Phi=34.1 degrees
FS = 1.3

With Equipment Load (D8R WHA SeriesII)
Density of waste = 70 lbs/cubic foot
Liner interface friction angle = 10°
C=0 psf, Phi=34.1 degrees
FS = 1.3

2. Random Block Analysis North Side

Without Equipment Load
Density of waste = 70 lbs/cubic foot
Liner interface friction angle = 10°
C=0 psf, Phi=34.1 degrees
FS = 1.3

With Equipment Load (D8R WHA SeriesII)
Density of waste = 70 lbs/cubic foot
Liner interface friction angle = 10°
C=0 psf, Phi=34.1 degrees
FS = 1.3

CIRCULAR ANALYSIS (Failure through the waste and foundation soils)
Results of the Circular Slope Stability Analyses are contained in Attachment I.

3. Circular Analysis South Side

Without Equipment Load
Density of waste = 45 lbs/cubic foot
Liner interface friction angle = 10°
C=0 psf, Phi=34.1 degrees
FS = 2.3

With Equipment Load (D8R WHA SeriesII)
Density of waste = 45 lbs/cubic foot
Liner interface friction angle = 10°
C=0 psf, Phi=34.1 degrees
FS = 2.2

4. Circular Analysis North Side

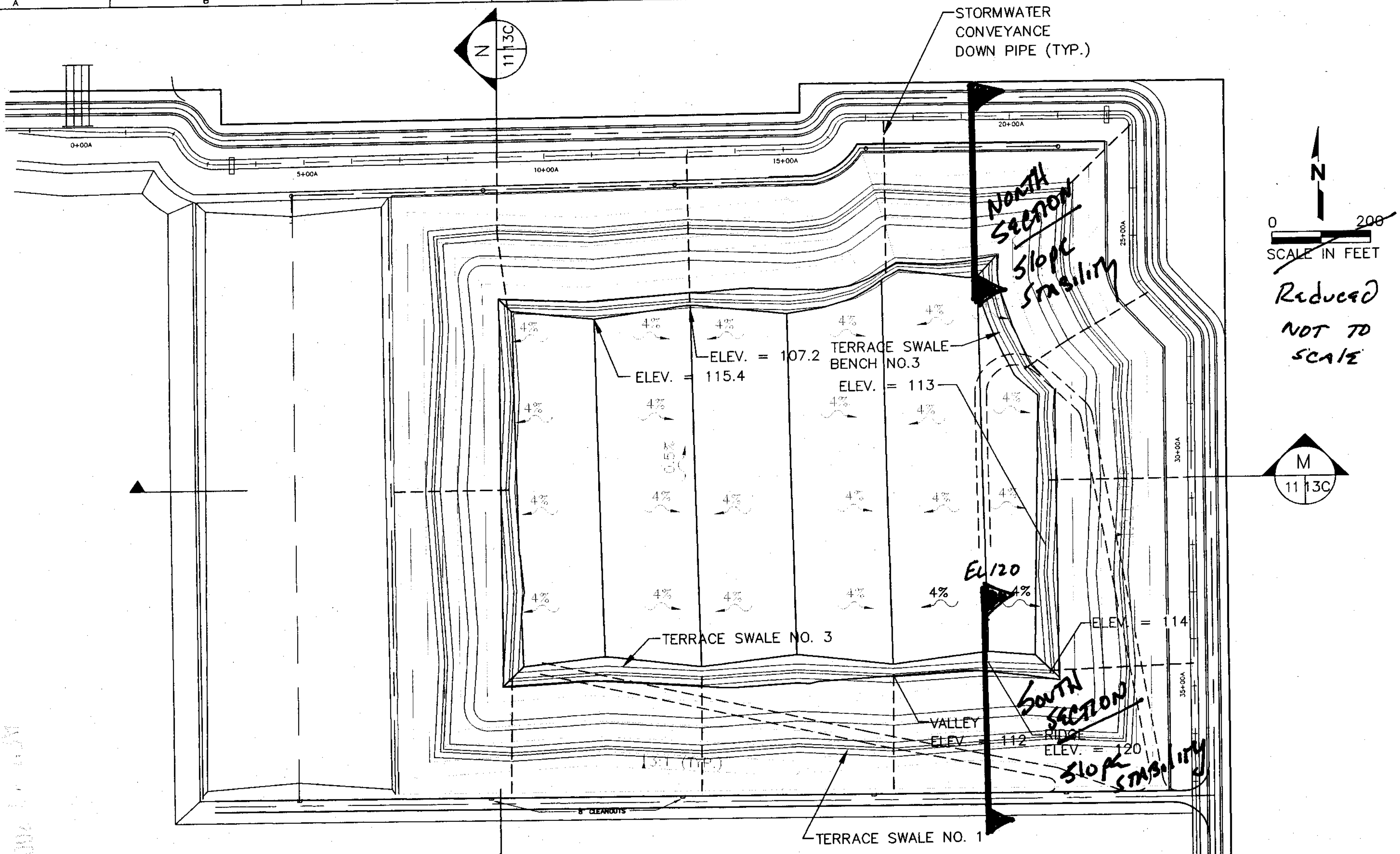
Without Equipment Load
Density of waste = 45 lbs/cubic foot
Liner interface friction angle = 10°
C=0 psf, Phi=34.1 degrees
FS = 2.3

With Equipment Load (D8R WHA SeriesII)
Density of waste = 45 lbs/cubic foot
Liner interface friction angle = 10°
C=0 psf, Phi=34.1 degrees
FS = 2.3

CONCLUSIONS

Based on the above analysis, the current side slope configuration is stable and acceptable. The calculated factors of safety are considered conservative based on the method used to estimate the shear strength of the waste. We have assumed zero cohesion, which is conservative. Recent literature suggests that cohesion in typical MSW as high as 500 lbs/sq ft. In addition the friction angle of 10° is likely conservative since these measurements are always taken in the machine direction and our proposed failure is across the machine direction. It is suspected that the friction angle across the machine direction would be higher because the resistance is perpendicular to the main ribs of the geocomposite; however, no known data exists for this configuration. Therefore based on all of the above the actual F.S. is greater than what has been calculated. Thus the calculated factor of safety of 1.3 is acceptable.

ATTACHMENT A



DECEMBER 2008

REVISED ON 03/15/04

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
3012 U.S. HWY. 301 NORTH, SUITE 700, TAMPA, FL 33619
PH (813) 621-0080 FAX NO. (813) 623-6757

ONYX

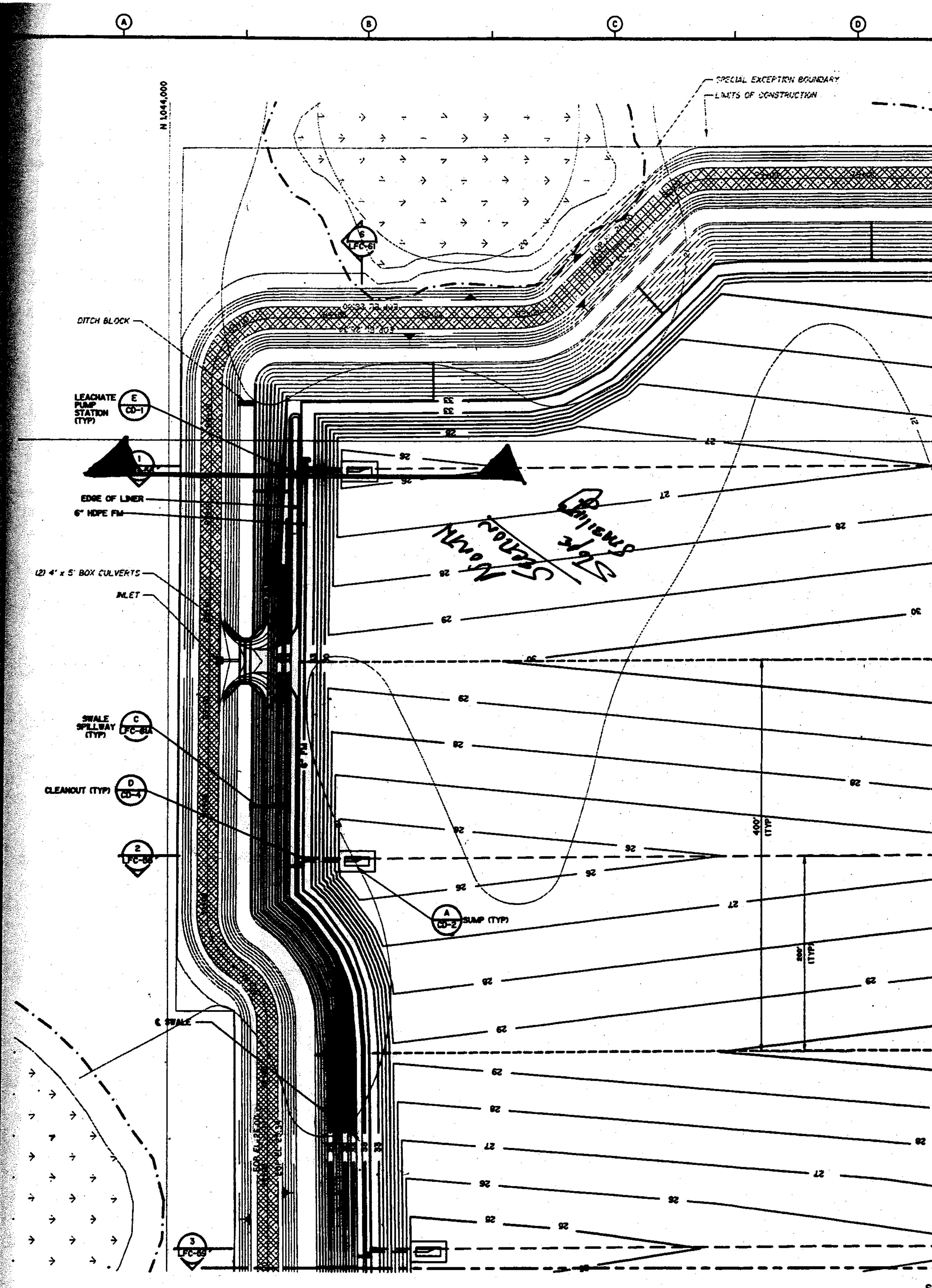
Revisions

No.	Description	Date	By	No.	Description	Date	By

Approved By: RBG
Checked By: JAB
Drawn By: GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

Drawing No. 09201041.00\PHASES.dwg
Scale: As Shown
Date: JANUARY 26, 1999
Sheet Number: 11



REV. NO.	DATE	DRWN	CHKD	REMARKS
	11/95	JJB		CONFORMED DRAWING

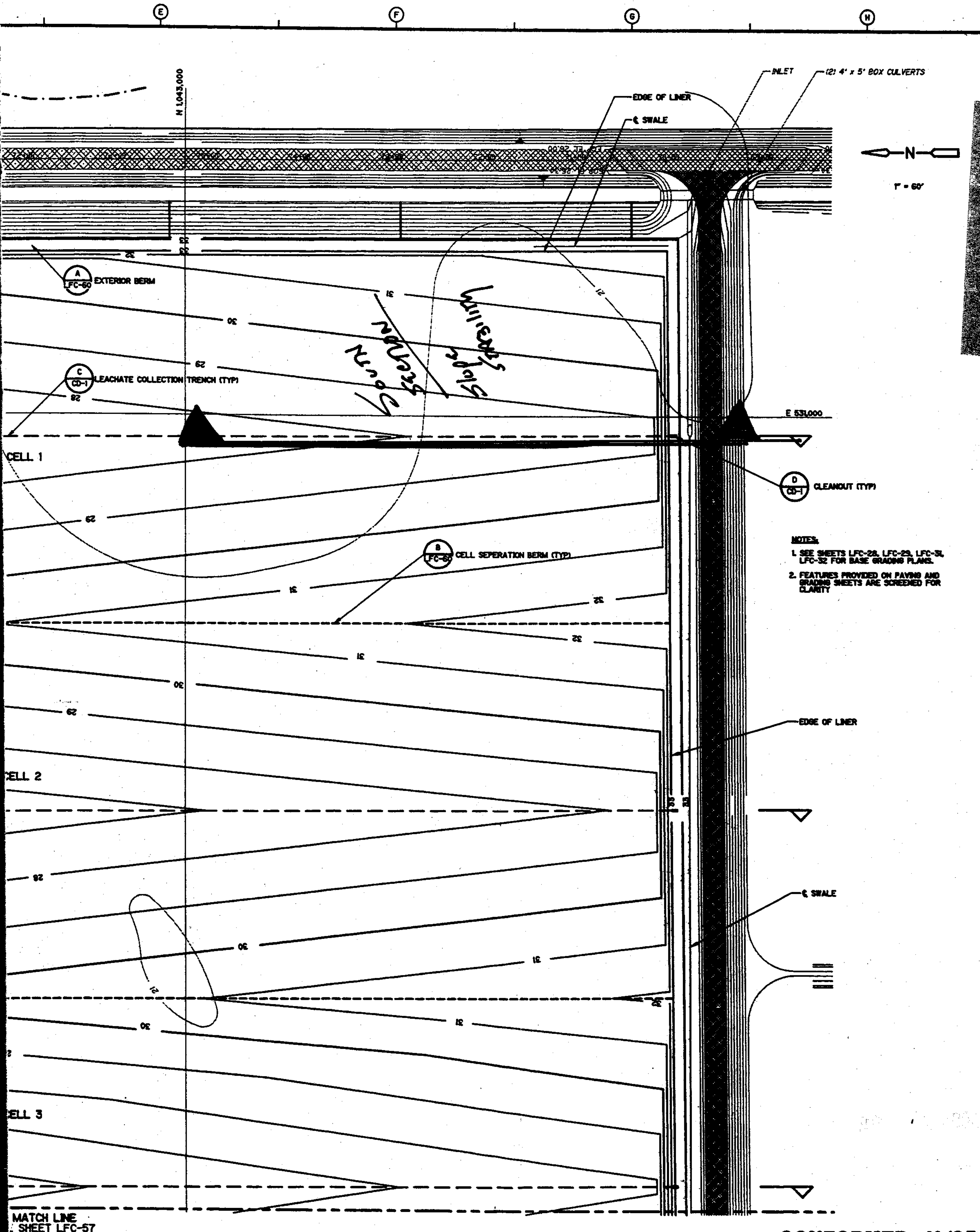
DESIGNED BY: J. LADNER
DRAWN BY: B. WILLIAMS
SHEET CHK'D BY: J. HOFFMAN
CROSS CHK'D BY: W. SPRIGGS
APPROVED BY: J BANKS
DATE: MAY 1994

CAMP DRESSER & McKEE INC.

environmental engineers, scientists,

CDM

CEN



NOTES:

1. SEE SHEETS LFC-28, LFC-29, LFC-31, LFC-32 FOR BASE GRADING PLANS.
2. FEATURES PROVIDED ON PAVING AND GRADING SHEETS ARE SCREENED FOR CLARITY

CONFORMED 11/95

SARASOTA COUNTY, FLORIDA

RAL COUNTY SOLID WASTE DISPOSAL COMPLEX
LANDFILL SITE WORK

CLASS I LANDFILL -
FINAL GRADING PLAN
EAST

PROJECT NO.
9250-58-CDN

SHEET NO.
LFC-56

ATTACHMENT B

SECTION 15010
1.04A 12

Ardaman & Associates, Inc.

Geotechnical, Environmental and Materials Consultants

February 17, 1997
File Number 96-9759

Comanco Environmental Corporation
7911 Professional Place
Tampa, Florida 33637

Attention: Mr. T.R. Johnson

Subject: Laboratory Test Results, HDPE/Geonet Composite, DeSoto County Landfill, Arcadia, DeSoto County, Florida

Dear Mr. Johnson:

As requested, Ardaman & Associates, Inc. has performed an interface frictional resistance test between the proposed 60-mil smooth HDPE liner and the proposed geonet/geotextile drainage composite. The test was performed in general accordance to ASTM D-5321 - "Standard Test Method for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by Direct Shear Method." The tests were performed by clamping a 16 inch long by 12 inch wide specimen of the liner to the lower surface of the direct shear apparatus. The liner was oriented in the apparatus such that the dull appearance side was tested with the machine direction in the direction of shear. The geonet/geotextile drainage composite was clamped to the upper portion of the apparatus with its machine direction in the direction of shear. The requested normal stresses of 14, 28, and 42 lb/in^2 was applied, the interface submerged below water, and after a seating time of 15 minutes, as requested, the interface was sheared at a constant horizontal displacement of 0.1 inches per minute. The test results are plotted in Figure 1. The apparent peak interface friction angle obtained by linear regression of the data constrained for zero adhesion is equivalent to 10°.

We trust that this information is sufficient for your immediate needs. If there are any questions or when we may be of further assistance, please contact the undersigned at (813) 620-3389.

Respectfully,
ARDAMAN & ASSOCIATES, INC.

Normal Stress

14 psi	2016 psf
28 psi	4032 psf
42 psi	6048 psf

Wayne Pandorf, P.E.
Branch Manager
Florida Registration No. 30254

Sarasota Loading

AVG EL 120
92 ft
AVG EL 28

$STRESS_{MAX}$ = 92 ft (70 lb/ft³)

= 6440 psf

Similar to DeSoto C

WP:lt
sse#4\96-9759\results.hdp

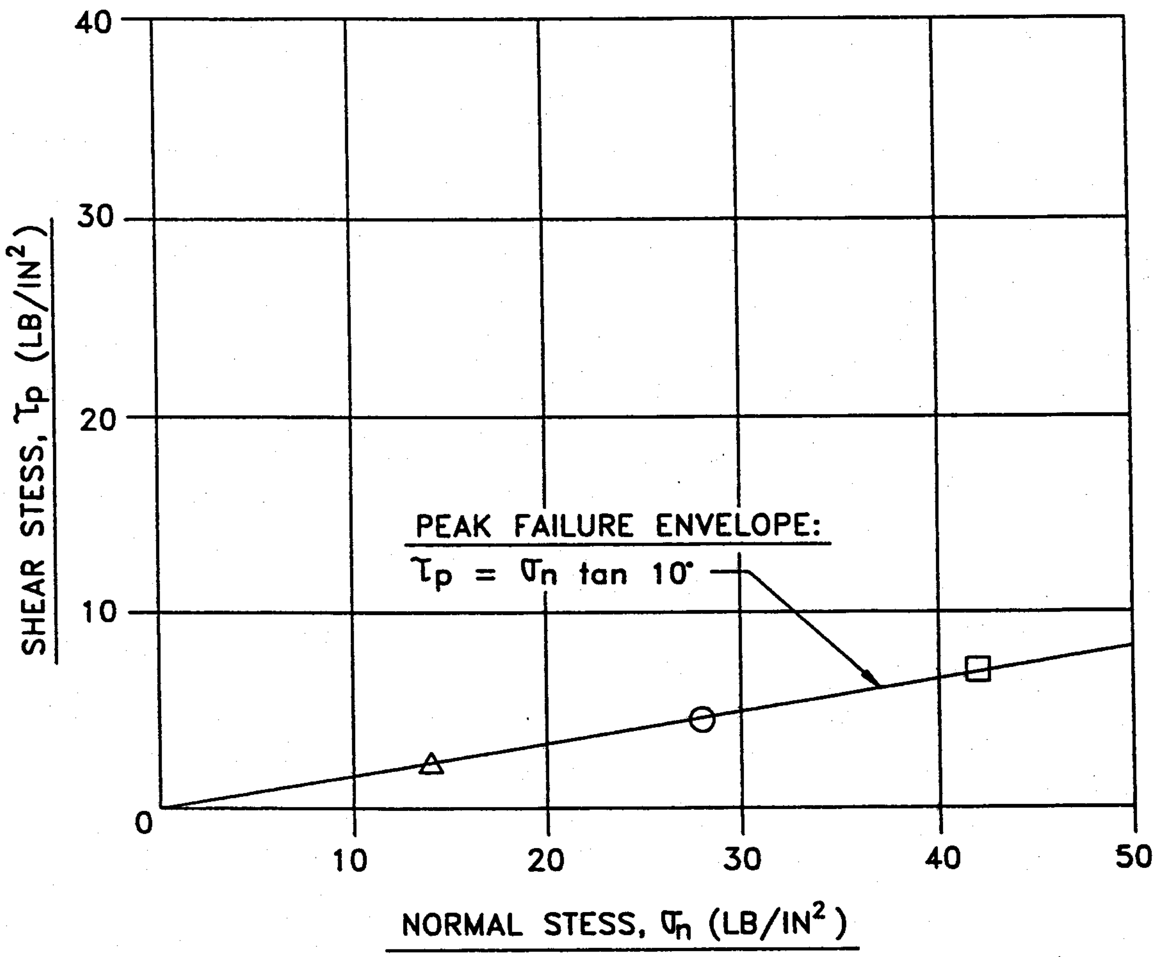


FIGURE 1

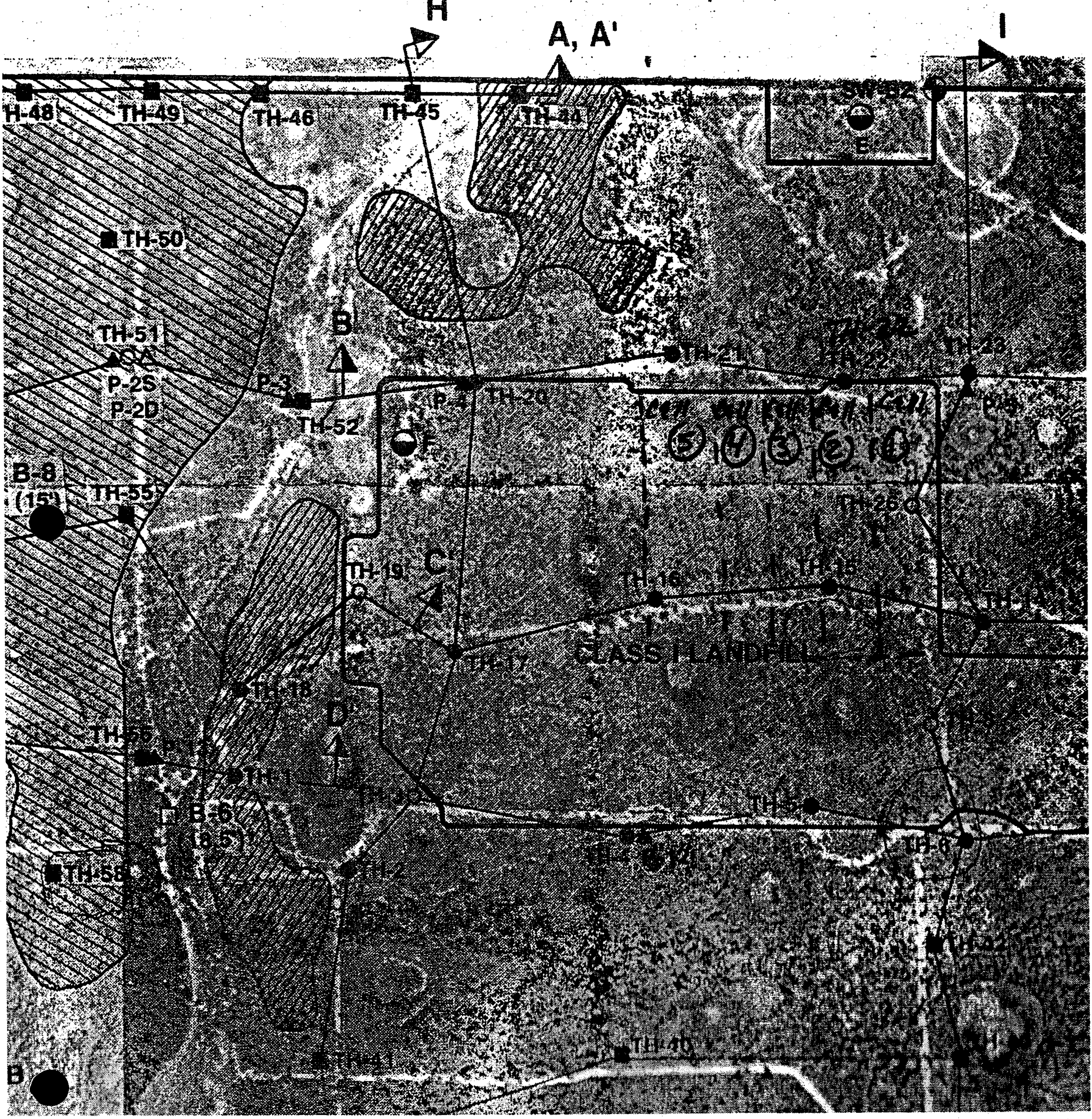
Ardaman & Associates, Inc.
Consulting Engineers in Soils, Hydrogeology, Foundations, and Materials Testing

GRAPH OF PEAK FAILURE ENVELOPE
FOR GEONET COMPOSITE
DeSOTO COUNTY LANDFILL
ARCADIA, DeSOTO COUNTY, FLORIDA

DRAWN BY: WAC	CHECKED BY:	DATE: 2-97
FILE NO. 96-9750	APPROVED BY:	

96-9750\FIG-1

ATTACHMENT C



BORING LOCATION MAP

Source: Ardaman & Assoc Boring Logs & Report

BORING LOG

ARDAMAN & ASSOCIATES, INC.

BORING NO: TH-15
TOTAL DEPTH: 50.5ft.
SHEET 1 OF 2

PROJECT Sarasota County Central Landfill Complex
FILE NO. 89-135
CLIENT Camp Dresser and McKee Inc.
ELEVATION 20.4'MSL
BORING LOCATION See site plan
BORING TYPE SPT
COUNTY Sarasota STATE Florida
CASING TYPE 25'
DATE STARTED 2-12-90 COMPLETED 2-12-90
DRILLER/RIG Fisher/CME-55
WATER TABLE: 1st depth 2.2' DATE 2-12-90 TIME
WATER TABLE: 2nd depth -- DATE -- TIME --
REMARKS Borehole grouted with 3 bags of portland cement

Elevation	Depth (ft)	Standard Pen. Test ASTM D-1586 Blows/ 6 in	N Value	Sample Number	Lab Data NM (%)	-200 (%)	LL (%)	PI (%)	Dry Den (pcf)	Soils Description and Remarks	Shallow Well	Depth (ft)	Deep Well
		1-2-3	5	1						Dark gray silty fine sand with roots (SM)			
		3-6-7	13	2						Gray fine sand (SP)			
		6-10-11	22	3						Brown fine sand (SP)			
15.4	5	7-10-8	18										
		6-10-12	22	4						Gray silty fine sand (SM)			
		20-15-12	27	5						Gray fine sand (SP)			
10.4	10	10-10-12	22										
5.4	15	4-10-31	41	6						Brown clayey fine sand with rock fragments (SC)			
.39	20	10-50/5"	50/5"	7 / 8						Lost circulation			
-4.6	25	21-50/5"	50/5"	9						Gray clayey fine sand with rock fragments (SC)			
-9.6	30	12-32-50	82	10						Gray clay (CH)			
-14.6	35	50/5"	50/5"	11						Gray clayey fine sand with rock fragments (SC)			
-19.6	40	3-14-50/4"	64/10"	12									

BORING LOG
ARDAMAN & ASSOCIATES, INC.

BORING NO: TH-15
TOTAL DEPTH: 50.5ft.
SHEET 2 OF 2

PROJECT Sarasota County Central Landfill Complex
FILE NO. 89-135
CLIENT Camp Dresser and McKee Inc.
ELEVATION 20.4'MSL
BORING LOCATION See site plan
BORING TYPE SPT

Elevation	Depth (ft)	Standard Pen. Test ASTM D-1586: Blows/ 6 in	N Value	Sample Number	Lab Data: NM (%)	-200 (%)	LL (%)	PI (%)	Dry Den (pcf)	Soils Description and Remarks	Shallow Well	Depth (ft)	Deep Well
				13									
-24.6	45	21-45-50	95	14						Gray clayey fine sand with rock fragments (SC)			
-29.6	50	46-35-25	60	15									
										End of boring 50.5'			
-34.6	55												
-39.6	60												
-44.6	65												
-49.6	70												
-54.6	75												
-59.6	80												

BORING LOG

ARDAMAN & ASSOCIATES, INC.

BORING NO: TH-22
TOTAL DEPTH: 50.0ft.
SHEET 1 OF 2

PROJECT Sarasota County Central Landfill Complex
FILE NO. 89-135
CLIENT Camp Dresser and McKee Inc.
ELEVATION 20.4'MSL
BORING LOCATION See site plan
BORING TYPE SPT
COUNTY Sarasota
STATE Florida
CASING TYPE 30 ft.
DATE STARTED 2-19-90
COMPLETED 2-20-90
DRILLER/RIG S.Fisher/CME-55
WATER TABLE: 1st depth 2.3'
DATE 2-19-90
TIME
WATER TABLE: 2nd depth 2.8'
DATE 2-20-90
TIME
REMARKS Borehole grouted with 3 bags of Portland cement

Elevation	Depth (ft)	Standard Pen. Test ASTM D-1586: Blows/ 6 in	N Value	Sample Number	Lab Data: NM (%)	-200 (%)	LL (%)	PI (%)	Dry Den (pcf)	Soils Description and Remarks	Shallow Well	Depth (ft)	Deep Well
		3-2-2	4	1						Dark gray slightly silty fine sand with roots (SP-SM)			
				2						Gray fine sand (SP)			
		3-5-7	12	3						Brown fine sand (SP)			
		6-7-3	10										
15.4	5	7-12-15	27	4									
		12-15-16	31										
		13-15-14	29							Gray silty fine sand (SM)			
10.4	10	16-11-10	21										
5.4	15	8-6-12	18	5						Very light brown clayey fine sand with rock fragments (SC)			
.39	20	27-50/5"	50/5"	6						Gray clayey fine sand with rock fragments (SC)			
										Loose material to 24.5 feet			
-4.6	25	2-27-50/3"	77/9"	7						Lost circulation Gray clayey fine sand with rock fragments (SC)			
-9.6	30	27-50/5"	50/5"	8									
										Gray silty fine sand with rock (SM)			
-14.6	35	50/5"	50/5"	9									
										Looser material Light gray clayey fine sand (SC)			
-19.6	40	16-15-27	42	10									

BORING LOG

ARDAMAN & ASSOCIATES, INC.

BORING NO: TH-22
TOTAL DEPTH: 50.0ft.
SHEET 2 OF 2

PROJECT Sarasota County Central Landfill Complex
CLIENT Camp Dresser and McKee Inc.
BORING LOCATION See site plan

FILE NO. 89-135
ELEVATION 20.4'MSL
BORING TYPE SPT

Elevation	Depth (ft)	Standard Pen. Test ASTM D-1586			Lab Data					Soils Description and Remarks	Shallow Well	Depth (ft)	Deep Well
		Blows/ 6 in	N Value	Sample Number	NM (%)	-200 (%)	LL (%)	PI (%)	Dry Den (pcf)				
										Light gray clayey fine sand (SC)			
-24.6	45	50/6"	50/6"	11						Gray silty fine sand with rock (SM)			
-29.6	50	50/3"	50/3"	12						Rock with silty fine sand (SM)			
										End of boring 50.0'			
-34.6	55												
-39.6	60												
-44.6	65												
-49.6	70												
-54.6	75												
-59.6	80												

Source: B. Das
"Principle of Geotech. Engineering" 1985

Table 13.3 Approximate Relation Between Corrected Standard Penetration Number, Angle of Friction, and Relative Density of Sand

Corrected standard penetration number, N	Relative density, D_r (%)	Angle of friction, ϕ (degrees)
0–5	0–5	26–30
5–10	5–30	28–35
10–30	30–60	35–42
30–50	60–95	38–46

Blow Counts vs Relative Density (DR)
Sands

The standard penetration number is a very useful guideline in soil exploration and assessment of subsoil conditions, provided that the results are interpreted correctly. Note that all equations and correlations relating to the standard penetration numbers are approximate. Since soil is not homogeneous, a wide variation in the N-value may be obtained in the field. In soil deposits

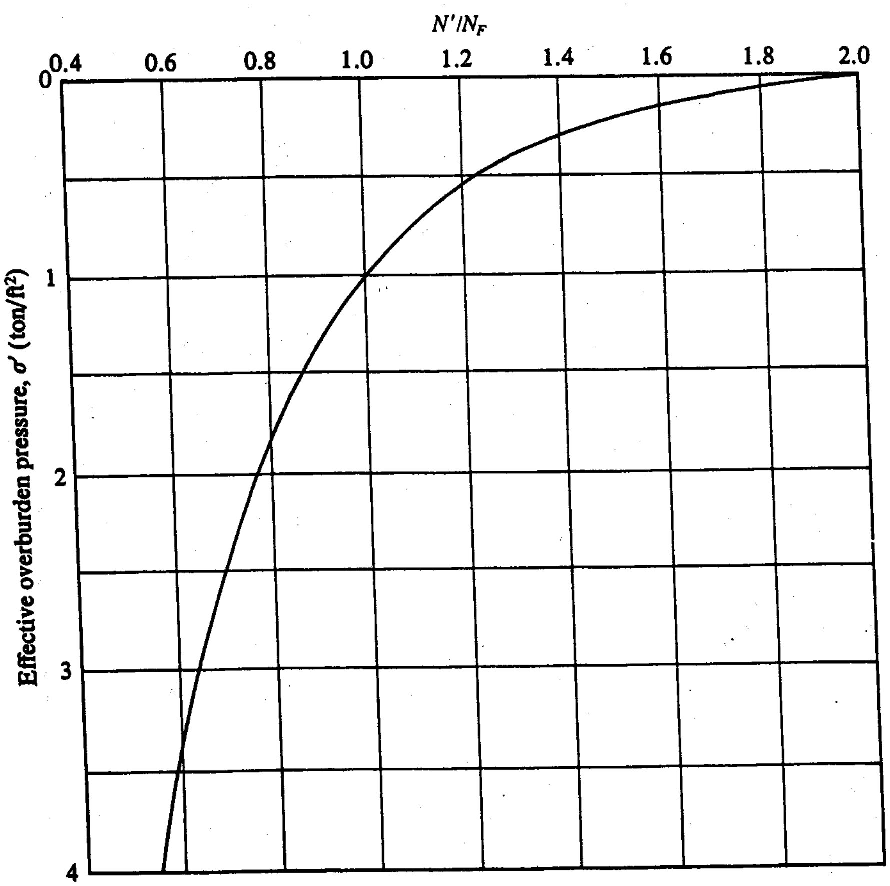


Figure 13.11 Variation of N'/N_F with vertical effective stress, σ' (after Peck, Hanson, and Thornburn, 1974)

ATTACHMENT D

Estimated Waste Properties Moisture Content
Moisture Content & Waste Density
Central Landfill
Sarasota, Florida

	% Total	Wet	% Moisture	Dry	Ref. Waste
		(tons)	(See Note 2)	(tons)	(See Note 2)
Metals	20	75,537.1	3.0	73,337.0	Other Metal
Plastic	5	18,884.3	2.0	18,514.0	Plastic
Other Paper	22	83,090.8	5.0	79,134.1	Carboard
Misc	4	15,107.4	25.0	12,085.9	
Newspaper	3	11,330.6	6.0	10,689.2	Paper
Glass	4	15,107.4	2.0	14,811.2	Glass
Yard Trash	0			0.0	
Tires	0			0.0	
C&D	16	60,429.7	15.0	52,547.6	Rubbish
Food Waste	3	11,330.6	70.0	6,665.0	Food Waste
Textile	3	11,330.6	10.0	10,300.5	Textile
	80	302,148.5		278,084.6	

Total Tons	555,420.0 tons	Landfill	68.0% See Note 1
Landfill	377,685.6 tons	Recycled	32.0%
Recycled	177,734.4 tons		

Percent Moisture		**Waste Density**	
Wet	302,148.5 Tons	Wet	50.00 pcf
Dry	278,084.6 Tons	Moisture	7.96 %
Moisture	7.96 %	Dry	46.31 pcf

Note
1) Source: Waste Composition - FDEP "Solid Waste Management in Florida 2000-2001"
2) Source: Waste Moisture Contents - "Intergrated Solid Waste Management"
1993 ed Chapter 4 ISBN 0-07-063237-5
3) Yard waste material/Tire in Waste Composition not landfilled

Sarasota County
(Jan. 1, 2000 - Dec. 31, 2000)

1. Population[1]	325,957	
2. MSW Management (tons)[2]		
A. Landfilled	378,138	
B. Combusted	0	
C. Recycled	177,282	
D. Total	555,420	
E. Total Pounds per Capita Per Day[1]	9.34	

3. MSW Collected & Recycled

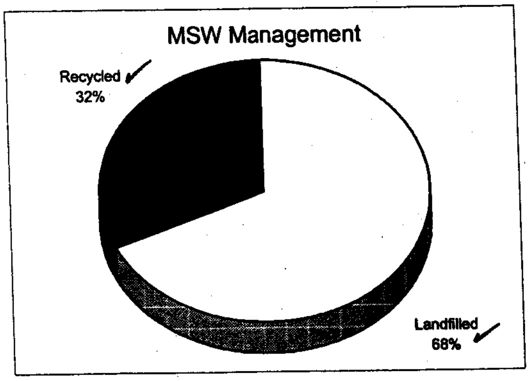
A. Minimum Five Wastes[3]	Collected (tons)	Recycled (%)
1. Newspaper	28,816	95
2. Glass	27,770	60
3. Aluminum Cans	2,704	36
4. Plastic Bottles	6,804	28
5. Steel Cans	4,400	35

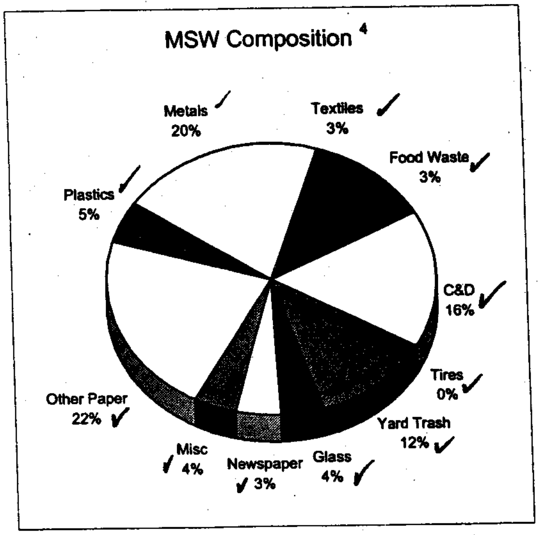
B. Special Wastes[5]	Collected (tons)	Recycled (%)
1. C&D Debris	106,964	1
2. Yard Trash	77,806	97
3. White Goods	1,274	100
4. Tires	455	98
5. Process Fuel	0	0
C. Other Wastes	298,427	17
D. Total Recycling Rate(%)		32
E. Adjusted Recycling Rate (%)[5,6]		32

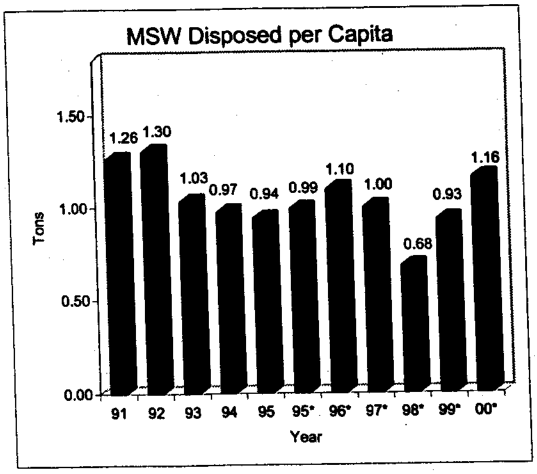
F. Waste Reduction Per Capita (%)
(A negative number indicates an increase in the MSW disposal rate per capita.)

1. Base Year: July 1988-June 1989	31
2. Base Year: July 1989-June 1990	33
3. Base Year: July 1990-June 1991	25
4. Base Year: July 1991-June 1992	5
5. Base Year: July 1992-June 1993	-30
6. Base Year: July 1993-June 1994	-52

G. Participation in Recycling[7]	Units	Percent[8]
1. Single-family Curbside	118,830	112
2. Multi-family Curbside[9]	68,541	128
3. Commercial[10]	22,000	
a) Scheduled collection		287
b) On call collection		76







[1] Official 2000 Governor's Office estimate.
[2] From 2001 - 2002 Recycling and Education grant applications.
[3] The Legislature established a goal of 50 percent for each material by the end of 1994.
[4] Some materials have been combined: Metals include Aluminum Cans, Steel Cans, Ferrous and Non-ferrous metals, and White Goods; Other Paper includes Corrugated, Office and Other Paper; and Plastics include Plastic Bottles and Other Plastics.
[5] The total of Special Wastes can count towards no more than one half of the recycling goal for each county.
[6] The legislature established a goal of 30 percent by the end of 1994 for all counties with a population of over 75,000.
[7] Participation means availability and usage of recycling services (As of June 1999).
[8] Percentage of total county units (single/multi-family dwellings and commercial establishments) participating in recycling.
[9] Includes apartments, condominiums and others.
[10] May also include government and institutional.
* Calendar year data.

INTEGRATED SOLID WASTE MANAGEMENT
Engineering Principles and Management Issues

1993 Edition

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Professor of Civil and Environmental Engineering
University of California, Davis

Hilary Theisen

Vice President
Brown & Caldwell, Consulting Engineers

Samuel Vigil

Professor of Civil and Environmental Engineering
California Polytechnic State University
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referred to in the solid waste literature incorrectly as density. In U.S. customary units density is expressed correctly as slug/ft^3.) Because the specific weight of MSW is often reported as *loose, as found in containers, uncompacted, compacted*, and the like, the basis used for the reported values should always be noted. Specific weight data are often needed to assess the total mass and volume of waste that must be managed. Unfortunately, there is little or no uniformity in the way solid waste specific weights have been reported in the literature. Frequently, no distinction has been made between uncompacted or compacted specific weights. Typical specific weights for various wastes as found in containers, compacted, or uncompacted are reported in Table 4-1.

TABLE 4-1
Typical specific weight and moisture content data for residential, commercial, industrial, and agricultural wastes

	Specific weight, lb/yd^3		Moisture content, % by weight	
Type of waste	**Range**	**Typical**	**Range**	**Typical**
Residential (uncompacted)				
Food wastes (mixed)	220–810	490	50–80	70
Paper	70–220	150	4–10	6
Cardboard	70–135	85	4–8	5
Plastics	70–220	110	1–4	2
Textiles	70–170	110	6–15	10
Rubber	170–340	220	1–4	2
Leather	170–440	270	8–12	10
Yard wastes	100–380	170	30–80	60
Wood	220–540	400	15–40	20
Glass	270–810	330	1–4	2
Tin cans	85–270	150	2–4	3
Aluminum	110–405	270	2–4	2
Other metals	220–1940	540	2–4	3
Dirt, ashes, etc.	540–1685	810	6–12	8
Ashes	1095–1400	1255	6–12	6
Rubbish	150–305	220	5–20	15
Residential yard wastes				
Leaves (loose and dry)	50–250	100	20–40	30
Green grass (loose and moist)	350–500	400	40–80	60
Green grass (wet and compacted)	1000–1400	1000	50–90	80
Yard waste (shredded)	450–600	500	20–70	50
Yard waste (composted)	450–650	550	40–60	50
Municipal				
In compactor truck	300–760	500	15–40	20
In landfill				
Normally compacted	610–840	760	15–40	25
Well compacted	995–1250	1010	15–40	25
Commercial				
Food wastes (wet)	800–1600	910	50–80	70
Appliances	250–340	305	0–2	1

(*continued*)

ATTACHMENT E

Estimated Composite Waste & Soil & Water Weight
Central Landfill
Sarasota, Florida

	WASTE & DAILY & WATER					CLOSURE CAP & INTERMEDIATE & DRAINAGE SAND						
	Height (ft)	Dry (pcf)	Moisture (%)	Total (pcf)	Stress (psf)		Height (ft)	Dry (pcf)	Moisture (%)	Total (pcf)	Stress (psf)	
Closure Cap	--	--	--	--	--	--	2.0	99.1	16.5	115.5	230.9	
Intermed	--	--	--	--	--	--	1.5	99.1	16.5	115.5	173.2	
waste	8.0	46.3	40.0	64.8	518.7							
daily	0.5	99.1	16.5	115.5	57.7							
waste	10.0	46.3	40.0	64.8	648.4							
daily	0.5	99.1	16.5	115.5	57.7							
waste	10.0	46.3	40.0	64.8	648.4							
daily	0.5	99.1	16.5	115.5	57.7							
waste	10.0	46.3	40.0	64.8	648.4							
daily	0.5	99.1	16.5	115.5	57.7							
waste	10.0	46.3	40.0	64.8	648.4							
daily	0.5	99.1	16.5	115.5	57.7							
waste	10.0	46.3	40.0	64.8	648.4							
daily	0.5	99.1	10.5	109.5	54.8							
waste	10.0	46.3	40.0	64.8	648.4							
daily	0.5	99.1	10.5	109.5	54.8							
waste	10.0	46.3	40.0	64.8	648.4							
daily	0.5	99.1	10.5	109.5	54.8							
waste	10.0	46.3	40.0	64.8	648.4							
Drain Sand	--	--	--	--	--	--	2.0	99.1	10.5	109.5	219.0	
	92.0 ft				6158.7 psf		5.5 ft				623.1 psf	

UP TO 40% MOISTURE

Total Height	92.0 ft (Daily+waste)	Total Stress	6158.7 psf (Daily+waste)
	5.5 ft (Cap,Intermed,Sand)		623.1 psf (Cap, Intermed,Sand)
	97.5 ft (Bottom to Final Cap)		6781.8 psf (Bottom to Final Cap)

Soil

Dry Weight	99.1 pcf
Moisture	16.5 %
Total Weight	115.5 pcf

Initial Waste

Dry Weight	46.3 pcf
Moisture	7.96 %
Total Weight	50.00 pcf

Composite Unit Weight
Daily Cover + Waste + Moisture

Total Stress	6158.7 psf
Height	92.0 ft
Comp. Weight	66.9 lb/ft^3

USE 70 lb/ft^3

From Ardaman & Associate
Borrow Pit Report

THIS IS A VERY
High UNIT WEIGHT
(very WET)

TABLE 7

Summary Of Laboratory Hydraulic Conductivity Testing Of Remolded Borrow Material Samples

COMPOSITE NUMBER	TEST HOLE/ SAMPLE NUMBER (DEPTH IN FEET)	FINES CONTENT (%)	INITIAL MOISTURE CONTENT (%)	FINAL MOISTURE CONTENT (%)	INITIAL γ_D (lb/ft^3)	FINAL γ_D (lb/ft^3)	DEGREE OF SATURATION (%)	Vertical Laboratory Hydraulic Conductivity (cm/sec)	VOID RATIO (e)
1	TH-A-1/BS#1 (9.5→11.5)	50	9.6	19.1	122.6	112.0	102	1.25×10^{-8}	0.50
	TH-A-1/BS#2 (11.5→15.5)	49	11.6	17.0	120.7	119.6	113	1.12×10^{-9}	0.41
2	TH-A-5/BS#1 (4.0→14.0)	15	9.3	15.5	116.1	117.3	100	1.60×10^{-4}	0.41
	TH-A-6/BS#1 (11.5→18.75)	14	13.3	17.5	110.2	113.7	102	4.00×10^{-4}	0.45
3	TH-52/BS#1 (11.0→14.0)	75	30.4	25.8	90.5	100.4	94.4	9.20×10^{-8}	0.86
		76	24.6	23.8	98.5	101.8	93.6	9.30×10^{-8}	0.71

AVG = 16.5%

AVG ≃ 115.5 pcf

ATTACHMENT F

CATERPILLAR®

EQUIPMENT

Track-Type Tractors

Choose a Different Product Family

Other Models: D8R Series II WHA

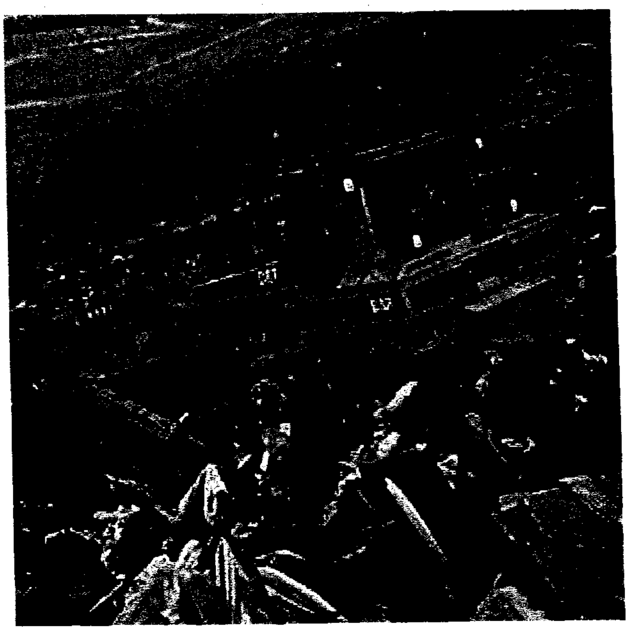
D8R Series II WHA

Back to Track-Type Tractors

Printer Friendly

The Cat Track-Type Tractor waste handling arrangement machines are purpose built for landfill operations. Special guarding and cooling systems are standard on these machines to help them withstand the harsh operating conditions in the landfill.

Features & Benefits



Related Industries: Waste

Detailed Specifications

Engine	
Engine Model	Cat 3406E
Gross Power	252 kW / 338 hp
Flywheel Power	231 kW / 310 hp
RPM	2000 RPM / 2000 RPM
Number of Cylinders	6
Bore	137 mm / 5.4 in
Stroke	165 mm / 6.5 in
Displacement	14.6 L / 893 in3
Weights	
Operating Weight	37630 kg / 82880 lb
Blade	

Blade Type	SU, U
SU-Blade Width	3.94 m / 12.9 ft
U-Blade Width	4.26 m / 14 ft
SU-LGP-Blade Capacity with Trash Rack	21.1 m3 / 27.6 yd3
[illegible]lade Capacity with Trash Rack	19.9 m3 / 26.1 yd3
U-Blade Capacity with Trash Rack	24.8 m3 / 32.4 yd3
Undercarriage	
Track Rollers/Side	8
Track Width - Std.	560 mm / 1.83 ft
Ground Contact Area w/ Std. Shoe	3.58 m2 / 5544 in2
Track Gauge	2080 mm / 81.89 in
Length of Track on Ground	3.21 mm / 10.5 ft
Dimensions	
Height (Stripped Top)	2.67 m / 8.75 ft
Height ROPS/Canopy	3510 mm / 11.5 ft
Overall Length with Blade	6.398 m / 20.75 ft
Overall Length w/o Blade	4.55 m / 14.9 ft
Width (over Trunnions)	3.05 m / 10 ft
Width (w/o Trunnions - Std. Shoe)	2.7 m / 8.67 ft
Ground Clearance	528 mm / 21 in
Fuel Tank	
Fuel Tank Capacity	625 L / 165 gal

SCS ENGINEERS

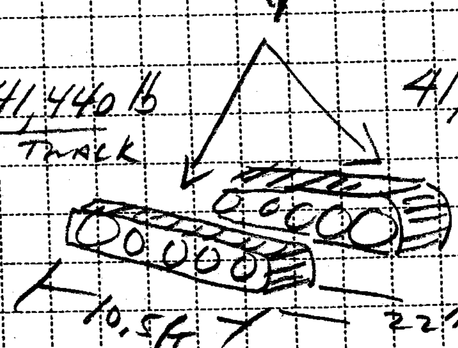
SHEET ______ OF ______

CLIENT Sarasota Co	PROJECT Central Landfill	JOB NO. 09201010.15
SUBJECT Equipment Loading	BY [illegible]	DATE
	CHECKED	DATE

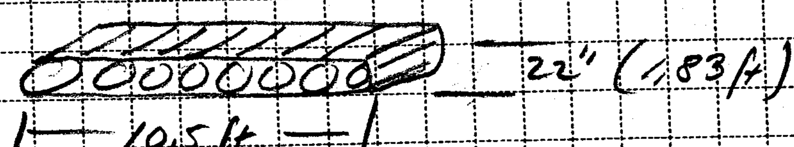
Given: Equipment CAT D8R Series II WHA

operating weight

82,880 lb



Stress per Track



$$\text{Stress (Loading)} = F/A$$

$$= \frac{41440 \text{ lb}}{(10.5)(1.83)\,ft^2}$$

$$\text{Loading} = 2,152.72 \text{ lb}/ft^2$$

ATTACHMENT G

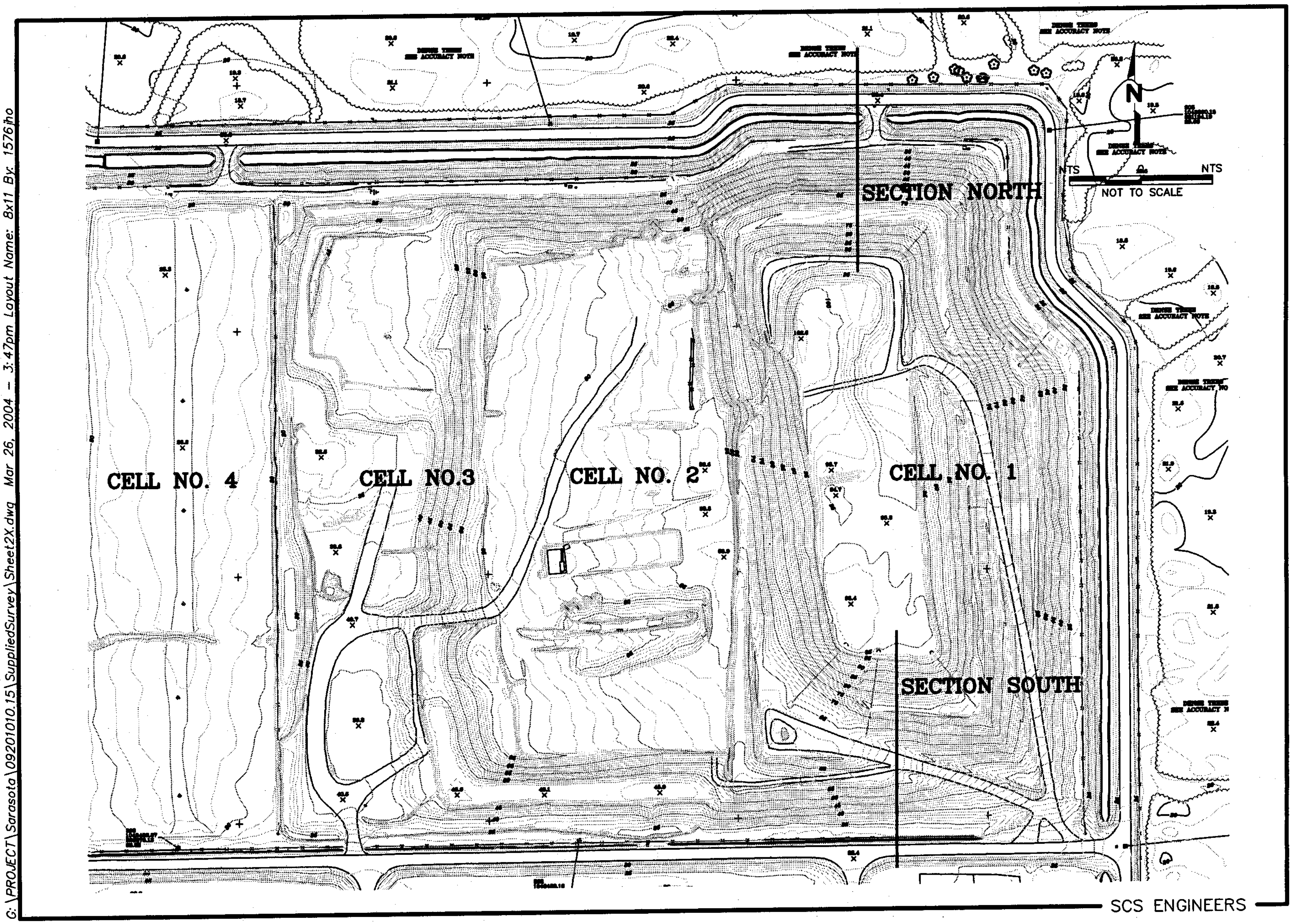
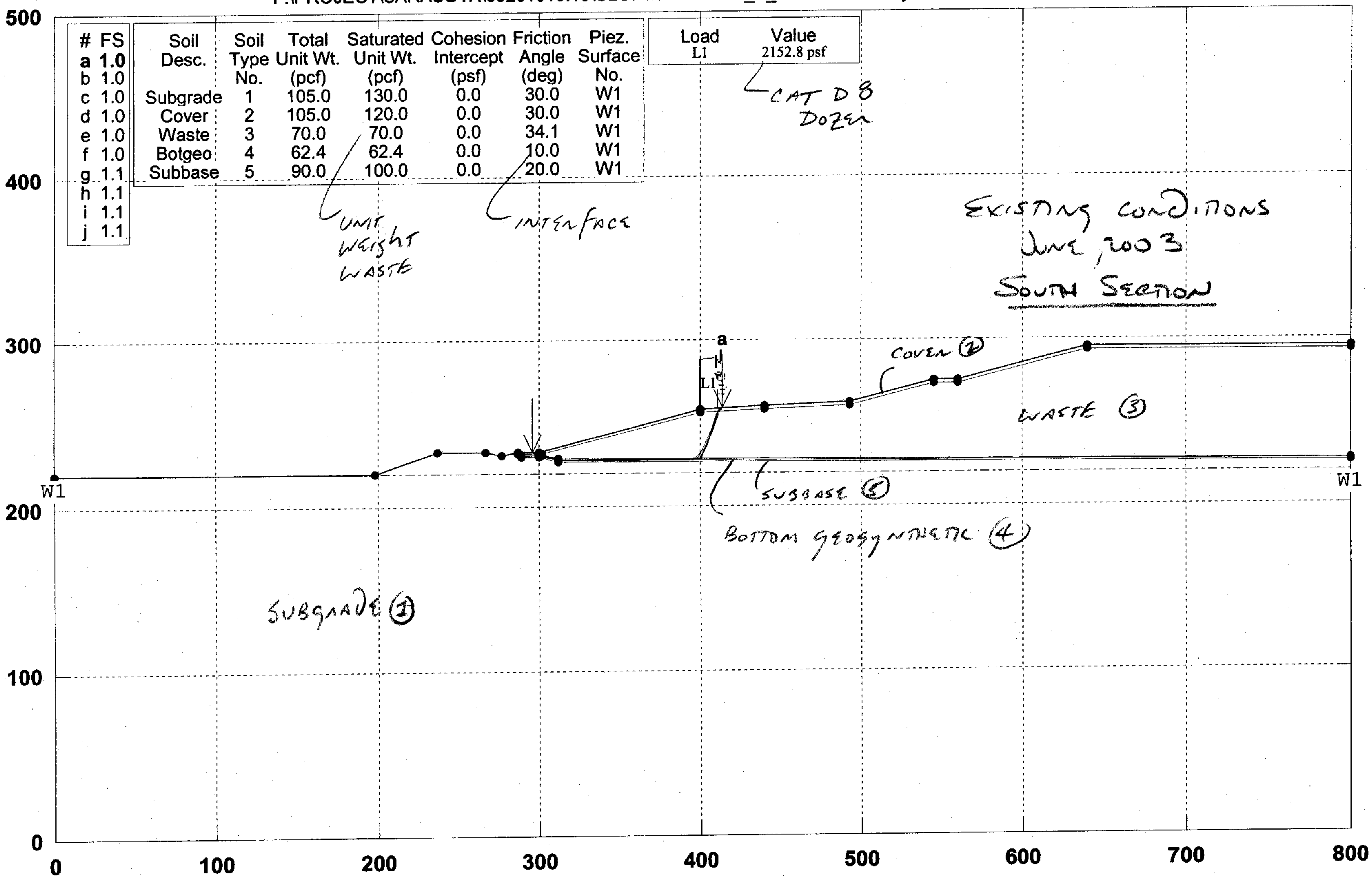


Figure 1 – Existing Conditions – June 14, 2003 Sarasota County, Florida

G:\PROJECT\Sarasota\09201010.15\SuppliedSurvey\Sheet2X.dwg Mar 26, 2004 – 3:47pm Layout Name: 8x11 By: 1576jho

Central Landfill - Final Buildout Sarasota County, Florida

F:\PROJECT\SARASOTA\09201010.15\SLOPE\FINAL\FIN_S_EX.PL2 Run By: JHO 3/26/2004 1:46PM



#	FS
a	**1.0**
b	1.0
c	1.0
d	1.0
e	1.0
f	1.0
g	1.1
h	1.1
i	1.1
j	1.1

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Subgrade	1	105.0	130.0	0.0	30.0	W1
Cover	2	105.0	120.0	0.0	30.0	W1
Waste	3	70.0	70.0	0.0	34.1	W1
Botgeo	4	62.4	62.4	0.0	10.0	W1
Subbase	5	90.0	100.0	0.0	20.0	W1

Load	Value
L1	2152.8 psf

PCSTABL5M/si FSmin=1.0

Safety Factors Are Calculated By The Modified Janbu Method

SCS ENGINEERS

** PCSTABL5M **
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date: 3/26/2004
Time of Run: 1:46PM
Run By: JHO
Input Data Filename: F:fin_s_ex.
Output Filename: F:fin_s_ex.OUT
Unit: ENGLISH
Plotted Output Filename: F:fin_s_ex.PLT

PROBLEM DESCRIPTION **Central Landfill - Final Buildout**
Sarasota County, Florida

BOUNDARY COORDINATES

13 Top Boundaries
33 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	220.00	198.33	220.00	1
2	198.33	220.00	237.33	233.00	1
3	237.33	233.00	267.33	233.00	1
4	267.33	233.00	277.33	231.00	1
5	277.33	231.00	287.33	233.00	1
6	287.33	233.00	300.00	233.00	2
7	300.00	233.00	400.00	258.00	2
8	400.00	258.00	440.00	260.00	2
9	440.00	260.00	493.00	262.00	2
10	493.00	262.00	545.00	275.00	2
11	545.00	275.00	560.00	275.00	2
12	560.00	275.00	640.00	295.00	2
13	640.00	295.00	800.00	295.00	2
14	301.82	231.50	400.29	256.01	3
15	400.29	256.01	440.00	258.00	3
16	440.00	258.00	493.28	260.00	3
17	493.28	260.00	545.25	273.00	3
18	545.25	273.00	560.25	273.00	3
19	560.25	273.00	640.25	293.00	3
20	640.25	293.00	800.00	293.00	3
21	287.33	231.50	288.33	231.50	1
22	288.33	231.50	301.83	231.50	4
23	301.83	231.50	302.11	231.07	4
24	302.11	231.07	312.37	228.50	4
25	312.37	228.50	800.00	227.29	4
26	288.33	231.50	288.66	231.00	1
27	288.66	231.00	300.32	231.00	5
28	300.32	231.00	312.33	228.00	5
29	312.33	228.00	800.00	226.79	5
30	288.66	231.00	289.32	230.00	1
31	289.32	230.00	300.20	230.00	1
32	300.20	230.00	312.20	227.00	1
33	312.20	227.00	800.00	225.79	1

ISOTROPIC SOIL PARAMETERS

5 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.

1	105.0	130.0	.0	30.0	.00	.0	1 — SUBGRADE
2	105.0	120.0	.0	30.0	.00	.0	1 — COVER
3	70.0	70.0	.0	34.1	.00	.0	1 — WASTE
4	62.4	62.4	.0	10.0	.00	.0	1 — GEOMEMBRANE
5	90.0	100.0	.0	20.0	.00	.0	1 — SUBBASE

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	220.00
2	800.00	220.00

BOUNDARY LOAD(S)
1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	400.00	410.50	2152.8	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

1000 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	302.84	230.63	311.80	228.40	.25
2	312.00	228.30	313.00	228.50	.25
3	375.15	228.10	400.00	227.95	.25

The Following is the Most Critical Of The Trial Failure Surfaces Examined.

Safety Factors Are Calculated By The Modified Janbu Method

Failure Surface Specified By 8 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	296.46	233.00
2	305.25	229.99
3	312.77	228.40
4	399.68	227.93
5	404.01	236.94
6	408.02	246.11
7	411.31	255.55
8	414.41	258.72

FACTOR OF SAFETY = 1.0 (With Equipment Loads - This model is ONLY used to estimate the shear strength of the waste materials. Waste shear strength probably exceed the values in this model since no actual failure and loading condition has been documented at the site.)

ATTACHMENT H

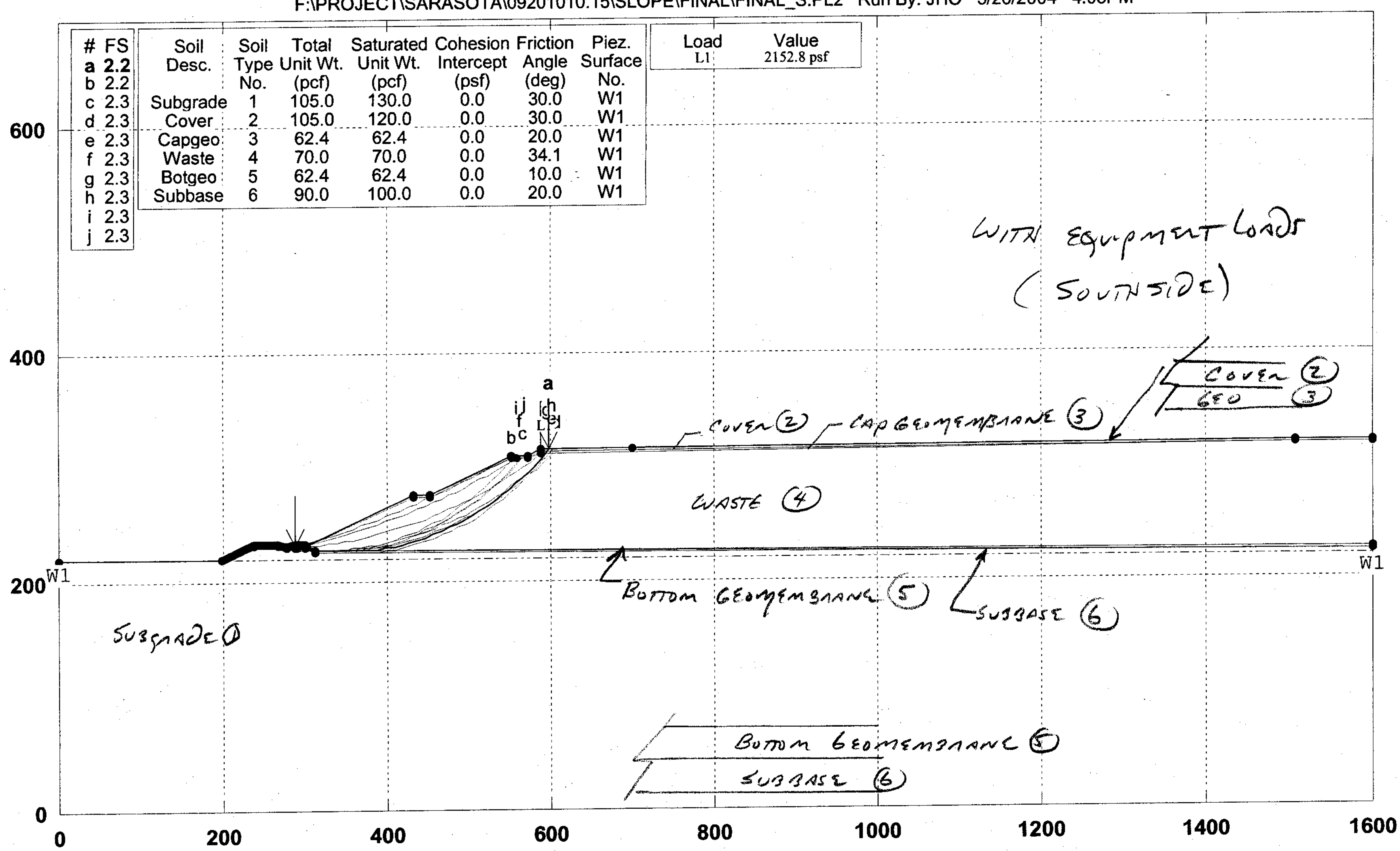
Central Landfill - Final Buildout Sarasota County, Florida

F:\PROJECT\SARASOTA\09201010.15\SLOPE\FINAL\FINAL_S.PL2 Run By: JHO 3/26/2004 4:03PM

#	FS
a	**2.2**
b	2.2
c	2.3
d	2.3
e	2.3
f	2.3
g	2.3
h	2.3
i	2.3
j	2.3

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Subgrade	1	105.0	130.0	0.0	30.0	W1
Cover	2	105.0	120.0	0.0	30.0	W1
Capgeo	3	62.4	62.4	0.0	20.0	W1
Waste	4	70.0	70.0	0.0	34.1	W1
Botgeo	5	62.4	62.4	0.0	10.0	W1
Subbase	6	90.0	100.0	0.0	20.0	W1

Load	Value
L1	2152.8 psf



PCSTABL5M/si FSmin=2.2

Safety Factors Are Calculated By The Modified Bishop Method

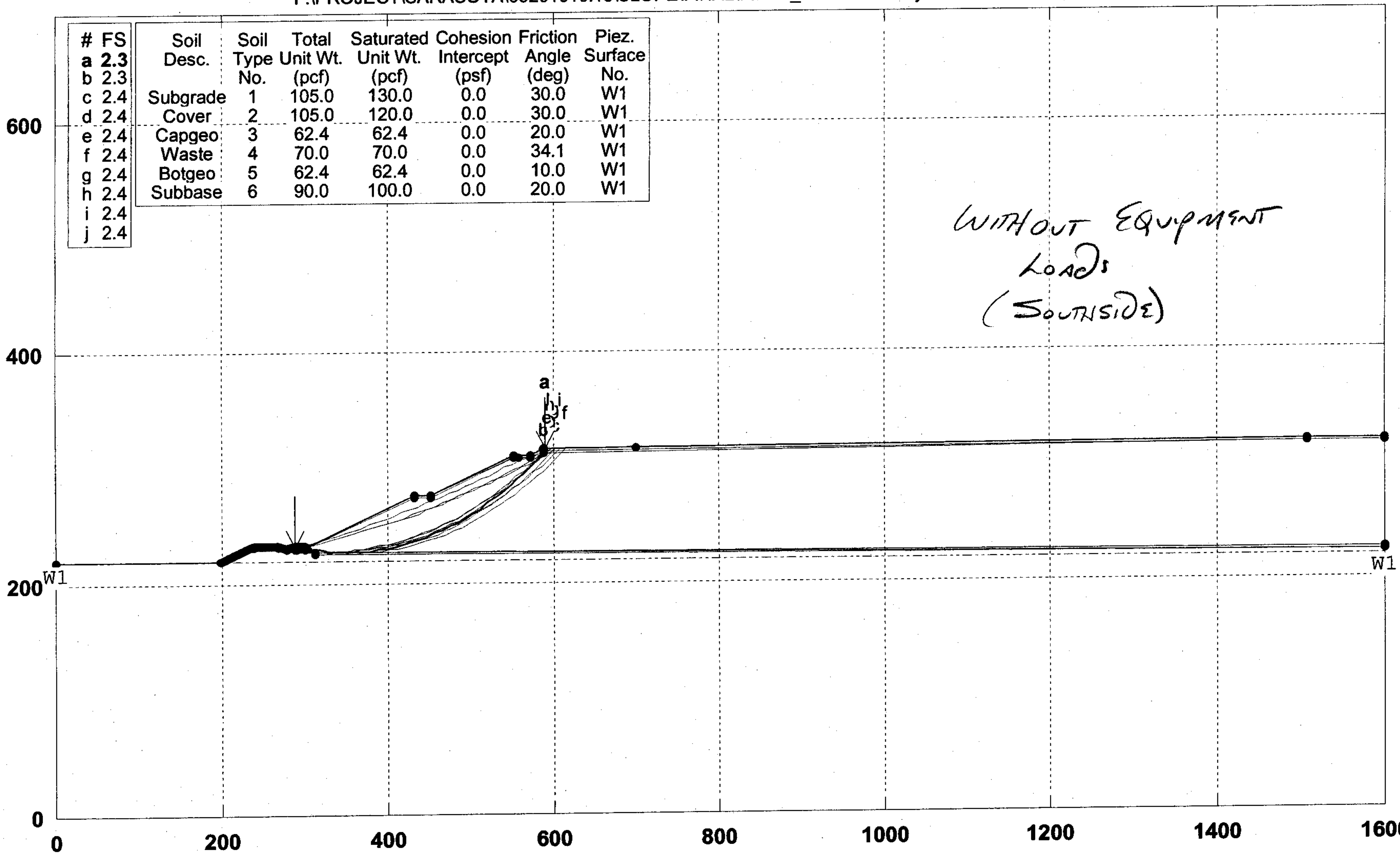
SCS ENGINEERS

Central Landfill - Final Buildout Sarasota County, Florida

F:\PROJECT\SARASOTA\09201010.15\SLOPE\FINAL\FINAL_S.PL2 Run By: JHO 3/26/2004 4:13PM

#	FS
a	**2.3**
b	2.3
c	2.4
d	2.4
e	2.4
f	2.4
g	2.4
h	2.4
i	2.4
j	2.4

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Subgrade	1	105.0	130.0	0.0	30.0	W1
Cover	2	105.0	120.0	0.0	30.0	W1
Capgeo	3	62.4	62.4	0.0	20.0	W1
Waste	4	70.0	70.0	0.0	34.1	W1
Botgeo	5	62.4	62.4	0.0	10.0	W1
Subbase	6	90.0	100.0	0.0	20.0	W1



PCSTABL5M/si FSmin=2.3

Safety Factors Are Calculated By The Modified Bishop Method

SCS ENGINEERS

** PCSTABL5M **
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date:	3/26/2004
Time of Run:	4:03PM
Run By:	JHO
Input Data Filename:	F:final_s.
Output Filename:	F:final_s.OUT
Unit:	ENGLISH
Plotted Output Filename:	F:final_s.PLT

PROBLEM DESCRIPTION **Central Landfill - Final Buildout**
Sarasota County, Florida

BOUNDARY COORDINATES
13 Top Boundaries
40 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	220.00	198.33	220.00	1
2	198.33	220.00	237.33	233.00	1
3	237.33	233.00	267.33	233.00	1
4	267.33	233.00	277.33	231.00	1
5	277.33	231.00	287.33	233.00	1
6	287.33	233.00	300.00	233.00	2
7	300.00	233.00	432.00	277.00	2
8	432.00	277.00	452.00	277.00	2
9	452.00	277.00	551.00	310.00	2
10	551.00	310.00	571.00	310.00	2
11	571.00	310.00	587.20	315.40	2
12	587.20	315.40	1507.20	320.00	2
13	1507.20	320.00	1600.00	320.00	2
14	301.82	231.50	432.33	275.00	3
15	432.33	275.00	452.33	275.00	3
16	452.33	275.00	551.33	308.00	3
17	551.33	308.00	571.33	308.00	3
18	571.33	308.00	587.53	313.40	3
19	587.53	313.40	1507.20	318.00	3
20	1507.20	318.00	1600.00	318.00	3
21	302.11	231.07	432.41	274.50	4
22	432.41	274.50	452.41	274.50	4
23	452.41	274.50	551.41	307.50	4
24	551.41	307.50	557.41	307.50	4
25	571.41	307.50	587.61	312.90	4
26	587.61	312.90	1507.20	317.50	4
27	1507.20	317.50	1600.00	317.50	4
28	287.33	231.50	288.33	231.50	1
29	288.33	231.50	301.83	231.50	5
30	301.83	231.50	302.11	231.07	5
31	302.11	231.07	312.37	228.50	5
32	312.37	228.50	1600.00	225.30	5
33	288.33	231.50	288.66	231.00	1
34	288.66	231.00	300.32	231.00	6
35	300.32	231.00	312.33	228.00	6
36	312.33	228.00	1600.00	224.80	6
37	288.66	231.00	289.32	230.00	1
38	289.32	230.00	300.20	230.00	1
39	300.20	230.00	312.20	227.00	1
40	312.20	227.00	1600.00	223.80	1

ISOTROPIC SOIL PARAMETERS

6 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	130.0	.0	30.0	.00	.0	1
2	105.0	120.0	.0	30.0	.00	.0	1
3	62.4	62.4	.0	20.0	.00	.0	1
4	70.0	70.0	.0	34.1	.00	.0	1
5	62.4	62.4	.0	10.0	.00	.0	1
6	90.0	100.0	.0	20.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	220.00
2	1600.00	220.00

BOUNDARY LOAD(S)

1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	587.20	597.70	2152.8	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

5000 Trial Surfaces Have Been Generated.

100 Surfaces Initiate From Each Of 50 Points Equally Spaced Along The Ground Surface Between X = 200.00 ft. and X = 300.00 ft.

Each Surface Terminates Between X = 551.00 ft. and X = 700.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

The Following is the Most Critical Of The Trial Failure Surfaces Examined.

Safety Factors Are Calculated By The Modified Bishop Method

Failure Surface Specified By 35 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	287.76	233.00
2	297.63	231.39
3	307.53	230.04
4	317.47	228.95
5	327.44	228.13

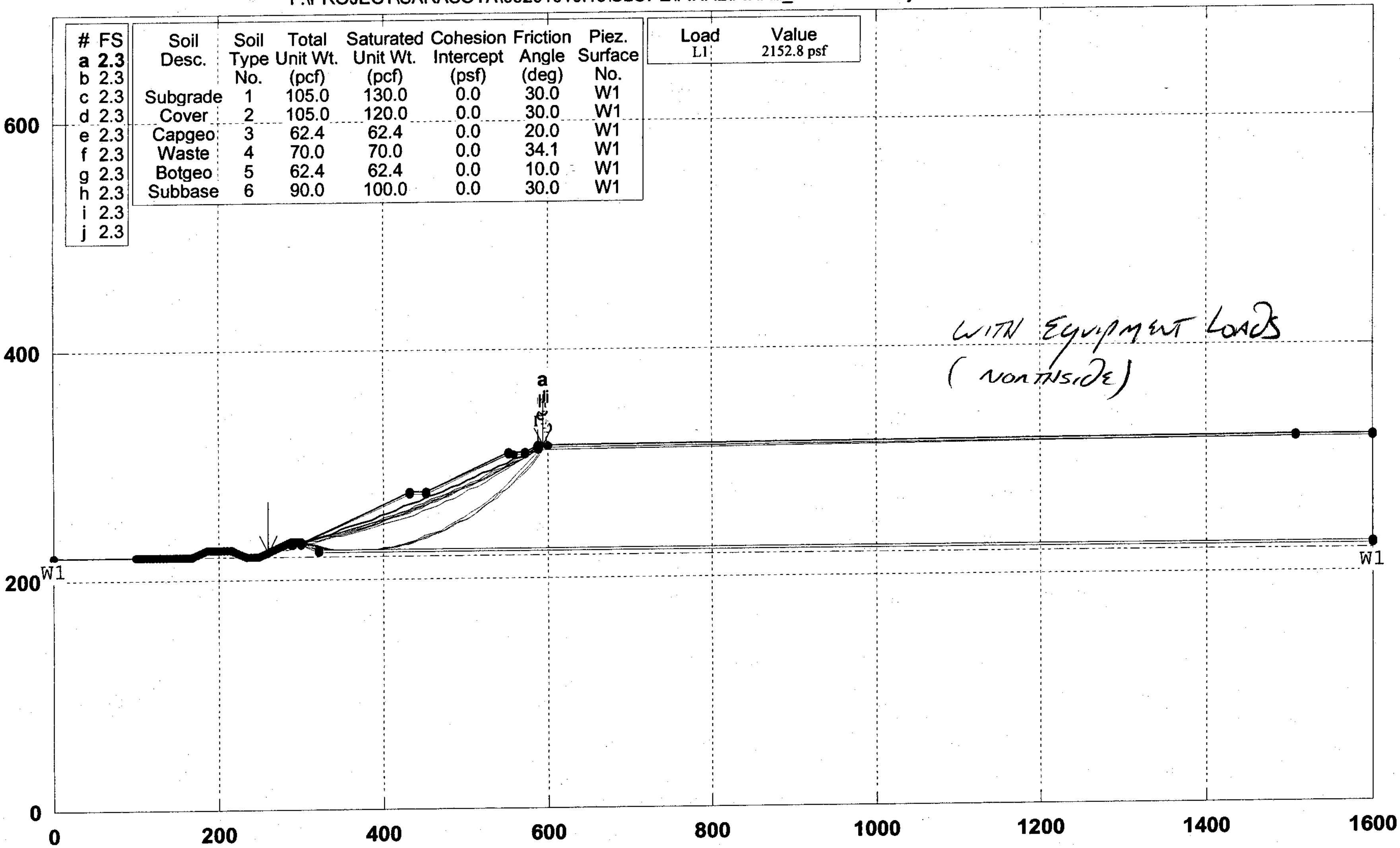
6	337.42	227.56
7	347.42	227.26
8	357.42	227.22
9	367.42	227.45
10	377.41	227.93
11	387.38	228.68
12	397.33	229.69
13	407.24	230.96
14	417.13	232.49
15	426.96	234.29
16	436.75	236.34
17	446.48	238.64
18	456.15	241.20
19	465.75	244.02
20	475.26	247.08
21	484.70	250.39
22	494.04	253.96
23	503.29	257.76
24	512.44	261.81
25	521.47	266.09
26	530.39	270.62
27	539.19	275.37
28	547.86	280.36
29	556.39	285.57
30	564.79	291.00
31	573.04	296.65
32	581.13	302.52
33	589.08	308.60
34	596.85	314.88
35	597.53	315.45

Circle Center At X = 353.9 ; Y = 607.7 and Radius, 380.4

FACTOR OF SAFETY = 2.2 (With Equipment Loads)

Central Landfill - Final Buildout Sarasota County, Florida

F:\PROJECT\SARASOTA\09201010.15\SLOPE\FINAL\FINAL_N.PL2 Run By: JHO 3/26/2004 9:16PM



#	FS
a	**2.3**
b	2.3
c	2.3
d	2.3
e	2.3
f	2.3
g	2.3
h	2.3
i	2.3
j	2.3

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Subgrade	1	105.0	130.0	0.0	30.0	W1
Cover	2	105.0	120.0	0.0	30.0	W1
Capgeo	3	62.4	62.4	0.0	20.0	W1
Waste	4	70.0	70.0	0.0	34.1	W1
Botgeo	5	62.4	62.4	0.0	10.0	W1
Subbase	6	90.0	100.0	0.0	30.0	W1

Load	Value
L1	2152.8 psf

PCSTABL5M/si FSmin=2.3

Safety Factors Are Calculated By The Modified Bishop Method

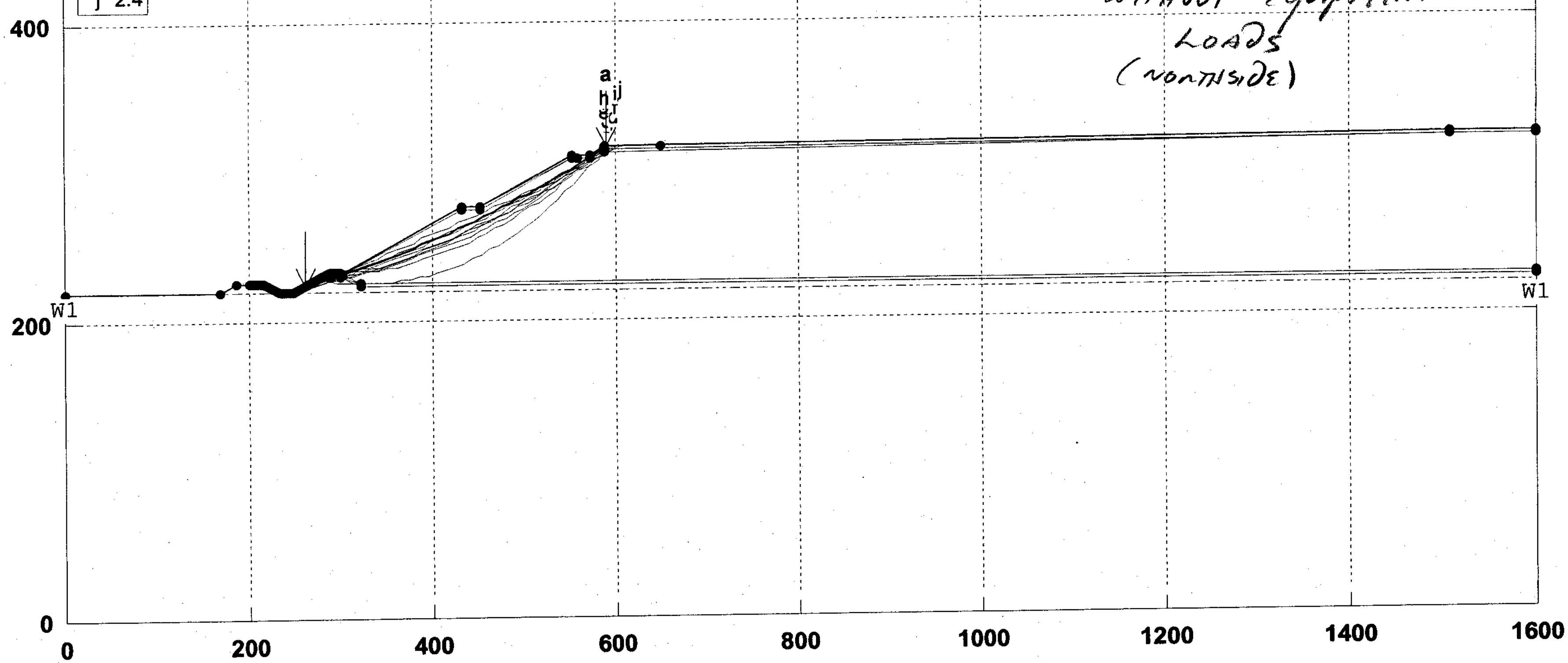
SCS ENGINEERS

Central Landfill - Final Buildout Sarasota County, Florida

F:\PROJECT\SARASOTA\09201010.15\SLOPE\FINAL\FINAL_N.PL2 Run By: JHO 3/26/2004 9:09PM

#	FS
a	**2.3**
b	2.4
c	2.4
d	2.4
e	2.4
f	2.4
g	2.4
h	2.4
i	2.4
j	2.4

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Subgrade	1	105.0	130.0	0.0	30.0	W1
Cover	2	105.0	120.0	0.0	30.0	W1
Capgeo	3	62.4	62.4	0.0	20.0	W1
Waste	4	70.0	70.0	0.0	34.1	W1
Botgeo	5	62.4	62.4	0.0	10.0	W1
Subbase	6	90.0	100.0	0.0	30.0	W1



WITHOUT EQUIPMENT LOADS (NORTHSIDE)

PCSTABL5M/si FSmin=2.3

Safety Factors Are Calculated By The Modified Bishop Method

** PCSTABL5M **
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date:	3/26/2004
Time of Run:	8:59PM
Run By:	JHO
Input Data Filename:	F:final_n.
Output Filename:	F:final_n.OUT
Unit:	ENGLISH
Plotted Output Filename:	F:final_n.PLT

PROBLEM DESCRIPTION **Central Landfill - Final Buildout**
Sarasota County, Florida

BOUNDARY COORDINATES

14 Top Boundaries
41 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	220.00	167.33	220.00	1
2	167.33	220.00	185.33	226.00	1
3	185.33	226.00	215.33	226.00	1
4	215.33	226.00	233.33	220.00	1
5	233.33	220.00	248.33	220.00	1
6	248.33	220.00	287.33	233.00	1
7	287.33	233.00	300.00	233.00	2
8	300.00	233.00	432.00	277.00	2
9	432.00	277.00	452.00	277.00	2
10	452.00	277.00	551.00	310.00	2
11	551.00	310.00	571.00	310.00	2
12	571.00	310.00	587.20	315.40	2
13	587.20	315.40	1507.20	320.00	2
14	1507.20	320.00	1600.00	320.00	2
15	301.82	231.50	432.20	275.00	3
16	432.20	275.00	452.32	275.00	3
17	452.32	275.00	551.32	308.00	3
18	551.32	308.00	571.32	308.00	3
19	571.32	308.00	587.53	313.40	3
20	587.53	313.40	1507.20	318.00	3
21	1507.20	318.00	1600.00	318.00	3
22	302.11	231.07	432.41	274.50	4
23	432.41	274.50	452.41	274.50	4
24	452.41	274.50	551.41	307.50	4
25	551.41	307.50	557.41	307.50	4
26	571.41	307.50	587.61	312.90	4
27	587.61	312.90	1507.20	317.50	4
28	1507.20	317.50	1600.00	317.50	4
29	287.33	233.00	288.32	231.50	1
30	288.32	231.50	301.82	231.50	5
31	301.82	231.50	302.11	231.07	5
32	302.11	231.07	322.39	226.00	5
33	322.39	226.00	1600.00	226.00	5
34	288.32	231.50	288.66	231.00	1
35	288.66	231.00	300.32	231.00	6
36	300.32	231.00	322.32	225.50	6
37	322.32	225.50	1600.00	225.50	6
38	288.66	231.00	289.32	230.00	1
39	289.32	230.00	300.20	230.00	1

40	300.20	230.00	322.20	224.50	1
41	322.20	224.50	1600.00	224.50	1

ISOTROPIC SOIL PARAMETERS

6 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	130.0	.0	30.0	.00	.0	1
2	105.0	120.0	.0	30.0	.00	.0	1
3	62.4	62.4	.0	20.0	.00	.0	1
4	70.0	70.0	.0	34.1	.00	.0	1
5	62.4	62.4	.0	10.0	.00	.0	1
6	90.0	100.0	.0	30.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	220.00
2	1600.00	220.00

BOUNDARY LOAD(S)

1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	587.20	597.50	2152.8	.0

NOTE - Intensity Is Specified As A Uniformly Distributed
Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

2500 Trial Surfaces Have Been Generated.

50 Surfaces Initiate From Each Of 50 Points Equally Spaced
Along The Ground Surface Between X = 200.00 ft.
and X = 300.00 ft.

Each Surface Terminates Between X = 587.20 ft.
and X = 650.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

The Following is the Most Critical Of The Trial Failure Surfaces Examined.

Safety Factors Are Calculated By The Modified Bishop Method

Failure Surface Specified By 37 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	255.10	222.26
2	264.93	224.10
3	274.75	225.99
4	284.56	227.92

5	294.37	229.89
6	304.16	231.92
7	313.94	233.99
8	323.72	236.10
9	333.48	238.26
10	343.24	240.46
11	352.98	242.71
12	362.71	245.00
13	372.44	247.34
14	382.15	249.73
15	391.85	252.16
16	401.54	254.63
17	411.21	257.15
18	420.88	259.71
19	430.53	262.32
20	440.18	264.97
21	449.81	267.67
22	459.42	270.41
23	469.03	273.20
24	478.62	276.03
25	488.19	278.91
26	497.76	281.83
27	507.31	284.79
28	516.85	287.80
29	526.37	290.85
30	535.88	293.95
31	545.37	297.09
32	554.85	300.27
33	564.32	303.50
34	573.77	306.77
35	583.20	310.09
36	592.62	313.45
37	598.17	315.45

Circle Center At X = -137.7 ; Y = 2346.3 and Radius, 2160.1

FACTOR OF SAFETY = 2.3 (With Equipment Loads)

Central Landfill - Final Buildout Sarasota County, Florida

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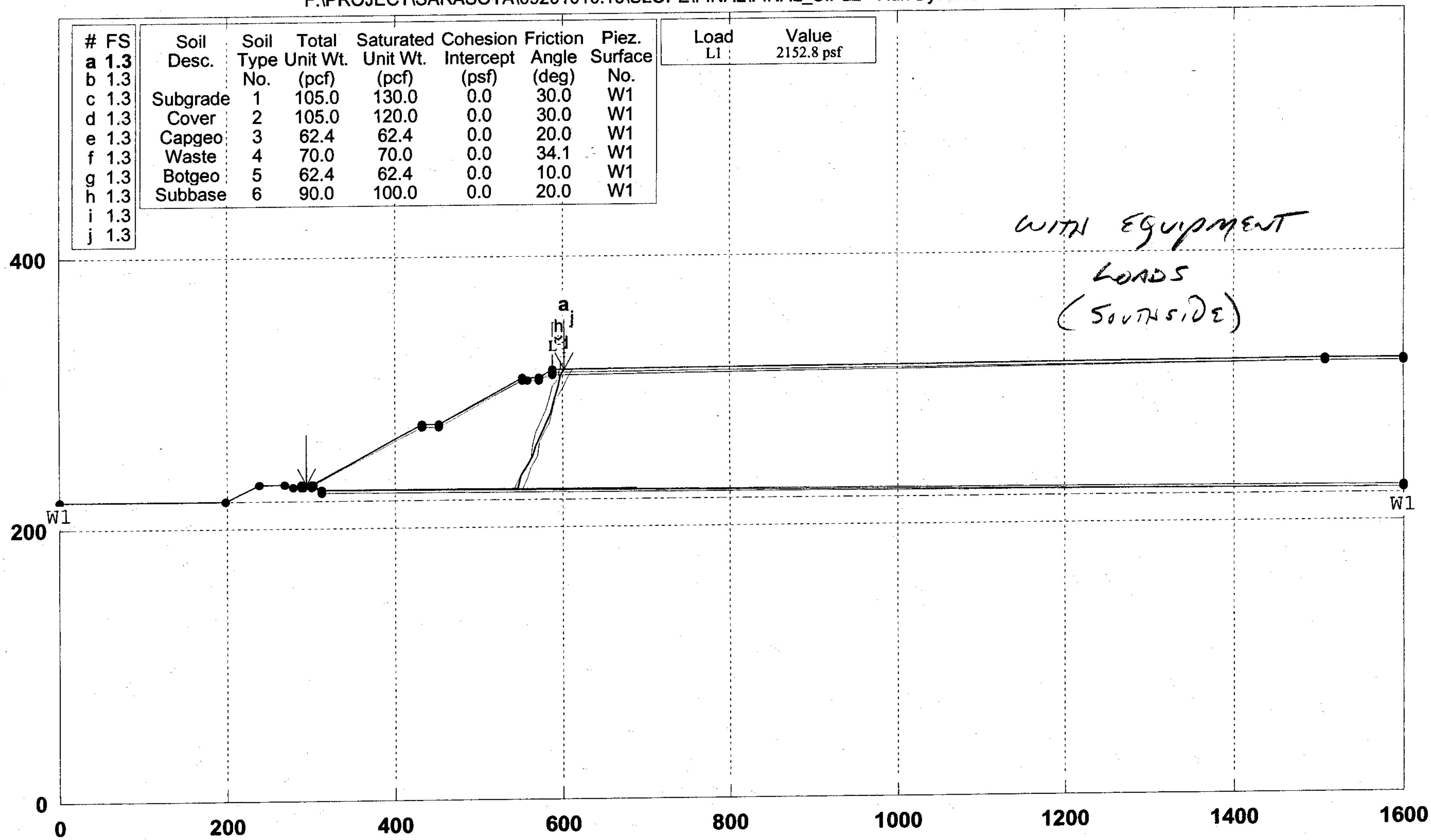

#	FS
a	1.3
b	1.3
c	1.3
d	1.3
e	1.3
f	1.3
g	1.3
h	1.3
i	1.3
j	1.3

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Subgrade	1	105.0	130.0	0.0	30.0	W1
Cover	2	105.0	120.0	0.0	30.0	W1
Capgeo	3	62.4	62.4	0.0	20.0	W1
Waste	4	70.0	70.0	0.0	34.1	W1
Botgeo	5	62.4	62.4	0.0	10.0	W1
Subbase	6	90.0	100.0	0.0	20.0	W1

Load	Value
L1	2152.8 psf

PCSTABL5M/si FSmin=1.3

Safety Factors Are Calculated By The Modified Janbu Method

SCS ENGINEERS

Central Landfill - Final Buildout Sarasota County, Florida

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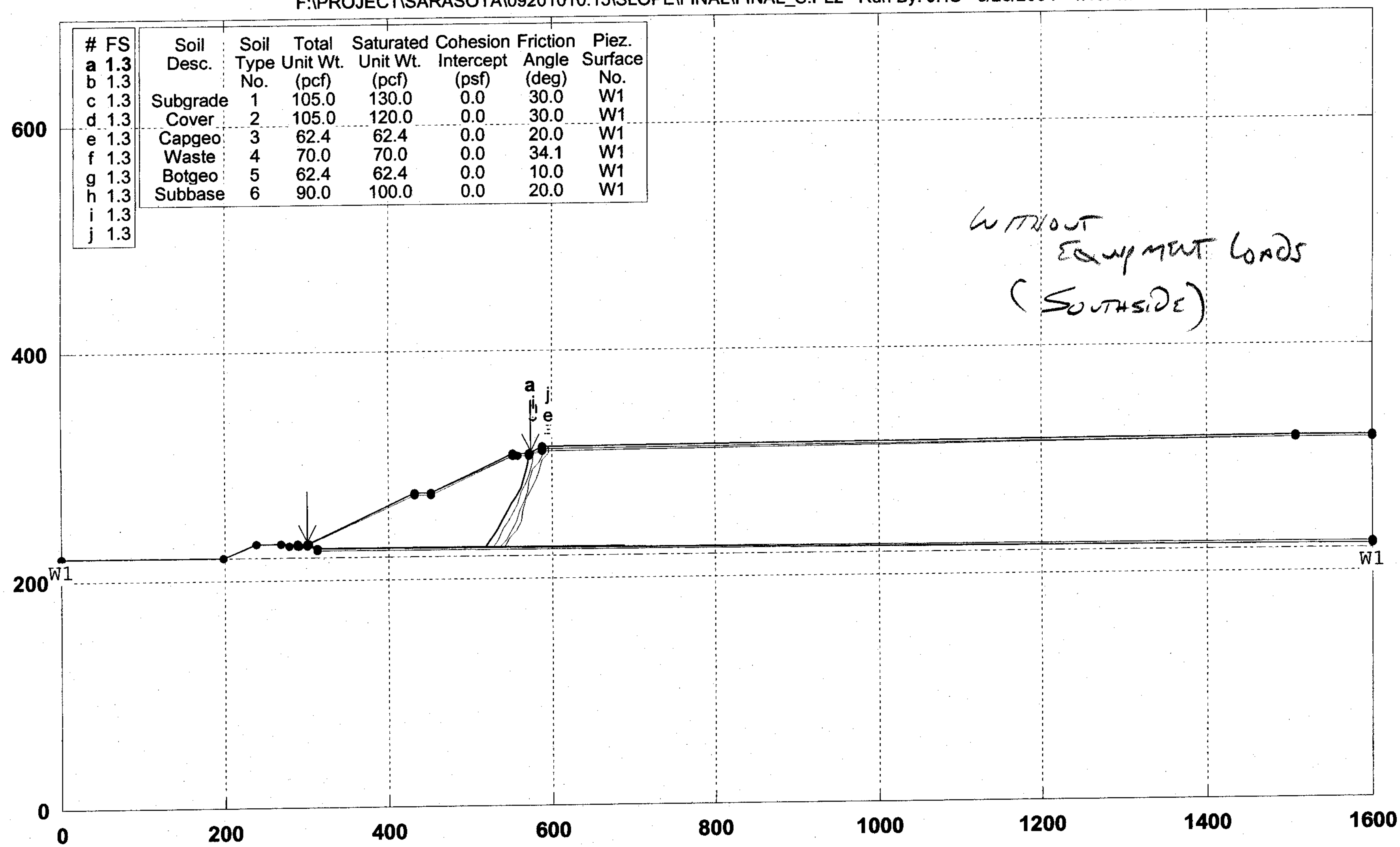

#	FS
a	1.3
b	1.3
c	1.3
d	1.3
e	1.3
f	1.3
g	1.3
h	1.3
i	1.3
j	1.3

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Piez. Surface No.
Subgrade	1	105.0	130.0	0.0	30.0	W1
Cover	2	105.0	120.0	0.0	30.0	W1
Capgeo	3	62.4	62.4	0.0	20.0	W1
Waste	4	70.0	70.0	0.0	34.1	W1
Botgeo	5	62.4	62.4	0.0	10.0	W1
Subbase	6	90.0	100.0	0.0	20.0	W1

PCSTABL5M/si FSmin=1.3

Safety Factors Are Calculated By The Modified Janbu Method

SCS ENGINEERS

** PCSTABL5M **
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date:	3/26/2004
Time of Run:	1:30PM
Run By:	JHO
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Output Filename:	F:final_s.OUT
Unit:	ENGLISH
Plotted Output Filename:	F:final_s.PLT

PROBLEM DESCRIPTION **Central Landfill - Final Buildout**
Sarasota County, Florida

BOUNDARY COORDINATES
13 Top Boundaries
40 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	220.00	198.33	220.00	1
2	198.33	220.00	237.33	233.00	1
3	237.33	233.00	267.33	233.00	1
4	267.33	233.00	277.33	231.00	1
5	277.33	231.00	287.33	233.00	1
6	287.33	233.00	300.00	233.00	2
7	300.00	233.00	432.00	277.00	2
8	432.00	277.00	452.00	277.00	2
9	452.00	277.00	551.00	310.00	2
10	551.00	310.00	571.00	310.00	2
11	571.00	310.00	587.20	315.40	2
12	587.20	315.40	1507.20	320.00	2
13	1507.20	320.00	1600.00	320.00	2
14	301.82	231.50	432.33	275.00	3
15	432.33	275.00	452.33	275.00	3
16	452.33	275.00	551.33	308.00	3
17	551.33	308.00	571.33	308.00	3
18	571.33	308.00	587.53	313.40	3
19	587.53	313.40	1507.20	318.00	3
20	1507.20	318.00	1600.00	318.00	3
21	302.11	231.07	432.41	274.50	4
22	432.41	274.50	452.41	274.50	4
23	452.41	274.50	551.41	307.50	4
24	551.41	307.50	557.41	307.50	4
25	571.41	307.50	587.61	312.90	4
26	587.61	312.90	1507.20	317.50	4
27	1507.20	317.50	1600.00	317.50	4
28	287.33	231.50	288.33	231.50	1
29	288.33	231.50	301.83	231.50	5
30	301.83	231.50	302.11	231.07	5
31	302.11	231.07	312.37	228.50	5
32	312.37	228.50	1600.00	225.30	5
33	288.33	231.50	288.66	231.00	1
34	288.66	231.00	300.32	231.00	6
35	300.32	231.00	312.33	228.00	6
36	312.33	228.00	1600.00	224.80	6
37	288.66	231.00	289.32	230.00	1
38	289.32	230.00	300.20	230.00	1
39	300.20	230.00	312.20	227.00	1
40	312.20	227.00	1600.00	223.80	1

ISOTROPIC SOIL PARAMETERS

6 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	130.0	.0	30.0	.00	.0	1
2	105.0	120.0	.0	30.0	.00	.0	1
3	62.4	62.4	.0	20.0	.00	.0	1
4	70.0	70.0	.0	34.1	.00	.0	1
5	62.4	62.4	.0	10.0	.00	.0	1
6	90.0	100.0	.0	20.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	220.00
2	1600.00	220.00

BOUNDARY LOAD(S)

1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	587.20	597.70	2152.8	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

1000 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	300.30	231.30	311.80	228.40	.25
2	312.00	228.30	313.00	228.50	.25
3	432.00	227.95	687.20	227.32	.25

Following is the Most Critical Of The Trial Failure Surfaces Examined.

Safety Factors Are Calculated By The Modified Janbu Method

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	294.37	233.00
2	295.74	231.71
3	305.57	229.91
4	312.17	228.42
5	546.75	227.69
6	549.54	237.29

7	556.53	244.44
8	563.03	252.04
9	567.95	260.75
10	574.63	268.18
11	579.70	276.80
12	586.46	284.17
13	589.51	293.70
14	594.49	302.37
15	598.51	311.53
16	601.61	315.47

FACTOR OF SAFETY = 1.3 (With Equipment Loads)

Central Landfill - Final Buildout Sarasota County, Florida

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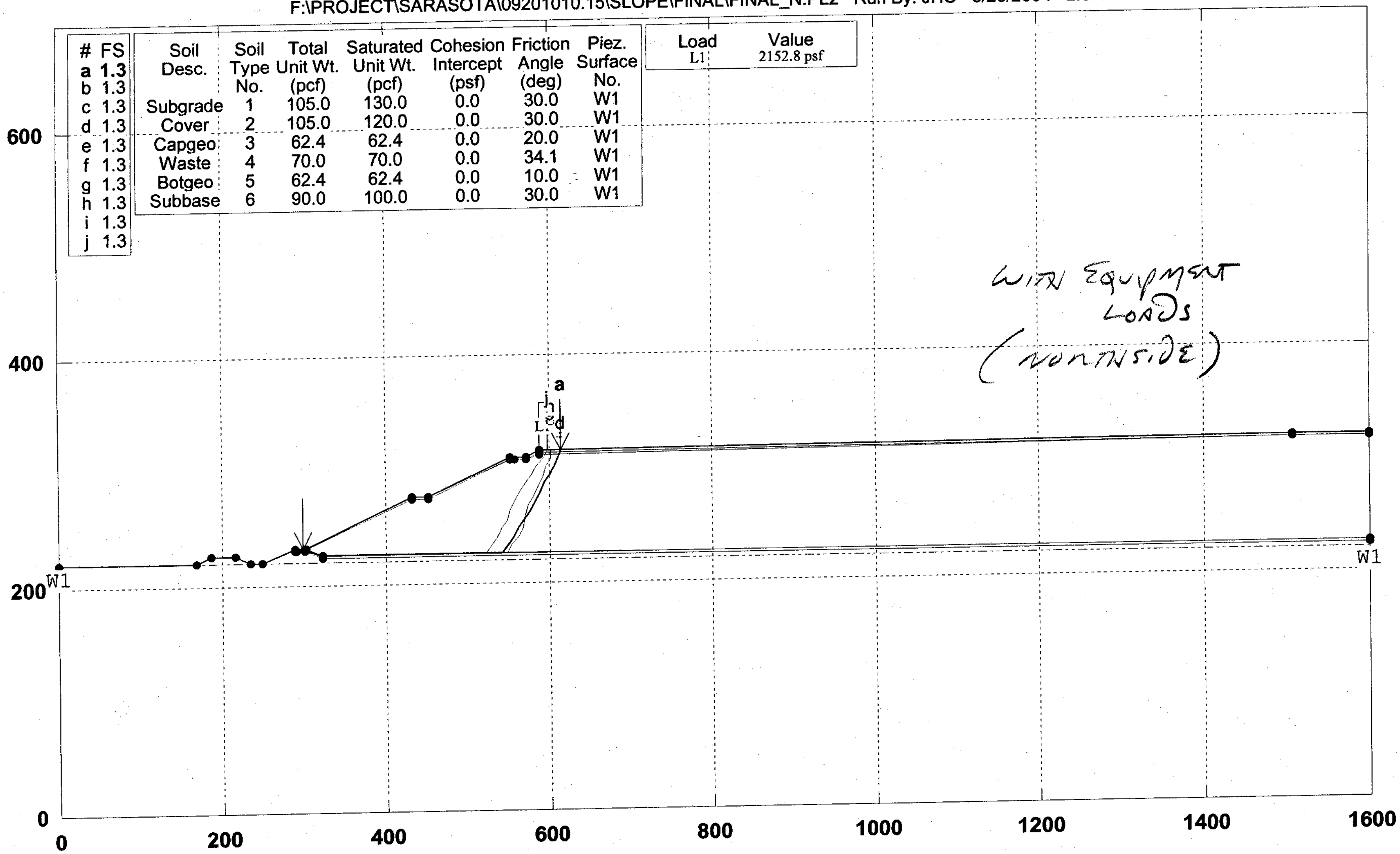

PCSTABL5M/si FSmin=1.3

Safety Factors Are Calculated By The Modified Janbu Method

SCS ENGINEERS

Central Landfill - Final Buildout Sarasota County, Florida

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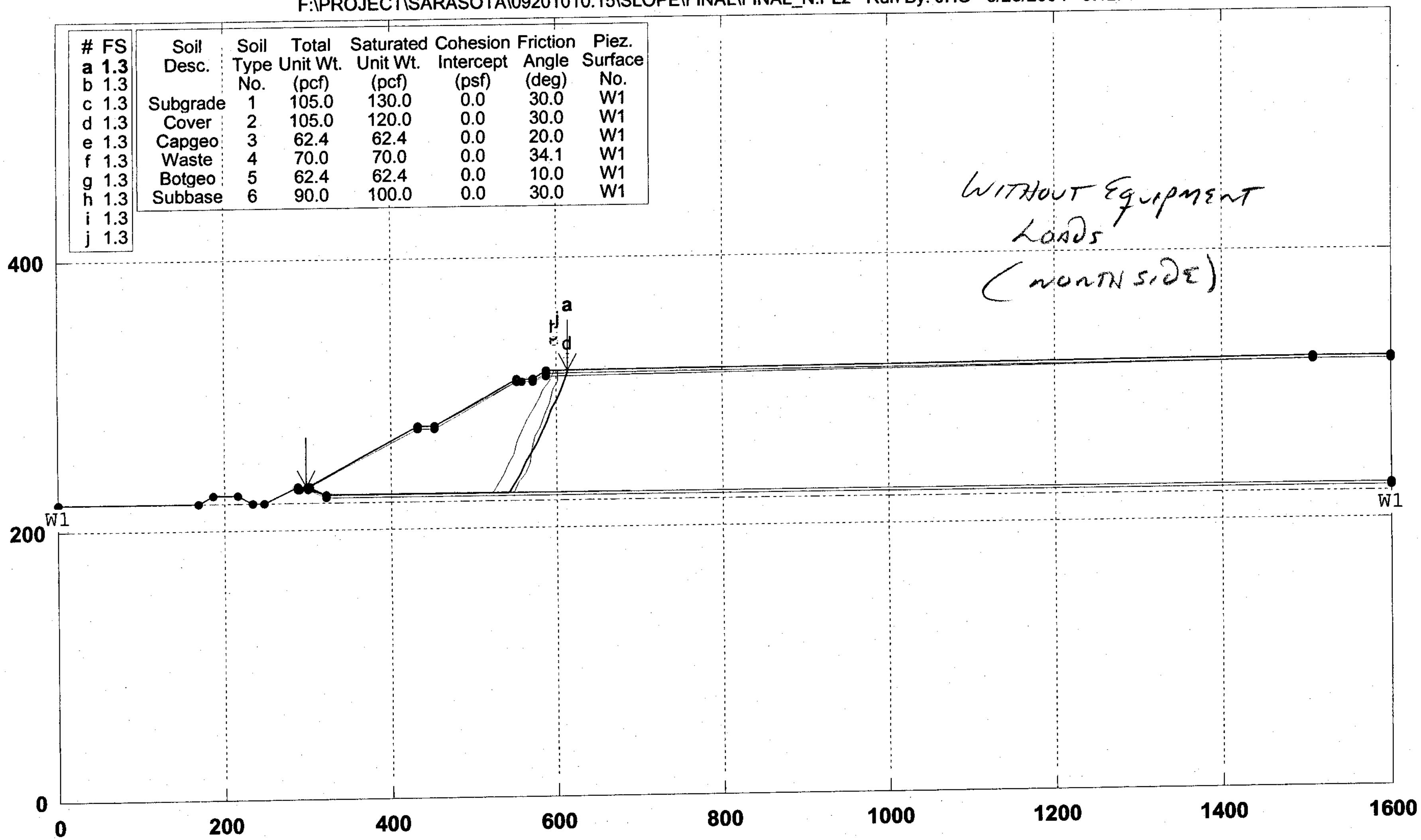


PCSTABL5M/si FSmin=1.3

Safety Factors Are Calculated By The Modified Janbu Method

** PCSTABL5M **
by
Purdue University

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

Run Date:	3/26/2004
Time of Run:	2:07PM
Run By:	JHO
Input Data Filename:	F:final_n.
Output Filename:	F:final_n.OUT
Unit:	ENGLISH
Plotted Output Filename:	F:final_n.PLT

PROBLEM DESCRIPTION **Central Landfill - Final Buildout**
Sarasota County, Florida

BOUNDARY COORDINATES

14 Top Boundaries
41 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	220.00	167.33	220.00	1
2	167.33	220.00	185.33	226.00	1
3	185.33	226.00	215.33	226.00	1
4	215.33	226.00	233.33	220.00	1
5	233.33	220.00	248.33	220.00	1
6	248.33	220.00	287.33	233.00	1
7	287.33	233.00	300.00	233.00	2
8	300.00	233.00	432.00	277.00	2
9	432.00	277.00	452.00	277.00	2
10	452.00	277.00	551.00	310.00	2
11	551.00	310.00	571.00	310.00	2
12	571.00	310.00	587.20	315.40	2
13	587.20	315.40	1507.20	320.00	2
14	1507.20	320.00	1600.00	320.00	2
15	301.82	231.50	432.20	275.00	3
16	432.20	275.00	452.32	275.00	3
17	452.32	275.00	551.32	308.00	3
18	551.32	308.00	571.32	308.00	3
19	571.32	308.00	587.53	313.40	3
20	587.53	313.40	1507.20	318.00	3
21	1507.20	318.00	1600.00	318.00	3
22	302.11	231.07	432.41	274.50	4
23	432.41	274.50	452.41	274.50	4
24	452.41	274.50	551.41	307.50	4
25	551.41	307.50	557.41	307.50	4
26	571.41	307.50	587.61	312.90	4
27	587.61	312.90	1507.20	317.50	4
28	1507.20	317.50	1600.00	317.50	4
29	287.33	233.00	288.32	231.50	1
30	288.32	231.50	301.82	231.50	5
31	301.82	231.50	302.11	231.07	5
32	302.11	231.07	322.39	226.00	5
33	322.39	226.00	1600.00	226.00	5
34	288.32	231.50	288.66	231.00	1
35	288.66	231.00	300.32	231.00	6
36	300.32	231.00	322.32	225.50	6
37	322.32	225.50	1600.00	225.50	6
38	288.66	231.00	289.32	230.00	1

39	289.32	230.00	300.20	230.00	1
40	300.20	230.00	322.20	224.50	1
41	322.20	224.50	1600.00	224.50	1

ISOTROPIC SOIL PARAMETERS

6 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
1	105.0	130.0	.0	30.0	.00	.0	1
2	105.0	120.0	.0	30.0	.00	.0	1
3	62.4	62.4	.0	20.0	.00	.0	1
4	70.0	70.0	.0	34.1	.00	.0	1
5	62.4	62.4	.0	10.0	.00	.0	1
6	90.0	100.0	.0	30.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	220.00
2	1600.00	220.00

BOUNDARY LOAD(S)

1 Load(s) Specified

Load No.	X-Left (ft)	X-Right (ft)	Intensity (psf)	Deflection (deg)
1	587.20	597.50	2152.8	.0

NOTE - Intensity Is Specified As A Uniformly Distributed Force Acting On A Horizontally Projected Surface.

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

1000 Trial Surfaces Have Been Generated.

3 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	height (ft)
1	300.26	231.27	322.04	225.83	.25
2	322.09	225.75	323.00	225.75	.25
3	432.00	225.75	687.20	225.75	.25

The Following is the Most Critical Of The Trial Failure Surfaces Examined.

Safety Factors Are Calculated By The Modified Janbu Method

Failure Surface Specified By 16 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	298.60	233.00
2	301.58	230.93
3	322.62	225.65

4	542.89	225.63
5	549.64	233.01
6	556.22	240.54
7	562.27	248.50
8	569.04	255.86
9	576.10	262.94
10	582.30	270.79
11	588.70	278.48
12	593.53	287.23
13	600.18	294.70
14	605.96	302.86
15	611.08	311.45
16	614.55	315.54

FACTOR OF SAFETY = 1.3 (With Equipment Loads)

RECEIVED
OCT 0 7 2003
Department of Environmental Protection
SOUTHWEST DISTRICT
BY

October 7, 2003
File No. 09201010.15

MEMORANDUM

TO: Joseph H. O'Neill

FROM: Lindsey E. Kennelly

SUBJECT: Stormwater Berm Stability, CCSWDC Landfill, Sarasota County, Florida

In determining the slope stability of the stormwater berm with a 2 (horizontal) to 1 (vertical) sideslope atop the 3 (horizontal) to 1 (vertical) landfill sideslope, three cases were examined.

- Case I: Stability of the stormwater berm accounting for equipment loads on the proposed intermediate cover soils. This case examined the failure plane along the soil/soil interface of the landfill sideslope (see Figure 1).

- Case II: Stability of the sideslopes accounting for equipment loads with the intermediate covers and waste or geosynthetic cover during closure. This case analyzed the failure plane along the soil/geosynthetic interface. The liner system has approximately two feet of protective cover atop it (see Figure 2).

- Case III (Failure plane is along the interface of the soil and geosynthetic materials): Stability of the sideslopes during closure with seepage parallel to the sideslope.

Calculations Summary

In determining the factor of safety, a free body diagram of the stormwater berm/landfill sideslope system was created. The total vertical load accounts for the weight of the soil as well as the load imparted by the Caterpillar D5G Dozer. The shear load and normal load were determined by trigonometric functions. To determine the shear stress and normal stress the respective loads were divided by the interface area. The shear resistance factor accounts for the shear stress and the interface friction angle. The factor of safety was determined by dividing the shear resistance by the shear stress.

A minimum factor of safety of 1.3 for short-term operations or construction equipment was targeted and a factor of safety of 1.5 for long term static closure condition was targeted for closure. Refer to Attachment A for reference material (Army Corp of Engineer) for the short term loading conditions.

In Case I (The failure plane is located along the proposed berm and the cover soils or intermediate cover), the factor of safety was determined to be approximately 1.74. An interface friction angle for sand of 30 degrees was used for the soil/soil interface.

In Case II (The failure plane is along the cover soil and the geosynthetic materials or intermediate cover and waste materials), the factor of safety was determined to be approximately 1.3. To obtain this factor of safety, the interface friction angle between the soil and geosynthetic interface or intermediate cover soils must be 23 degrees.

In Case III, the factor of safety was determined to be approximately 1.5. To obtain this factor of safety, the interface friction angle between the soil and geosynthetic interface must be a minimum of 26 degrees. The hydraulic conductivity of the geocomposite layer should be at least 5 centimeters per second. A 25year/24 hour storm event used in the calculations to estimate seepage into the soils.

Results:

- The proposed 2(H):1(V) berm is stable with equipment loading and protective cover or intermediate cover soils with the following shear strength parameters;

  <u>Sand</u>
  Phi angle = 30 degrees
  Cohesion = 0 pounds per square foot

- The proposed 3(H):1(V) sideslope is stable with equipment loading with protective cover soils or intermediate cover soils soils with the following shear strength parameters;

  <u>Sand/Geosynthetic or Intermediate Cover Soils/Waste Interface</u>
  Phi angle = 23 degrees
  Cohesion = 0 pounds per square foot

- The proposed 3(H):1(V) sideslope is stable with protective cover (with seepage) soils with the following shear strength parameters;

  <u>Sand/Geosynthetic Interface</u>
  Phi angle = 26 degrees
  Cohesion = 0 pounds per square foot
  Sand Permeability of at least 1×10^{-3} centimeters per second
  <u>Geosynthetic</u>
  Bi-plannar permeability of 5 centimeters per second

ATTACHMENT A

REFERENCES FOR FACTORS OF SAFETY

Source: Army Corp of Engineers
Engineering Manual EM 1110-2-1913
See paragraph 6.5 & Table 6-1a & B

Chapter 6
Slope Design and Settlement

Section I
Embankment Stability

6-1. Embankment Geometry

a. Slopes. For levees of significant height or when there is concern about the adequacy of available embankment materials or foundation conditions, embankment design requires detailed analysis. Low levees and levees to be built of good material resting on proven foundations may not require extensive stability analysis. For these cases, practical considerations such as type and ease of construction, maintenance, seepage and slope protection criteria control the selection of levee slopes.

(1) Type of construction. Fully compacted levees generally enable the use of steeper slopes than those of levees constructed by semicompacted or hydraulic means. In fact, space limitations in urban areas often dictate minimum levee sections requiring select material and proper compaction to obtain a stable section.

(2) Ease of construction. A 1V on 2H slope is generally accepted as the steepest slope that can easily be constructed and ensure stability of any riprap layers.

(3) Maintenance. A 1V on 3H slope is the steepest slope that can be conveniently traversed with conventional mowing equipment and walked on during inspections.

(4) Seepage. For sand levees, a 1V on 5H landside slope is considered flat enough to prevent damage from seepage exiting on the landside slope.

(5) Slope protection. Riverside slopes flatter than those required for stability may have to be specified to provide protection from damage by wave action.

b. Final Levee Grade. In the past, freeboard was used to account for hydraulic, geotechnical, construction, operation and maintenance uncertainties. The term and concept of freeboard to account for these uncertainties is no longer used in the design of levee projects. The risk-based analysis directly accounts for hydraulic uncertainties and establishes a nominal top of protection. Deterministic analysis using physical properties of the foundation and embankment materials should be used to set the final levee grade to account for settlement, shrinkage, cracking, geologic subsidence, and construction tolerances.

c. Crown width. The width of the levee crown depends primarily on roadway requirements and future emergency needs. To provide access for normal maintenance operations and floodfighting operations, minimum widths of 3.05 to 3.66 m (10 to 12 ft) are commonly used with wider turnaround areas provided at specified intervals; these widths are about the minimum feasible for construction using modern heavy earthmoving equipment and should always be used for safety concerns. Where the levee crown is to be used as a higher class road, its width is usually established by the responsible agency.

6-2. Standard Levee Sections and Minimum Levee Section

a. Many districts have established standard levee-sections for particular levee systems, which have proven satisfactory over the years for the general stream regime, foundation conditions prevailing in those areas, and for soils available for levee construction. For a given levee system, several different standard sections may be established depending on the type of construction to be used (compacted, semicompacted, uncompacted, or hydraulic fill). The use of standard sections is generally limited to levees of moderate height (say less than 7.62 m (25 ft)) in reaches where there are no serious underseepage problems, weak foundation soils, or undesirable borrow materials (very wet or very organic). In many cases the standard levee section has more than the minimum allowable factor of safety relative to slope stability, its slopes being established primarily on the basis of construction and maintenance considerations. Where high levees or levees on foundations presenting special underseepage or stability problems are to be built, the uppermost riverside and landside slopes of the levee are often the same as those of the standard section, with the lower slopes flattened or stability berms provided as needed.

b. The adoption of standard levee sections does not imply that stability and underseepage analyses are not made. However, when borings for a new levee clearly demonstrate foundation and borrow conditions similar to those at existing levees, such analyses may be very simple and made only to the extent necessary to demonstrate unquestioned levee stability. In addition to being used in levee design, the standard levee sections are applicable to initial cost estimate, emergency and maintenance repairs.

c. The minimum levee section shall have a crown width of at least 3.05 m (10 ft) and a side slope flatter than or equal to 1V on 2H, regardless of the levee height or the possibly less requirements indicated in the results of stability and seepage analyses. The required dimensions of the minimum levee section is to provide an access road for flood-fighting, maintenance, inspection and for general safety conditions.

6-3. Effects of Fill Characteristics and Compaction

a. Compacted fills. The types of compaction, water content control, and fill materials govern the steepness of levee slopes from the stability aspect if foundations have adequate strength. Where foundations are weak and compressible, high quality fill construction is not justified, since these foundations can support only levees with flat slopes. In such cases uncompacted or semicompacted fill, as defined in paragraph 1-5, is appropriate. Semicompacted fill is also used where fine-grained borrow soils are considerably wet of optimum or in construction of very low levees where other considerations dictate flatter levee slopes than needed for stability. Uncompacted fill is generally used where the only available borrow is very wet and frequently has high organic content and where rainfall is very high during the construction season. When foundations have adequate strength and where space is limited in urban areas both with respect to quantity of borrow and levee geometry, compacted levee fill construction by earth dam procedures is frequently selected. This involves the use of select material, water content control, and compaction procedures as described in paragraph 1-5.

b. Hydraulic Fill. Hydraulic fill consists mostly of pervious sands built with one or two end-discharge or bottom-discharging pipes. Tracked or rubber-tired dozers or front-end loaders are used to move the sand to shape the embankment slopes. Because a levee constructed of hydraulic fill would be very pervious and have a low density, it would require a large levee footprint and would be susceptible to soil liquefaction. Hydraulic fill would also quickly erode upon overtopping or where an impervious covering was penetrated. For these reasons, hydraulic fill may be used for stability berms, pit fills and seepage berms but shall not normally be used in constructing levee embankments. However, hydraulic fill may be used for levees protecting agricultural areas whose failure would not endanger human life and for zoned embankments that include impervious seepage barriers.

Section II
Stability Analyses

6-4. Methods of Analysis

The principal methods used to analyze levee embankments for stability against shear failure assume either (a) a sliding surface having the shape of a circular arc within the foundation and/or the embankment or (b) a composite failure surface composed of a long horizontal plane in a relatively weak foundation or thin foundation stratum connecting with diagonal plane surfaces up through the foundation and embankment to the ground surface. Various methods of analysis are described in EM 1110-2-1902, and can be chosen for use where determined appropriate by the designer. Computer programs are available for these analyses, with the various loading cases described in EM 1110-2-1902, so the effort of making such analyses is greatly reduced, and primary attention can be devoted to the more important problems of defining the shear strengths, unit weights, geometry, and limits of possible sliding surfaces.

6-5. Conditions Requiring Analysis

The various loading conditions to which a levee and its foundation may be subjected and which should be considered in analyses are designated as follows: Case I, end of construction; Case II, sudden drawdown from full flood stage; Case III, steady seepage from full flood stage, fully developed phreatic surface; Case IV, earthquake. Each case is discussed briefly in the following paragraphs and the applicable type of design shear strength is given. For more detailed information on applicable shear strengths, methods of analysis, and assumptions made for each case refer to EM 1110-2-1902.

a. Case I - End of construction. This case represents undrained conditions for impervious embankment and foundation soils; i.e., excess pore water pressure is present because the soil has not had time to drain since being loaded. Results from laboratory Q (unconsolidated-undrained) tests are applicable to fine-grained soils loaded under this condition while results of S (consolidated-drained) tests can be used for pervious soils that drain fast enough during loading so that no excess pore water pressure is present at the end of construction. The end of construction condition is applicable to both the riverside and landside slopes.

During Construction

Short Duration Loads

b. Case II - Sudden drawdown. This case represents the condition whereby a prolonged flood stage saturates at least the major part of the upstream embankment portion and then falls faster than the soil can drain. This causes the development of excess pore water pressure which may result in the upstream slope becoming unstable. For the selection of the shear strengths see Table 6-1a.

c. Case III - Steady seepage from full flood stage (fully developed phreatic surface). This condition occurs when the water remains at or near full flood stage long enough so that the embankment becomes fully saturated and a condition of steady seepage occurs. This condition may be critical for landside slope stability. Design shear strengths should be based on Table 6-1a.

d. Case IV - Earthquake. Earthquake loadings are not normally considered in analyzing the stability of levees because of the low probability of earthquake coinciding with periods of high water. Levees constructed of loose cohesionless materials or founded on loose cohesionless materials are particularly susceptible to failure due to liquefaction during earthquakes. Depending on the severity of the expected earthquake and the importance of the levee, seismic analyses to determine liquefaction susceptibility may be required.

Table 6-1a
Summary of Design Conditions

Analysis Condition	Shear Strength[a]	Pore Water Pressure
During and End-of-Construction	Free draining soils - use effective stresses	Free draining soils - Pore water pressures can be estimated using analytical techniques such as hydrostatic pressure computations for no flow or steady seepage analysis techniques (flow nets, finite element analyses or finite difference analyses).
	Low permeability soils - use undrained strengths and total stresses[b]	Low permeability soils - Total stresses are used; pore water pressures are set to zero in the slope stability computations.
Steady State Seepage Conditions	Use effective stresses. Residual strengths should be used where previous shear deformation or sliding has occurred.	Estimated from field measurements of pore water pressures, hydrostatic pressure computations for no flow conditions, or steady seepage analysis techniques (flow nets, finite element analyses or finite difference analyses).
Sudden Drawdown Conditions	Free draining soils - use effective stresses	Free draining soils - First stage computations (before drawdown) - steady-state seepage pore pressures as described for steady state seepage condition. Second and third stage computations (after drawdown) - pore water pressures estimated using same techniques as for steady seepage, except with lowered water levels.
	Low permeability soils - Three stage computations: First stage use effective stresses; second stage use undrained shear strengths and total stresses; third stage use drained strengths (effective stresses) or undrained strengths (total stresses) depending on which strength is lower - this will vary along the assumed shear surface.	Low permeability soils - First stage computations - steady-state seepage pore pressures as described for steady state seepage condition. Second stage computations - Total stresses are used pore water pressures are set to zero. Third stage computations - Use same pore pressures as free draining soils if drained strengths are being used; where undrained strengths are used pore water pressures are set to zero.

[a] Effective stress parameters can be obtained from consolidated-drained (CD, S) tests (either direct shear or triaxial) or consolidated-undrained (CU, R) triaxial tests on saturated specimens with pore water pressure measurements. Direct shear or Bromhead ring shear tests should be used to measure residual strengths. Undrained strengths can be obtained from unconsolidated-undrained (UU, Q) tests. Undrained shear strengths can also be estimated using consolidated-undrained (CU, R) tests on specimens consolidated to appropriate stress conditions representative of field conditions; however, the "R" or "total stress" envelope and associated c and ö, from CU, R tests should not be used.
[b] For saturated soils use ö = 0; total stress envelope with ö > 0 is only applicable to partially saturated soils.

6-6. Minimum Acceptable Factors of Safety

The minimum required safety factors for the preceding design conditions along with the portion of the embankment for which analyses are required and applicable shear test data are shown in Table 6-1b.

6-7. Measures to Increase Stability

Means for improving weak and compressible foundations to enable stable embankments to be constructed thereon are discussed in Chapter 7. Methods of improving embankment stability by changes in embankment section are presented in the following paragraphs.

a. Flatten embankment slopes. Flattening embankment slopes will usually increase the stability of an embankment against a shallow foundation type failure that takes place entirely within the embankment. Flattening embankment slopes reduces gravity forces tending to cause failure, and increases the length of potential failure surfaces (and therefore increases resistance to sliding).

Table 6-1b
Minimum Factors of Safety - Levee Slope Stability

	Applicable Stability Conditions and Required Factors of Safety			
Type of Slope	End-of-Construction	Long-Term (Steady Seepage)	Rapid Drawdown [a]	Earthquake[b]
New Levees	1.3	1.4	1.0 to 1.2	(see below)
Existing Levees	–	1.4[c]	1.0 to 1.2	(see below)
Other Embankments and dikes[d]	1.3[e,f]	1.4[c,f]	1.0 to 1.2[f]	(see below)

[a] Sudden drawdown analyses. F. S. = 1.0 applies to pool levels prior to drawdown for conditions where these water levels are unlikely to persist for long periods preceding drawdown. F. S. = 1.2 applies to pool level, likely to persist for long periods prior to drawdown.
[b] See ER 1110-2-1806 for guidance. An EM for seismic stability analysis is under preparation.
[c] For existing slopes where either sliding or large deformation have occurred previously and back analyses have been performed to establish design shear strengths lower factors of safety may be used. In such cases probabilistic analyses may be useful in supporting the use of lower factors of safety for design.
[d] Includes slopes which are part of cofferdams, retention dikes, stockpiles, navigation channels, breakwater, river banks, and excavation slopes.
[e] Temporary excavated slopes are sometimes designed for only short-term stability with the knowledge that long-term stability is not adequate. In such cases higher factors of safety may be required for end-of-construction to ensure stability during the time the excavation is to remain open. Special care is required in design of temporary slopes, which do not have adequate stability for the long-term (steady seepage) condition.
[f] Lower factors of safety may be appropriate when the consequences of failure in terms of safety, environmental damage and economic losses are small.

b. Stability berms. Berms essentially provide the same effect as flattening embankment slopes but are generally more effective because of concentrating additional weight where it is needed most and by forcing a substantial increase in the failure path. Thus, berms can be an effective means of stabilization not only for shallow foundation and embankment type failures but for more deep-seated foundation failures as well. Berm thickness and width should be determined from stability analyses and the length should be great enough to encompass the entire problem area, the extent of which is determined from the soil profile. Foundation failures are normally preceded by lateral displacement of material beneath the embankment toe and by noticeable heave of material just beyond the toe. When such a condition is noticed, berms are often used as an emergency measure to stabilize the embankment and prevent further movement.

6-8. Surface Slides

Experience indicates that shallow slides may occur in levee slopes after heavy rainfall. Failure generally occurs in very plastic clay slopes. They are probably the result of shrinkage during dry weather and moisture gain during wet weather with a resulting loss in shear strength due to a net increase in water content, plus additional driving force from water in cracks. These failures require maintenance and could be eliminated or reduced in frequency by using less plastic soils near the surface of the slopes or by chemical stabilization of the surface soils.

Section III
Settlement

6-9. General

Evaluation of the amount of postconstruction settlement that can occur from consolidation of both embankment and foundation may be important if the settlement would result in loss of freeboard of the levee or damage to structures in the embankment. Many districts overbuild a levee by a given percent of its height to take into account anticipated settlement both of the foundation and within the levee fill itself. Common allowances are 0 to 5 percent for compacted fill, 5 to 10 percent for semicompacted fill, 15 percent for uncompacted fill, and 5 to 10 percent for hydraulic fill. Overbuilding does however increase the severity of stability problems and may be impracticable or undesirable for some foundations.

6-10. Settlement Analyses

Settlement estimates can be made by theoretical analysis as set forth in EM 1110-1-1904. Detailed settlement analyses should be made when significant consolidation is expected, as under high embankment loads, embankments of highly compressible soil, embankments on compressible foundations, and beneath steel and concrete structures in levee systems founded on compressible soils. Where foundation and embankment soils are pervious or semipervious, most of the settlement will occur during construction. For impervious soils it is usually conservatively assumed that all the calculated settlement of a levee built by a normal sequence of construction operations will occur after construction. Where analyses indicate that more foundation settlement would occur than can be tolerated, partial or complete removal of compressible foundation material may be necessary from both stability and settlement viewpoints. When the depth of excavation required to accomplish this is too great for economical construction, other methods of control such as stage construction or vertical sand drains may have to be employed, although they seldom are justified for this purpose.

CASE I

STABILITY OF STORMWATER BERM WITH EQUIPMENT

(OPERATIONS)

(SOIL / SOIL INTERFACE)

SCS ENGINEERS

SHEET 1 of 2

CLIENT	PROJECT	JOB NO.
Sarasota County	Stormwater Berm Stability	09201010.15

SUBJECT	BY	DATE
Berm Stability Model CASE I ALONG SOIL/SOIL INTERFACE	LEK	10/7/03
	CHECKED	DATE
	[signature]	10/7/03

SOIL PROPERTIES

γ_s = Unit Weight of Soil =	110	lb/ft^3	
γ_{sat} = Saturated Unit Weight =	115	lb/ft^3	
ϕ = Interface Friction Angle =	30	degrees	Interface angle between sand.
β = Slope Angle	18.4	degrees	Slope angle corresponds to a 3:1 slope.
c = Cohesion Factor =	0		Cohesion factor for sand protective layer.
Area of Berm =	40.0	ft^2	
L = Interface Length =	25.3	ft	

EQUIPMENT PROPERITES

Equipment Type =	CAT D5G	Dozer
Operating Weight =	27,360	lb
Weight per Track =	13,680	lb
Impact Factor =	1.5	

CRITICAL VERTICAL LOAD

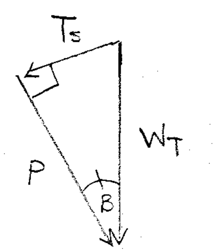
$W_T = W_S + W_D$

W_T = Critical vertical load (lb/ft)

W_S = Soil wedge load $= \gamma_s$ x Area of soil = 4,600 lb/ft

W_D = Tractor load = Weight per track x Impact factor = 20,520 lb

W_T = 25,120 lb/ft



CRITICAL SHEAR LOAD

$T_s = W_T \sin\beta$

T_s = Critical shear load (lb/ft)

T_s = 7,929 lb/ft

$T_s = W_T \sin\beta$

$P = W_T \cos\beta$

SHEAR STRESS

$T = T_s/A = T_s/(L^*1ft)$

T = Shear Stress

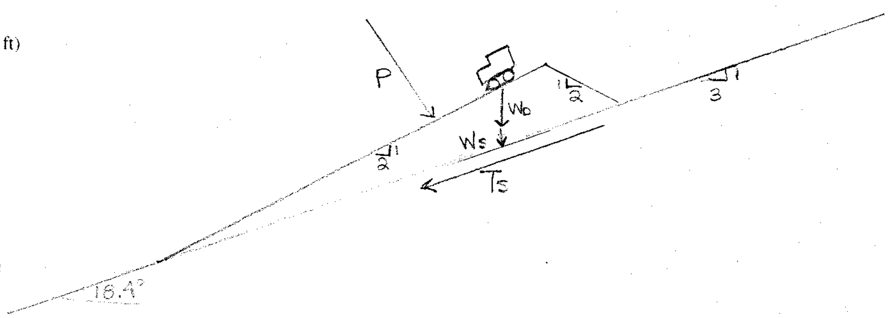
T = 313 lb/ft^2

NORMAL STRESS

$\sigma = P/A = W_T \cos\beta/A = W_T \cos\beta/(L^*1\ ft)$

σ = Normal stress

σ = 942 lb/ft^2



SHEAR RESISTANCE

$T_R = \sigma \tan(\phi)$

T_R = Shear resistance

T_R = 544 lb/ft^2

FACTOR OF SAFETY

$FS = T_R / T$

FS = Factor of Safety

FS = 1.74

W_T = critical vertical load = soil load + tractor load

$W_T = W_S + W_D$

Ts = critical shear load

P = normal load

	Cell requires data entry.
	Cell calculates value.

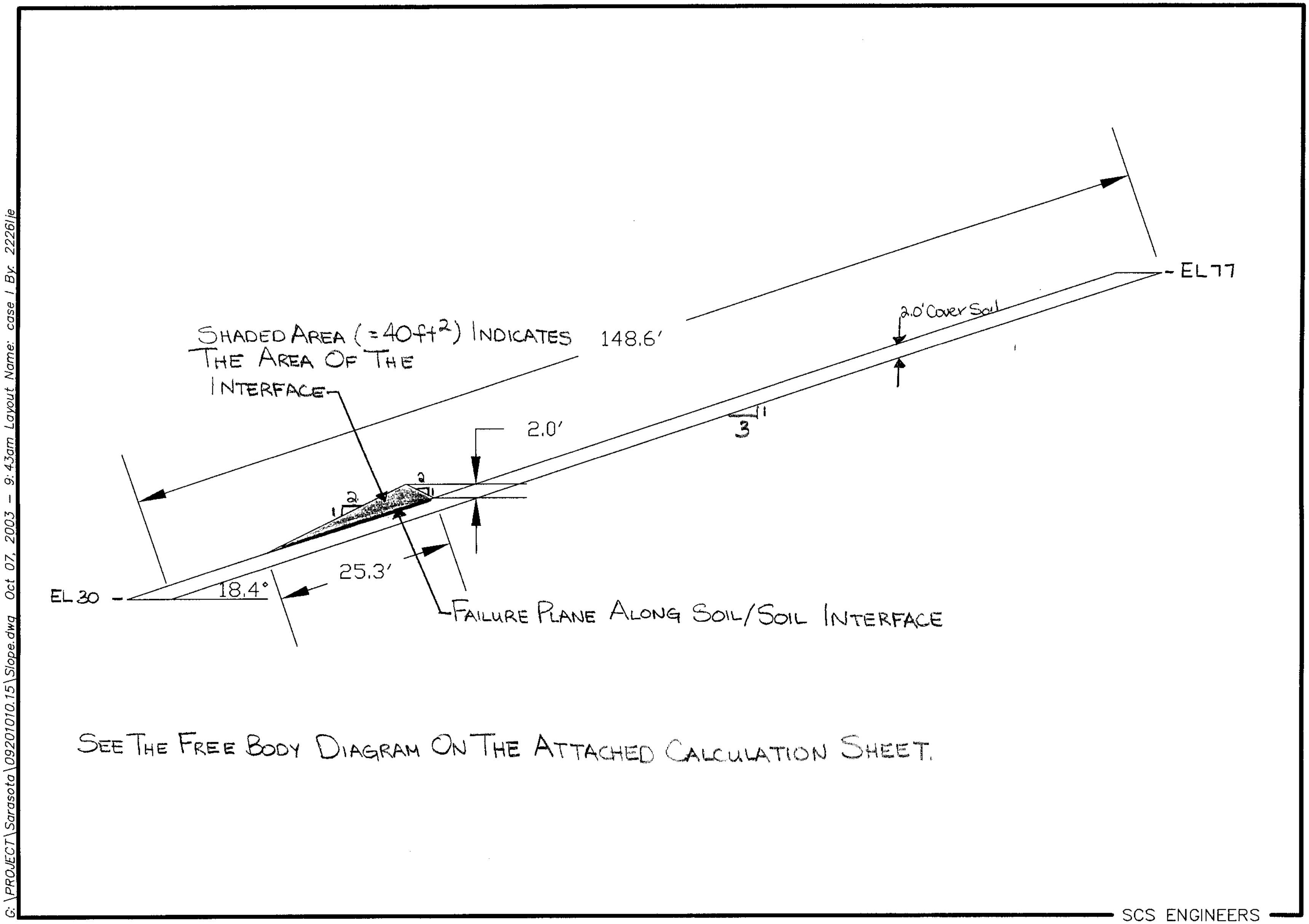


Figure 1. Case I Stormwater Berm Diagram, Sarasota County, Sarasota, Florida

CASE II

STABILITY OF SIDESLOPES WITH EQUIPMENT

(OPERATIONS)

(SOIL / GEOSYNTHETIC INTERFACE)

SCS ENGINEERS

SHEET 2 of 2

CLIENT	PROJECT	JOB NO.	
Sarasota County	Stormwater Berm Stability	09201010.15	
SUBJECT		BY	DATE
Berm Stability Model CASE II ALONG SOIL/GEOSYNTHETIC INTERFACE		LEK	10/7/03
		CHECKED	DATE
		JHC	Oct 7, 2003

SOIL PROPERTIES

γ_s = Unit Weight of Soil =	110	lb/ft^3	
γ_{sat} = Saturated Unit Weight =	115	lb/ft^3	
ϕ = Interface Friction Angle =	30	degrees	Interface angle between sand.
β = Slope Angle =	18.4	degrees	Slope angle corresponds to a 3:1 slope.
C = Cohesion Factor =	0		Cohesion factor for sand protective layer.
A = Area of Berm/Interface =	297.5	ft^2	
L = Interface Length =	149	ft	

LINER PROPERTIES

ϕ_w = Interface Friction Angle =	23	degrees	Interface angle between sand and geosynthetic interface
C_w = Cohesion Factor =	0		Cohesion factor for geotextile and textured geomembrane.

EQUIPMENT PROPERITES

Equipment Type =	CAT D5G	Dozer
Operating Weight =	27,360	lb
Weight per Track =	13,680	lb
Impact Factor =	1.5	

CRITICAL VERTICAL LOAD

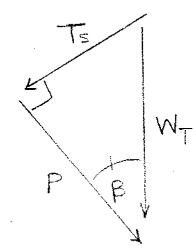
$W_T = W_S + W_D$

W_T = Critical vertical load (lb/ft)

W_S = Soil wedge load = γ_s x Area of soil = 32,725 lb/ft

W_D = Tractor load = Weight per track x Impact factor = 20,520 lb

W_T = 53,245 lb/ft



CRITICAL SHEAR LOAD

$T_s = W_T \sin\beta$

T_s = Critical shear load (lb/ft)

T_s = 16,807 lb/ft

$T_s = W_T \sin\beta$

$P = W_T \cos\beta$

SHEAR STRESS

$T = T_s/A = T_s/(L*1ft)$

T = Shear Stress

T = 113 lb/ft^2

NORMAL STRESS

$\sigma = P/A = W_T \cos\beta/A = W_T\cos\beta/(L*1ft)$

σ = Normal stress

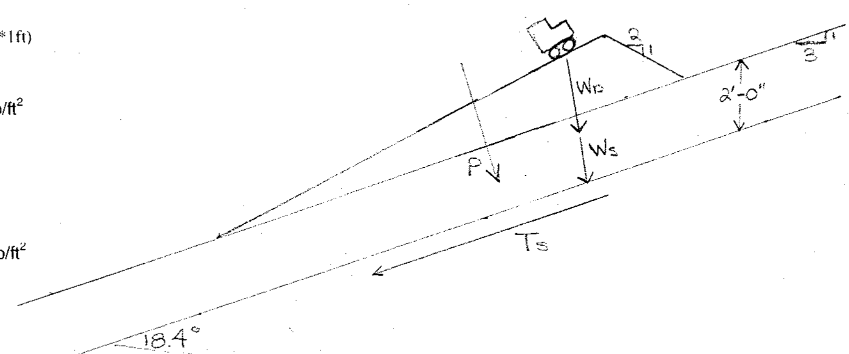
σ = 339 lb/ft^2

SHEAR RESISTANCE

$T_R = \sigma \tan(\phi_w)$

T_R = Shear resistance

T_R = 144 lb/ft^2



FACTOR OF SAFETY

$FS = T_R / T$

FS = Factor of Safety

FS = 1.3

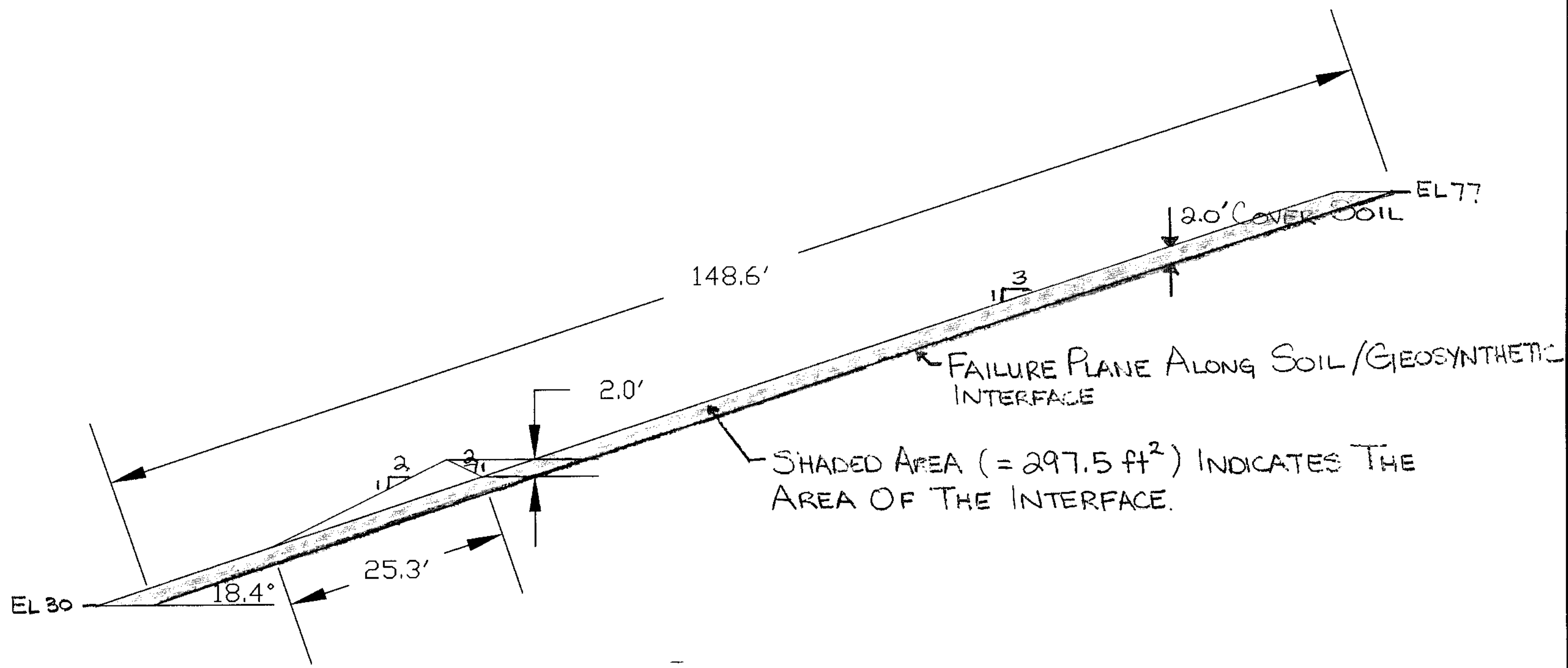
W_T = critical vertical load = soil load + tractor load

$W_T = W_S + W_D$

T_s = critical shear load

P = normal load

	Cell requires data entry.
	Cell calculates value.



See The Free Body Diagram On The Attached Calculation Sheet.

SCS ENGINEERS

G:\PROJECT\Sarasota\09201010.15\Slope.dwg Oct 07, 2003 - 9:42am Layout Name: case II By: 2226lje

Figure 2. Case II Stormwater Berm Diagram, Sarasota County, Sarasota, Florida

CASE III

STABILITY OF STORMWATER BERM

(CLOSURE)

Table 5-5
RUNOFF COEFFICIENTS[a] FOR A DESIGN STORM RETURN PERIOD OF 10 YEARS OR LESS

Slope	Land Use	Sandy Soils Min.	Sandy Soils Max.	Clay Soils Min.	Clay Soils Max.
Flat (0-2%)	Woodlands	0.10	0.15	0.15	0.20
	Pasture, grass, and farmland[b]	0.15	0.20	0.20	0.25
	Rooftops and pavement	0.95	0.95	0.95	0.95
	Pervious pavements[c]	0.75	0.95	0.90	0.95
	SFR: ½-acre lots and larger	0.30	0.35	0.35	0.45
	Smaller lots	0.35	0.45	0.40	0.50
	Duplexes	0.35	0.45	0.40	0.50
	MFR: Apartments, townhouses, and condominiums	0.45	0.60	0.50	0.70
	Commercial and Industrial	0.50	0.95	0.50	0.95
Rolling (2-7%)	Woodlands	0.15	0.20	0.20	0.25
	Pasture, grass, and farmland[b]	0.20	0.25	0.25	0.30
	Rooftops and pavement	0.95	0.95	0.95	0.95
	Pervious pavements[c]	0.80	0.95	0.90	0.95
	SFR: ½-acre lots and larger	0.35	0.50	0.40	0.55
	Smaller lots	0.40	0.55	0.45	0.60
	Duplexes	0.40	0.55	0.45	0.60
	MFR: Apartments, townhouses, and condominiums	0.50	0.70	0.60	0.80
	Commercial and Industrial	0.50	0.95	0.60	0.95
Steep (7%+)	Woodlands	0.20	0.25	0.25	0.30
	Pasture, grass, and farmland[b]	0.25	0.35	0.30	0.40
	Rooftops and pavement	0.95	0.95	0.95	0.95
	Pervious pavements[c]	0.85	0.95	0.90	0.95
	SFR: ½-acre lots and larger	0.40	0.55	0.50	0.65
	Smaller lots	0.45	0.60	0.55	0.70
	Duplexes	0.45	0.60	0.55	0.70
	MFR: Apartments, townhouses, and condominiums	0.60	0.75	0.65	0.85
	Commercial and Industrial	0.60	0.95	0.65	0.95

[a] Weighted coefficient based on percentage of impervious surfaces and green areas must be selected for each site.

[b] Coefficients assume good ground cover and conservation treatment.

[c] Depends on depth and degree of permeability of underlying strata.

Note: SFR = Single Family Residential
MFR = Multi-Family Residential

Source: F.D.O.T

2

Table 5-6
DESIGN STORM FREQUENCY FACTORS
FOR PERVIOUS AREA RUNOFF COEFFICIENTS *

Return Period (years)	Design Storm Frequency Factor, X_T
2 to 10	1.0
25	1.1
50	1.2
100	1.25

Reference: Wright-McLaughlin Engineers (1969).

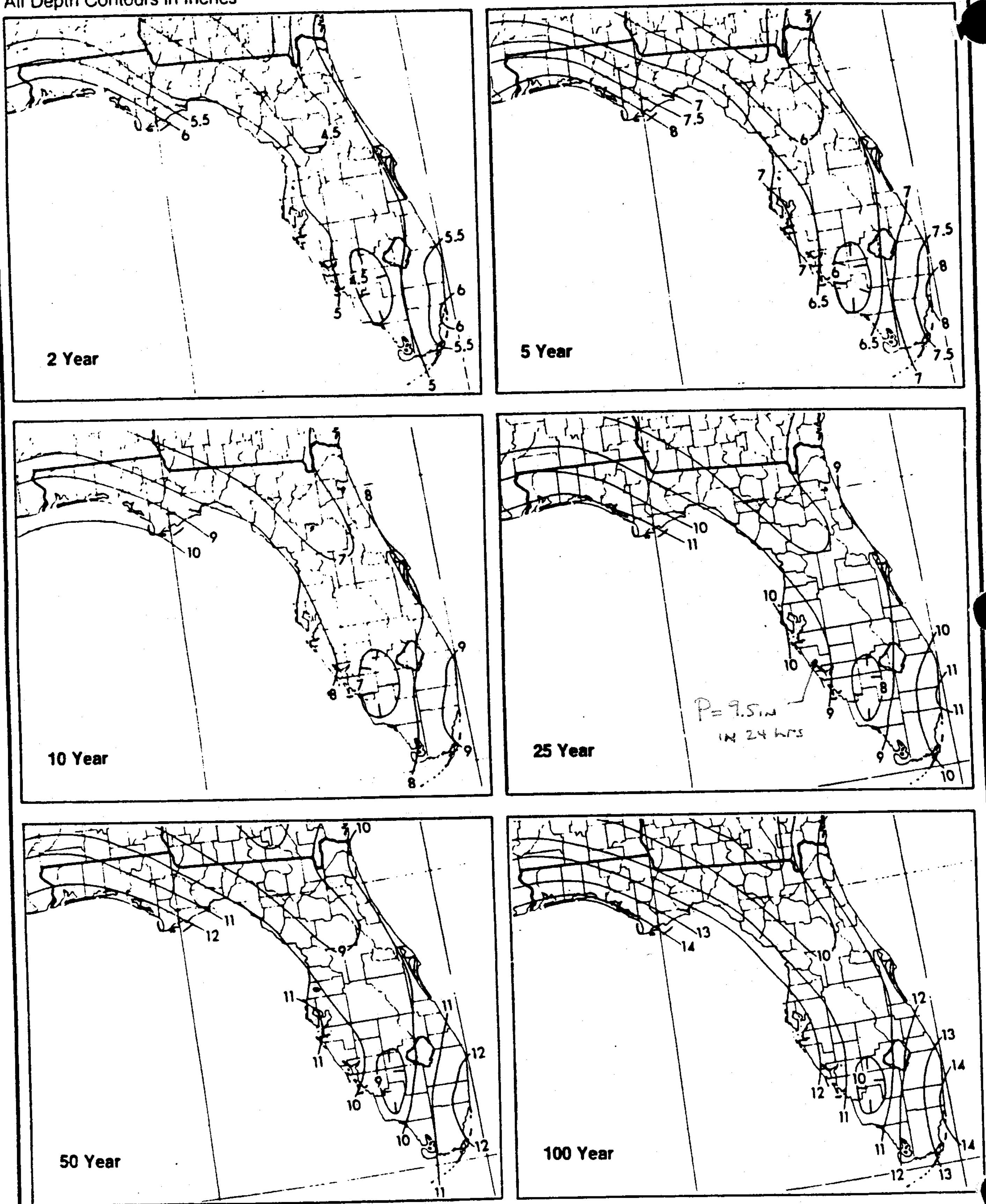
* DUE TO THE INCREASE IN THE DURATION TIME THAT THE PEAK OR NEAR PEAK DISCHARGE RATE IS RELEASED FROM STORMWATER MANAGEMENT SYSTEMS, THE USE OF THESE SHORT DURATION PEAK RATE DISCHARGE ADJUSTMENT FACTORS ARE NOT APPROPRIATE FOR FLOOD ROUTING COMPUTATIONS.

Source: F.D.O.T Volume 2
Drainage Manual

Source:

1 DAY

All Depth Contours in Inches

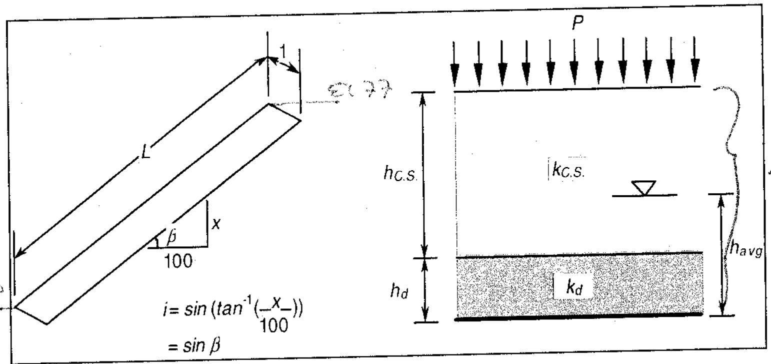


Reference: Hershfield (1961).

FIGURE 5-13

1-Day Precipitation Depth Data for 2-, 5-, 10-, 25-, 50-, and 100-Year Frequencies

Calculation of DLC and PSR



$i = \sin(\tan^{-1}(\frac{x}{100}))$
$= \sin\beta$

24'' Protective cover

$L =$	45.4	m (148.9 ft)
$\beta =$	18.4	° 3(H):1(V)
$h_{C.S.} =$	603.88	mm
h_d or $t_{GS} =$	5.7	mm
$k_{C.S.} =$	5.0E-04	cm/s
k_d or $k_{GS} =$	5.0E+00	cm/s
$P =$	10.00	mm/hr
$RC =$	0.35	

$i = 0.3156$
$L(\cos\beta) = 43.08$ m
$x = 14.33$ m
$h_{C.S.} = 0.6$ m
h_d or $t_{GS} = 0.01$ m
$h_{C.S.} + h_d = 0.61$ m

$k_{C.S.} = 5.0E-06$ m/s
k_d or $k_{GS} = 5.0E-02$ m/s

$P\ (RC) = 3.5$ mm/hr
$Actual\ runoff = 3.50$ mm/hr
$PERC = 6.50$ mm/hr
$FLUX_{actual} = 0.280$ m^3/hr
$FLUX_{allow} = 0.324$ m^3/hr

DLC	1.157
PSR	0.008
FS	1.502

DLC = 1.1566

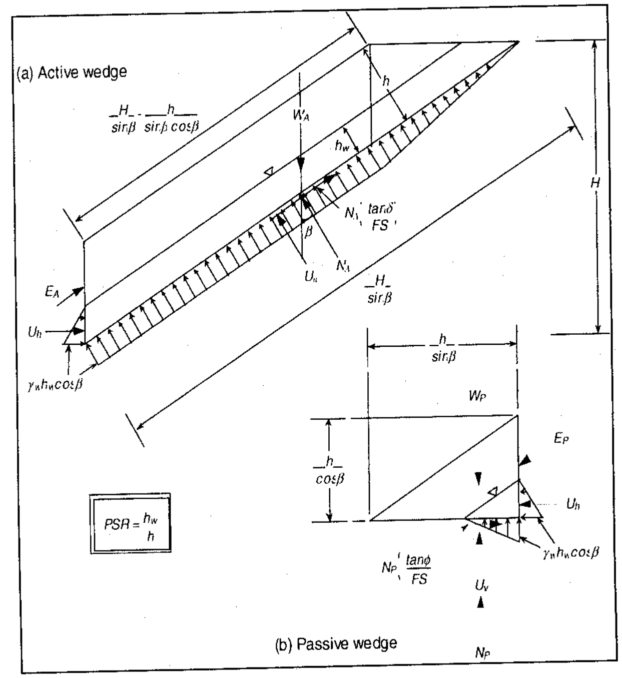
* Note: if only one soil layer above GM, treat it as the drainage layer.

$q = 7.8E-05$ m^3/sec

$h_{avg} = 0.00$ m

PSR = 0.008

$\frac{9.5\ in}{24\ hr} = 0.396\ \frac{in}{hr}\ (10.05\ \frac{mm}{hr})$



thickness of cover soil = h = *0.61* m
length of slope measured along the geomembrane = L = *45* m
soil slope angle beneath the geomembrane = β = *18.4* ° = *0.32* (rad.)
vertical height of the slope measured from the toe = H = *14.3* m
parallel submergence ratio = PSR = *0.01*
depth of the water surface measured from the geomembrane = h_w = *0.00* m

dry unit weight of the cover soil = γ_{dry} = 18.0 kN/m^3
saturated unit weight of the cover soil = $\gamma_{sat'd}$ = 21.0 kN/m^3
unit weight of water = γ_w = 9.81 kN/m^3
friction angle of the cover soil = ϕ = 30.0 ° = *0.52* (rad.)
interface friction angle between cover soil and geomembrane = δ = 26.0 ° = *0.45* (rad.)

Calculation of FS

Active Wedge:
$W_A = 487.654$ kN
$U_n = 2.08237$ kN
$U_h = 0.00012$ kN
$N_A = 460.641$ kN

Passive Wedge:
$W_P = 11.1659$ kN
$U_v = 0.00036$ kN

$FS = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$

where $a = 146.1$
$b = -246.7$
$c = 40.9$

FS= 1.502

Note: numbers in boxes are input values
numbers in Italics are calculated values

Constructed by Te-Yang Soong

Long Term Factor of Safety
Final Cover w/ Seepage.

Environmental Consultants

3012 U.S. Highway 301 North
Suite 700
Tampa, FL 33619-2242

813 621-0080
FAX 813 623-6757

SCS ENGINEERS

RECEIVED
MAY 28 2003
D.E.P.
SOUTHWEST DISTRICT

May 28, 2003
File No. 09201024.01

Kim Ford, P.E.
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Subject: Sarasota County, Central County Solid Waste Disposal Complex
Operations Permit Renewal, Pending Permit No. 130542-002-SO

Dear Mr. Ford:

At your request we SCS Engineers (SCS) is providing the following documents in support of the referenced permit application:

- Replacement page v of the application Table of Contents
- Replacement pages L-4, L-5, and L-19 of the Operations Plan
- Replacement sheets 3 and 16 of the Operations Drawings
- Replacement Drawing E-2 (Figure E-2)
- Replacement Drawing F-1 (Figure F-1)
- Replacement Drawing L-1 (Figure L-1)
- Additional input data sheets for the berm slope stability calculations

In addition, we recognize that several cross sections contained within the Operations Drawings, related to the fill sequence plans, may not accurately reflect the revised terrace swale berm and its proposed elevations. We will evaluate this issue and submit revised drawings, as needed, by June 13, 2003.

The three scenarios contained in the berm slope stability calculations model the effects of water infiltration and potential water build up along the low permeability portion of the future closure cap system. The future closure cap, which will incorporate the same side slopes (3H:1V maximum), represents the worst-case scenario for veneer slope stability due to the collection and migration of water along the closure cap interface. During operations prior to closure, water that has infiltrated should percolate downward through the intermediate and daily covers and not along a defined failure plane (i.e. such as the interface of the low permeability interface of the future closure cap).

The soil types, Soil Types 1 and 2, used in the model represent the cover soil and the strength of the interface between the cover soil and the drainage layer along the closure cap, respectively. Soil Type 1 represents a sandy soil with a typical internal phi angle of 30 degrees and no cohesion. Soil Type 2 represents the interface friction strength between the cover soil and a drainage geocomposite or between the cover soil and a geomembrane.

The slope stability model scenarios use the same side slope profile and only vary the depth of saturation above the closure cap. To achieve a short-term slope stability factor of safety equal to 1.3, the depth of saturation should be keep below 12 inches above the closure cap. The future closure cap should be designed to either limit the amount of water infiltrating the cover system or designing the transmissivity of a drainage geocomposite to provide sufficient lateral drainage to keep the saturation depth below 12 inches. To minimize the amount of infiltration into the closure cap system, the design could possibly specify sandy soils with clayey fines or provide considerations for placing low permeability soils along the stormwater berms to maximum stormwater runoff and collection.

The specific design requirements for the geosyenthetic materials and final cover soils shall be addressed at the time of final closure design and submitted to the Department for approval. During design of the closure cap, site-specific soils and direct shear test results should be conducted using the proposed geosynthetic and soil components.

Please let us know if you have any questions with this submittal.

Sincerely,

5/28/03

John A. Banks, P.E.
Project Director
SCS ENGINEERS

Raymond J. Dever, P.E., DEE
Vice President
SCS ENGINEERS

cc: Gary Bennett, Sarasota County

** PCSTABL6 **
by
Purdue University
--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

SCENARIO 1

(Cover soil is completely Dry)

Run By: JHO
Input Data Filename: run.in
Output Filename: result.out
Unit: ENGLISH
Plotted Output Filename: result.plt

PROBLEM DESCRIPTION Sarasota County Landfill - Terrace Berm Stability

BOUNDARY COORDINATES

7 Top Boundaries
17 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	30.00	20.00	30.00	4
2	20.00	30.00	65.00	45.00	1
3	65.00	45.00	85.00	55.00	1
4	85.00	55.00	89.00	53.00	1
5	89.00	53.00	161.00	77.00	1
6	161.00	77.00	181.00	76.00	1
7	181.00	76.00	230.00	92.33	1
8	65.00	45.00	89.00	53.00	1
9	20.00	30.00	26.30	30.00	4
10	26.30	30.00	161.28	75.00	2
11	161.28	75.00	181.28	74.00	2
12	181.28	74.00	230.00	90.23	2
13	26.30	30.00	27.12	30.00	4
14	27.12	30.00	161.31	74.75	3
15	161.31	74.75	181.31	73.75	3
16	181.31	73.75	230.00	89.98	3
17	27.12	30.00	230.00	30.00	4

Soil profile

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

NO WATER (COVER SYSTEM DRY)

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.	
1	110.0	120.0	0.0	30.0	0.00	0.0	0	Cover soil
2	62.4	62.4	0.0	30.0	0.00	0.0	0	Geomembrane/soil interface
3	55.0	65.0	0.0	30.0	0.00	0.0	0	Landfill material
4	110.0	120.0	0.0	32.0	0.00	0.0	0	Subgrade

NO PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED
Unit Weight of Water = 62.40

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

2 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	27.08	30.12	65.70	42.99	0.13
2	89.70	50.99	160.63	74.64	0.13

Block Failure along geomembrane/soil interface

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 4 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	28.50	32.83
2	33.14	32.18
3	146.17	69.88
4	149.37	73.12

Failure Surface

*** FS = 1.746 *** (Assumes that the cover soil is completely dry)

** PCSTABL6 **
by
Purdue University

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer`s Method of Slices

SCENARIO 2

(WATER LEVEL IS AT THE SOIL/GEOMEMBRANE INTERFACE)

Run By: JHO
Input Data Filename: run.in
Output Filename: result.out
Unit: ENGLISH
Plotted Output Filename: result.plt

PROBLEM DESCRIPTION Sarasota County Landfill - Terrace Berm Stability

BOUNDARY COORDINATES

7 Top Boundaries
17 Total Boundaries

MAY 28 2003

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	0.00	30.00	20.00	30.00	4
2	20.00	30.00	65.00	45.00	1
3	65.00	45.00	85.00	55.00	1
4	85.00	55.00	89.00	53.00	1
5	89.00	53.00	161.00	77.00	1
6	161.00	77.00	181.00	76.00	1
7	181.00	76.00	230.00	92.33	1
8	65.00	45.00	89.00	53.00	1
9	20.00	30.00	26.30	30.00	4
10	26.30	30.00	161.28	75.00	2
11	161.28	75.00	181.28	74.00	2
12	181.28	74.00	230.00	90.23	2
13	26.30	30.00	27.12	30.00	4
14	27.12	30.00	161.31	74.75	3
15	161.31	74.75	181.31	73.75	3
16	181.31	73.75	230.00	89.98	3
17	27.12	30.00	230.00	30.00	4

Soil profile

ISOTROPIC SOIL PARAMETERS

4 Type(s) of Soil

Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.	
								Water level
1	110.0	120.0	0.0	30.0	0.00	0.0	1	Cover soil
2	62.4	62.4	0.0	30.0	0.00	0.0	1	Geomembrane/soil interface
3	55.0	65.0	0.0	30.0	0.00	0.0	1	Landfill material
4	110.0	120.0	0.0	32.0	0.00	0.0	1	Subgrade

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40
Piezometric Surface No. 1 Specified by 5 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	20.00	30.00
2	26.30	30.00
3	161.28	75.00
4	181.28	74.00
5	230.00	90.23

WATER LEVEL (WATER AT GEOMEMBRANE/SOIL INTERFACE)

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

2 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	27.08	30.12	65.70	42.99	0.13
2	89.70	50.99	160.63	74.64	0.13

Block Failure (along geomembrane/soil interface)

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.

* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 4 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	51.94	40.65
2	58.30	40.47
3	158.95	74.10
4	161.24	76.99

Failure surface

*** FS = 1.685 *** (Piezometric Surface No. 1 - Assumes water at Soil/Geomembrane interface)

Point No.	X-Water (ft)	Y-Water (ft)
1	20.00	30.00
2	25.89	30.32
3	30.00	32.28
4	161.14	76.00
5	181.14	75.00
6	230.00	91.28

WATER Level profile (@ 12-inch ABOVE geomembrane/soil interface)

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Sliding Block Surfaces, Has Been Specified.

100 Trial Surfaces Have Been Generated.

2 Boxes Specified For Generation Of Central Block Base

Length Of Line Segments For Active And Passive Portions Of Sliding Block Is 10.0

Box No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Height (ft)
1	27.08	30.12	65.70	42.99	0.13
2	89.70	50.99	160.63	74.64	0.13

Block failure Along geomembrane/soil interface

Following Are Displayed The Ten Most Critical Of The Trial Failure Surfaces Examined. They Are Ordered - Most Critical First.
* * Safety Factors Are Calculated By The Modified Janbu Method * *

Failure Surface Specified By 4 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	26.54	32.18
2	29.87	31.00
3	149.25	70.84
4	150.95	73.65

Failure surface

*** FS = 1.274 *** (Piezometric Surface No. 1 - Assumes cover soil half saturated 12inch above geomembrane)

SCS ENGINEERS

Sheet 1 of 2

Client SARASOTA	Project SARASOTA CENTRAL LANDFILL		Job No. 9201010.04
Subject STORMWATER BERM SIDESLOPE STABILITY CALCULATIONS		By JHO	Date 3/28/03
		Checked DB	Date 4/28/03

OBJECTIVE:

Determine the factor of safety concerning the slope stability of a stormwater berm with a 2 (horizontal) to 1 (vertical) sidelsope atop a 3 (horizontal) to 1 (vertical) landfill side slope (see the Figure on Sheet 2 of 2).

SOLUTION:

- Model the permitted sideslope and berm configuration (as shown on Figure 1 on Sheet 2 of) using PCSTABL.
- Use PCSTABL to model various water levels in the closure cap system (water above the geomembrane)
- A Block analysis will be used to simulate failure along the geomembrane/soil interface
- Closure cap consists the following layers:
    1) 2 feet of cover soil
    2) Textured 40-mil geomembrane;
    3) Subgrade soil

Model Inputs: Layer 1 - Cover Soil
Layer 2 - Geomembrane/Soil interface
Layer 3 - Waste Mound
Layer 4 - Subgrade
(Refer to Model Input for layer properties - Sheet 1 & 2, Attachment A)

Refer to Attachment A for PCSTABL Model Results

SCENARIO 1:

- The closure cap system is completely dry (I.e. no water or seepage forces are present); (Refer to Attachment A Sheet 3)
- The failure plane would be a along the 3(h) to 1(v) slope in Layer 2.

RESULTS: PCSTABL estimates a factor of safety of 1.7

SCENARIO 2:

- The closure cap system is moist at the geoemembrane/soil interface only (Refer to Attachment A Sheet 4)
- The failure plane would be a along the 3(h) to 1(v) slope in Layer 2.

RESULTS: PCSTABL estimates a factor of safety of 1.7

SCENARIO 3:

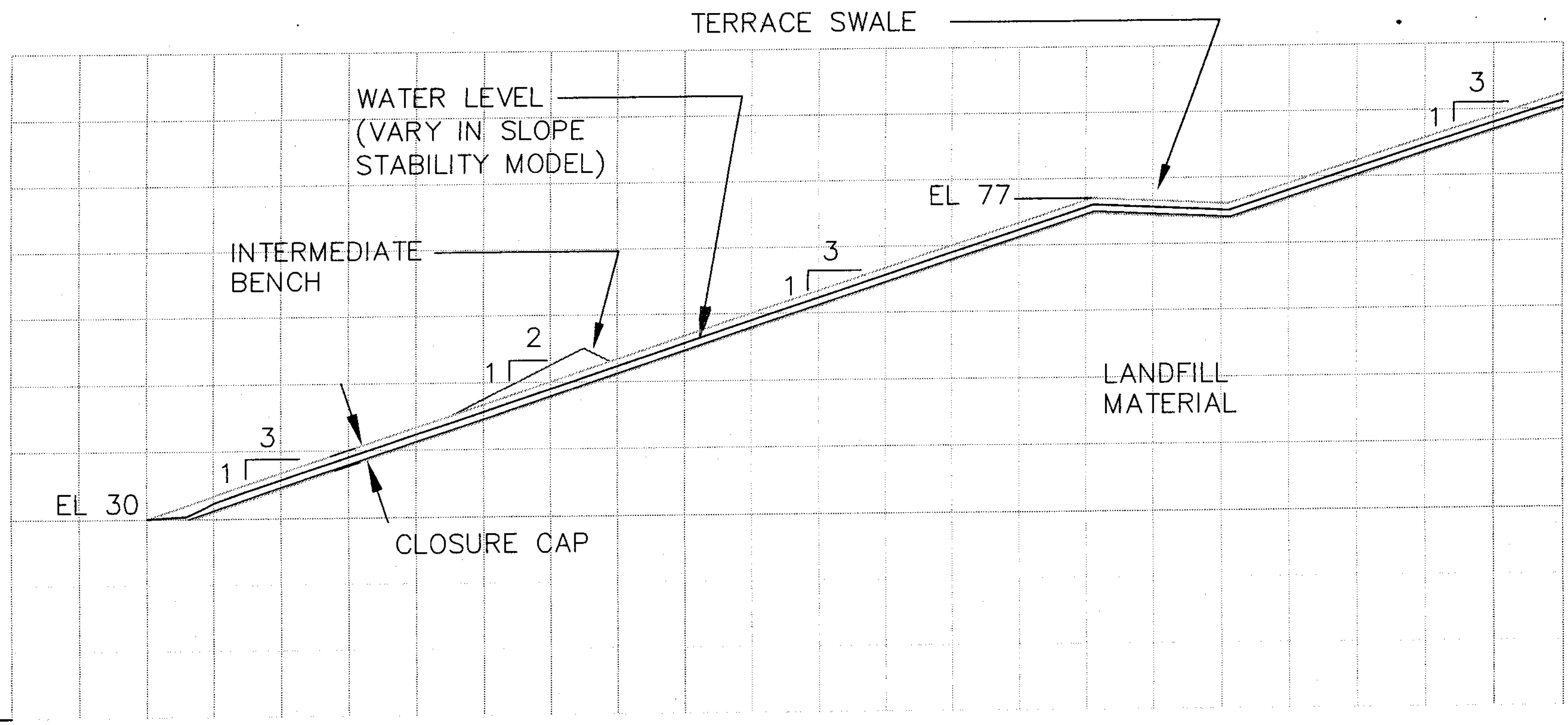
- The closure cap system is wet to approximately 1 foot above the geoemembrane/soil interface (Refer to Attachment A Sheet 5)
- The failure plane would be a along the 3(h) to 1(v) slope in Layer 2.

RESULTS: PCSTABL estimates a factor of safety of 1.3

RESULTS:

If only the water level in the cover system can be kept below 1 foot in depth, then a F.S. of 1.3 is acceptable for short term saturation.

April 28, 2003



SOURCE:
SCS ENGINEERS DRAWING 09201010.01 SHEET
16 DATED JULY 2002;
CLOSURE CAP DESIGN BY CDM

SCS ENGINEERS

C:\temp\test.dwg Apr 04, 2003 - 6:38pm Layout Name: 8x11 By: 1576jho

Figure 1. Sarasota County Landfill – Terrace Berm Configuration

Attachment A

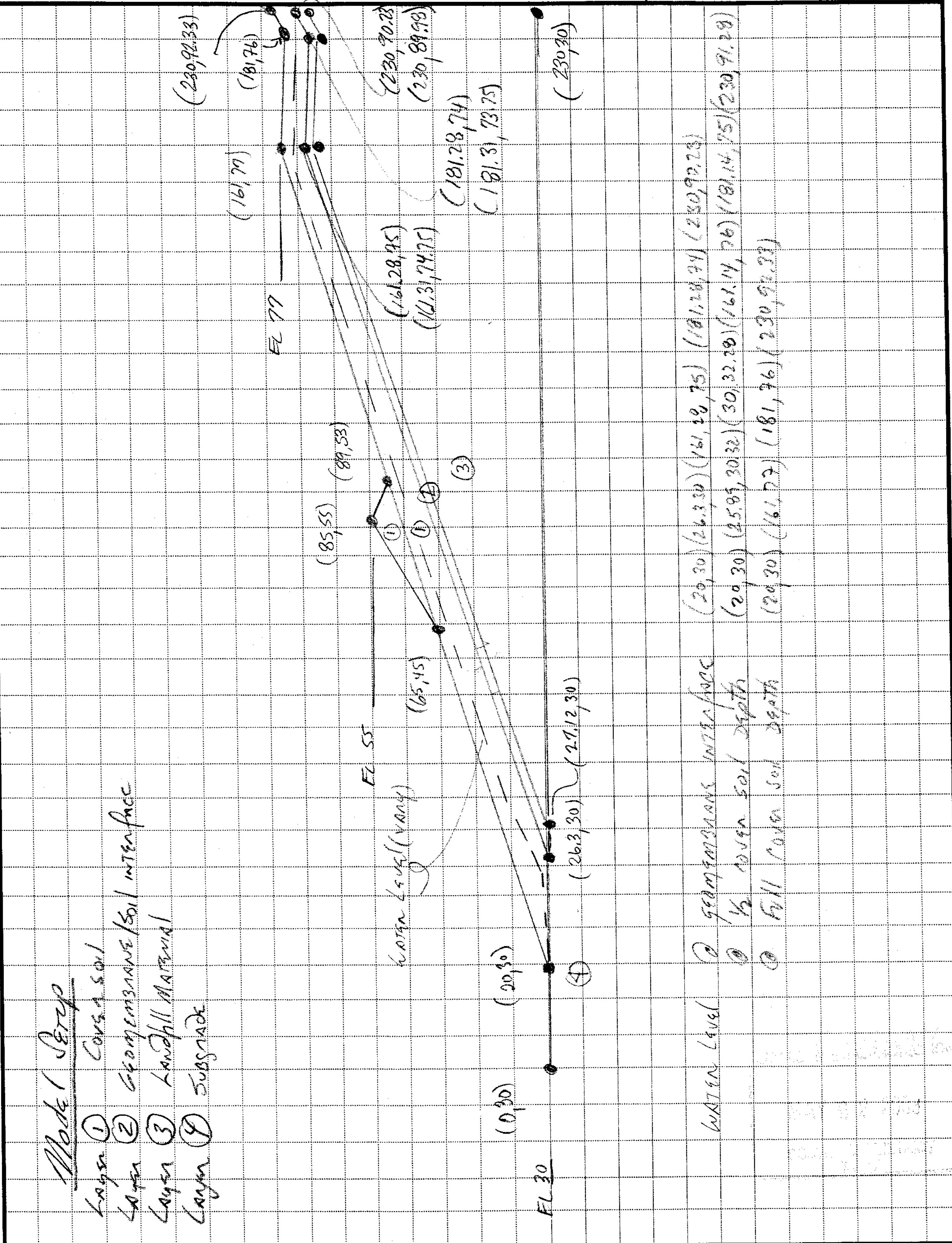
Slope Stability Model

SCS ENGINEERERS

SHEET 1 OF 5

CLIENT	PROJECT	JOB NO.
Sarasota County	Sarasota County Landfill	09201010.04

SUBJECT	BY	DATE
Slope Stability Model	JHO	3/28/03
	CHECKED	DATE



Sarasota County Landfill
Sarasota County, Florida

PROFIL

Sarasota County Landfill - Terrace Berm Stability

SEGMENTS — 17 7 — SURFACE SEGMENTS

0	30	20	30	4
20	30	65	45	1
65	45	85	55	1
85	55	89	53	1
89	53	161	77	1 — SOIL TYPES
161	77	181	76	1
181	76	230	92.33	1
65	45	89	53	1
20	30	26.3	30	4
26.3	30	161.28	75	2
161.28	75	181.28	74	2
181.28	74	230	90.23	2
26.3	30	27.12	30	4
27.12	30	161.31	74.75	3
161.31	74.75	181.31	73.75	3
181.31	73.75	230	89.98	3
27.12	30	230	30	4

SOIL PROFILE

SOIL

4 — # SOILS

PHI (Ø)

110	120	0	30	0	0	1 — WATER LEVEL	— COVER SOIL
62.4	62.4	0	30	0	0	1	GEOMEMBRANE/SOIL INTERFACE
55	65	0	30	0	0	1	LANDFILL MATERIAL
110	120	0	32	0	0	1	SUBGRADE

WEIGHT COHESION PORE PRESSURE PRESSURE

WATER

WATER SURFACE — 2 62.4 UNIT WEIGHT WATER

5 — # POINTS ON WATER SURFACE

20	30
26.3	30
161.28	75
181.28	74
230	90.23

WATER LEVEL AT GEOMEMBRANE/COVER SOIL INTERFACE

6 = # POINTS ON WATER SURFACE

20	30
25.89	30.32
30	32.28
161.14	76
181.14	75
230	91.28

WATER LEVEL 1 FOOT ABOVE GEOMEMBRANE

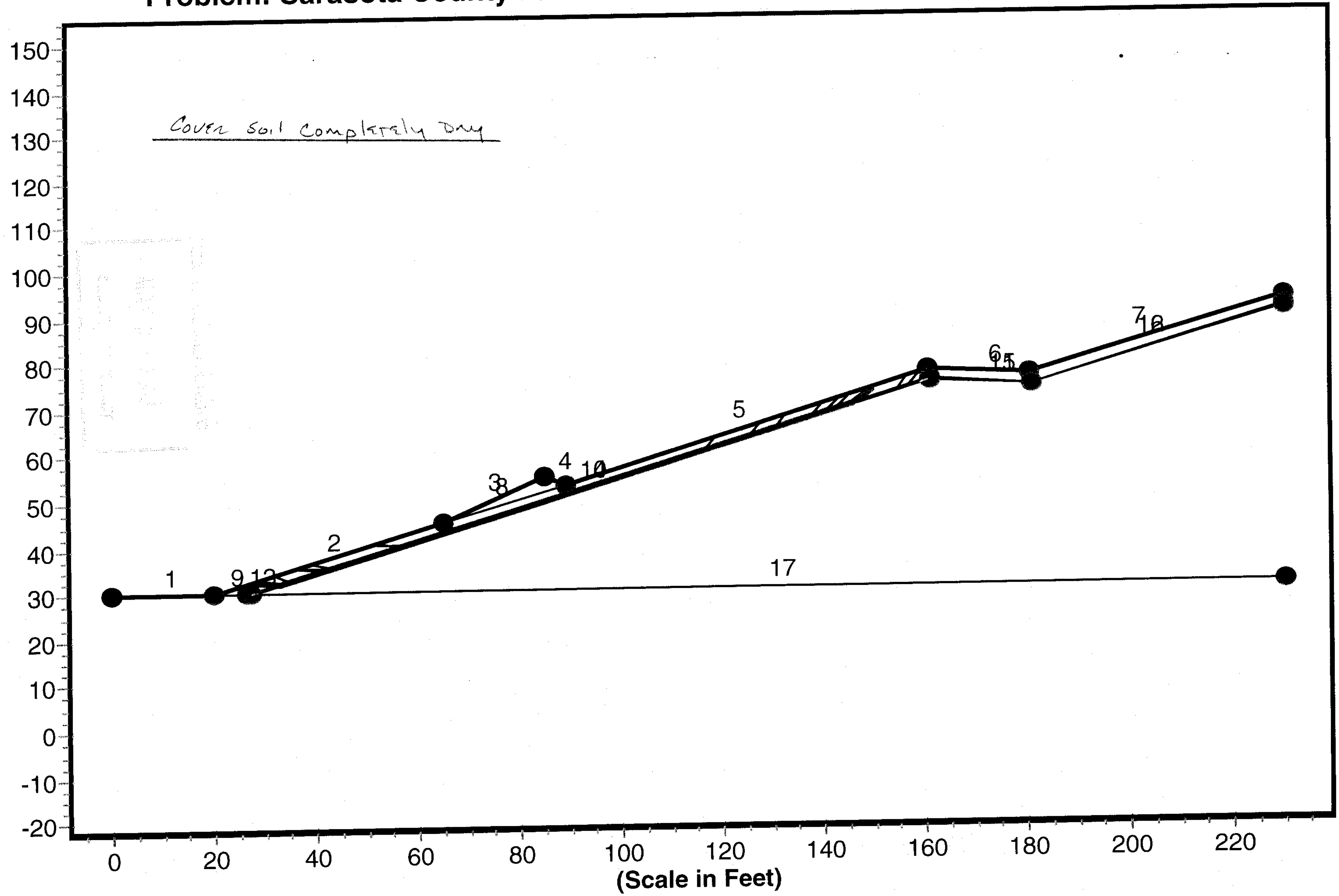
BLOCK

0

100	2	10		
27.08	30.12	65.7	42.99	0.125
89.7	50.99	160.63	74.64	0.125

Block failure along geomembrane / cover soil interface

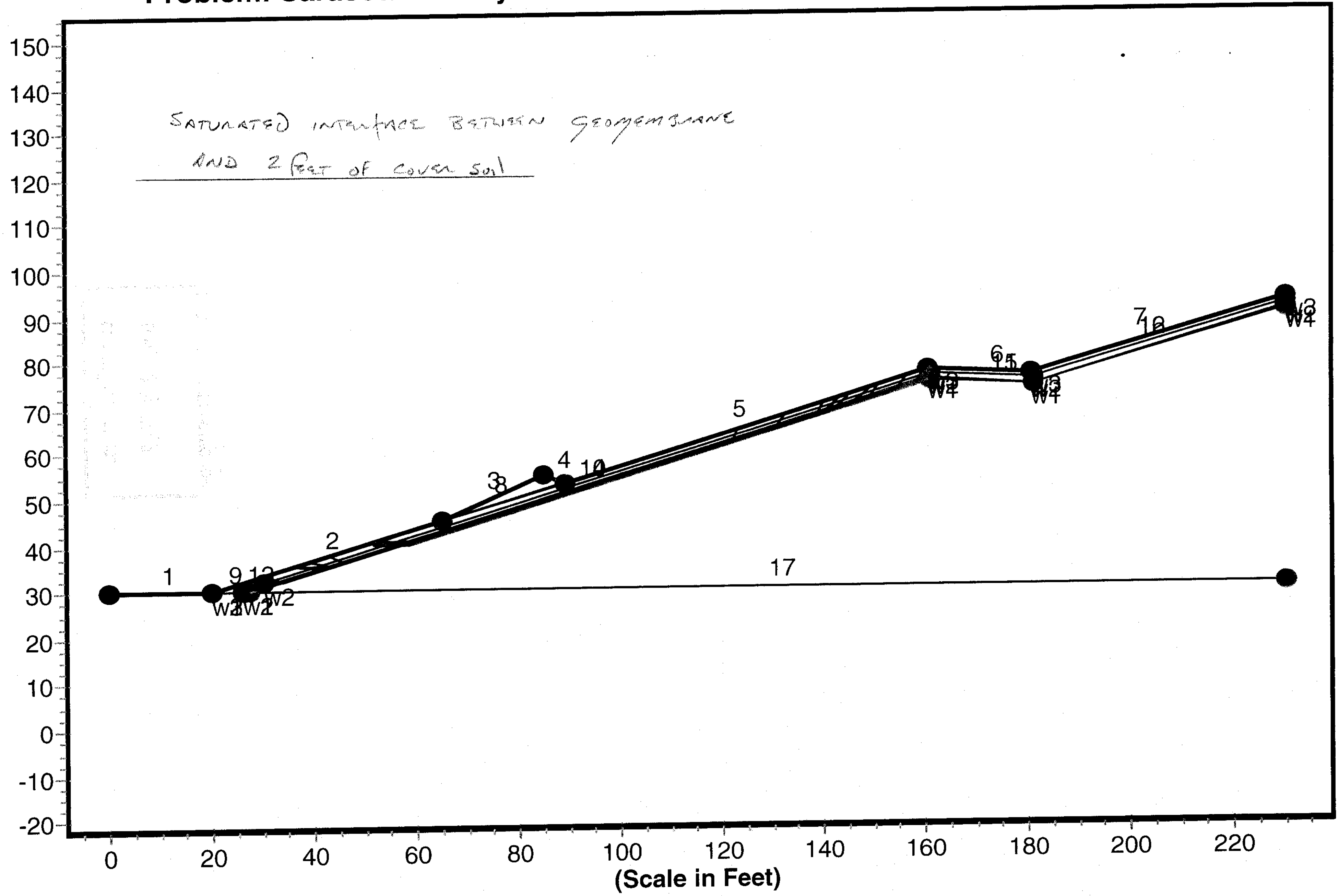
Geometry and Boundary Conditions
Problem: Sarasota County Landfill - Terrace Berm Stability - FS Min = 1.746



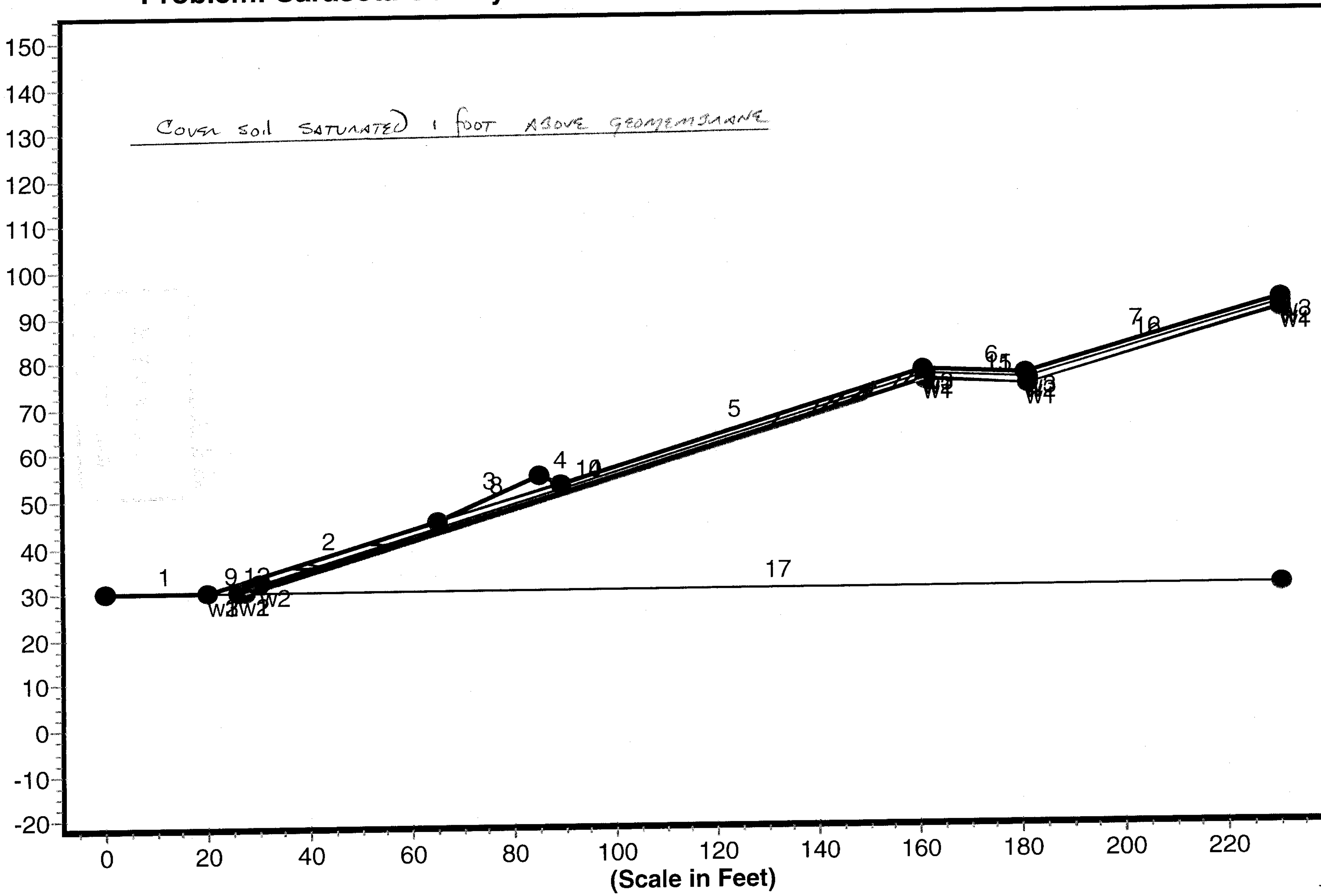
Sheet 3 of 5

Sheet 4 of 5

Geometry and Boundary Conditions
Problem: Sarasota County Landfill - Terrace Berm Stability - FS Min = 1.685



Geometry and Boundary Conditions
Problem: Sarasota County Landfill - Terrace Berm Stability - FS Min = 1.274



Sheet 5 of 5

February 28, 2002

SECTION K

VERTICAL EXPANSION OF LANDFILLS

CCSWDC is not planning a vertical expansion of any of the solid waste management units above the currently permitted elevations. Therefore, this section does not apply to CCSWDC.

Pelz, Susan

From: Zoller, Bryan M [BMZoller@pbsj.com]
Sent: Thursday, August 24, 2006 1:59 PM
To: Pelz, Susan
Cc: Putman, Charles "Pete"; Paul Wingler; Franklin Coggins; Lois Rose
Subject: CITIZEN'S

Ms. Pelz,

Attached is the electronics operation plan for the Citizen's Convenience Center @ the Central County Landfill.

Thank you,

Bryan Zoller, ***PBS&J***
(941) 954-4036 Office
(941) 951-1477 Fax

Aug 24, 2006

Susan J. Pelz, P.E.
Solid Waste Program Manager
Southwest District

13051 N. Telecom Parkway
Temple Terrace, Fl. 33637
813-632-7600 x 386
susan.pelz@dep.state.fl.us

Re: **CITIZEN'S CONVENIENCE CENTER @ THE CENTRAL COUNTY LANDFILL – ELECTRONICS OPERATIONS PLAN**

Ms. Pelz,

The following is a detailed description of the proposed concrete electronics pad and electronics recycling operations for the Citizen's Convenience Center @ The Central County Landfill.

- The facility will be manned with a full time attendant who unloads all the vehicles coming into the facility.
- The electronics come off residential curbside collection routes through our vendors or the municipalities.
- The types of electronics that get dropped off include but are not limited to televisions, computers, monitors, copiers, etc.
- The electronics are physically unload and placed on pallets or the concrete slab and wrapped in cellophane.
- Once dropped off, electronics will remain at the facility typically less than one week but may go up to two weeks.
- Anything that is broken is swept up and placed in a closed drum for disposal.
- All unacceptable materials shall be refused.
- The current vendor who will be taking the electronics is Creative Recycling. They back their semi-trailers up to the slab and load the pallets onto the truck with pallet jacks or fork lifts.

Please don't hesitate to call if you have any questions or need any additional information regarding the proposed electronics recycling.

Sincerely,

Bryan Zoller

Bryan Zoller, P.E.
(941) 954-4036 OFFICE
(941) 812-2585 CELL
PBS&J

SECTION L

OPERATIONS PLAN
SARASOTA COUNTY, FLORIDA

Prepared for:

Sarasota County Environmental Services
Solid Waste Operations
4000 Knights Trail Road
Nokomis, Florida 34275

Prepared by:

SCS Engineers
3012 U.S. Highway 301 North, Suite 700
Tampa, Florida 33619
(813) 621-0080

File No. 09201010.01
Revised March 22, 2004

3-31-04

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RECEIVED
JUN 0 1 2005
Department of Environmental Protection
SOUTHWEST DISTRICT
BY

CITIZENS CONVENIENCE CENTER

Description

The proposed Citizens Convenience Center will include:

- Spaces for three 20-yard roll off containers for MSW and used tires
- A drop off for electronics
- A household chemical collection center

The roll off containers and the electronics storage area will be concrete pads covered with permanent canopies to prevent accumulation of water in the containers during inclement weather. The household chemical collection center will be a three-sided metal building with fencing on the fourth side. Household chemicals will be stored in a pre-manufactured hazardous waste storage unit.

The existing waste oil collection center will remain in operation.

Following are a site plan and cross sections for the facility.

Operations

The Citizens Convenience Center will have a full time attendant and will be in operation from 8:00 am to 5:00 pm six days per week.

The attendant will meet customers at the entrance and direct them to the appropriate area of the facility and will monitor the waste for unacceptable materials.

The roll off containers will be emptied daily.

SECTION L

OPERATIONS PLAN

L.1 TRAINING

In accordance with Rule 62-701.500(1), Florida Administrative Code (F.A.C.), key supervisory staff at the CCSWDC Landfill have received Landfill Operator Certification training. The training plan can be found in Attachment L-1. Sarasota County staff or a qualified landfill operations contractor will operate the facility. Sarasota County will require the operating entity to provide at least one trained landfill operator certified in accordance with Chapter 62-701.320(15), F.A.C. and at least one trained spotter at each working face during operation when the landfill receives waste to detect unauthorized wastes from each load.

The spotters will be responsible for guiding vehicles and promoting an efficient operation during normal operating hours. The spotters shall also be responsible for enforcing provisions for controlling the waste received. These provisions are described in Section L.2.c.

The facility will be operated in compliance with all applicable regulations governing the operation of solid waste management facilities, and surface water management facilities.

In addition, the equipment operators have sufficient training and knowledge to move waste and soil, and to develop the site in accordance with the design plans and operational standards.

L.2 LANDFILL OPERATIONS PLAN

L.2.a <u>Designation of Responsible Persons</u>

The Central County Solid Waste Disposal Complex (CCSWDC) is owned by Sarasota County and operated under the direction of the Sarasota County Solid Waste Operations Unit. Frank Coggins, Solid Waste Operations Manager will be the designated responsible person for the operation of the CCSWDC. A list of the landfill personnel is given below:

Onyx Waste Services of Florida, Inc.:
- General Manager (1)
- Lead Equipment Operator (1)
- Equipment Operator (7)
- Laborer/Spotter (1)
- Laborer (1)
- Mechanic (1)

Sarasota County:
- Solid Waste Operations Manager (1)
- Engineer (1)
- Administrative Coordinator (2)
- Operations I Supervisor (1)
- Environmental Services Inspector (2)
- Environmental Specialist (1)
- Equipment Operator III (4)

L.2.b Contingency Operations for Emergencies

L.2.b.1 Emergency Provisions

Emergency conditions at the landfill site may occur as a result of a natural disaster (hurricane, tornado, flooding, etc.) or fire. In the event emergency conditions will interrupt operations at the facility, the contingency plan will be implemented (see Attachment L-2) and as follows: Refuse is not normally delivered to the site during emergency conditions; however, should a major storm occur, the following actions shall be taken:

- Daily cover shall be applied to all exposed refuse before a major storm arrives, if possible.
- All landfill equipment shall be parked near any natural wind screens such as earthen mounds and berms.
- All lightweight signs and equipment shall be secured.
- When operation resumes, work shall commence in dry areas only (up from the active face). Refuse shall not be deposited in standing water.
- Contract agreements with local contractors, equipment suppliers, or cooperative lending agreements with other County departments will be pursued for backup equipment, if necessary.

Small fires on the working face will be controlled by a bulldozer, landfill compactor and a water wagon and ample cover material to extinguish the fire. On-site stockpiles of soil cover material will always be available for suppressing fires. In the event an uncontrollable fire does occur at the landfill site, the Nokomis Fire Department will be contacted. The Nokomis Fire Department presently maintains a fire station at 111 Pavonia Road in Nokomis, approximately 7.5 miles from the proposed facility. This station has equipment capable of drafting water from surface sources.

The large stormwater retention basins adjacent to the landfill will serve as the water source for fire fighting purposes. In the event of a fire or other emergency, the solid waste operations manager or his designee 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 will be 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 covered with soil. 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.

As described in Sections L.11.a. and L.11.b., the Contractor will provide adequate equipment on-site to ensure proper operation of the landfill and for excavating, spreading, compacting and covering waste. As part of an agreement with a maintenance contractor, the Contractor will receive loaner equipment within forty-eight (48) hours of equipment breakdown, if required. These basic emergency procedures should protect the landfill and equipment, and allow re-activation of the operation in an orderly and timely manner.

In case of an accidental spill of oil, fuel, leachate, or chemicals, the spill will be minimized by controlling the source immediately (e.g., by closing valve, turning-off switch, or taking any other necessary action). The affected area will be controlled by diverting vehicular traffic. Runoff from the affected area will be controlled by building a berm, plugging drain or ditch, or adding absorbent material. The affected area will be cleaned, and the effectiveness of the cleanup confirmed by sampling, as needed depending on the nature of the spilled material. For spill countermeasures of secondary containment at the Leachate Holding Tank refer to Section L.2.h.2, Leachate Management System.

L.2.b.2 Wet Weather Operations

Steps to be taken for accommodating wet weather solid waste disposal include: 1) set-aside elevated tipping areas with limestone or shell approaches or other acceptable base material as needed to allow uninhibited vehicular movement, 2) set-aside elevated sandy cover material, and 3) erect containment berms around wet weather tipping area in accordance with Section L.2.h.3.

In order to avoid an excessive accumulation of standing water in the area of the working face, a small area of daily cover will be removed by grading to allow direct percolation to the underlying refuse and leachate collection system. Pumping equipment is available onsite, if required.

L.2.c <u>Controlling the Type of Waste Received at the Site</u>

The automated accounting system, clerks at the scalehouse, and the site security fence discourage unauthorized entry and disposal of unauthorized waste. A sign located at the entrance states the general regulations including the types of prohibited solid waste.

A trained spotter at the working face will visually inspect the waste as it is deposited. If unauthorized special waste (i.e., lead-acid batteries, used oil, yard trash, white goods, and whole tires) is found at the working face, as part of routine operations, the waste would be segregated and removed for recycling, as described in Attachment L-13.

White goods and electronic wastes are accepted at the facility for recycling but are not allowed at the working face for disposal. Special wastes not authorized for disposal are accepted for staging at the CCSWDC. These materials shall be stored in designated areas as shown on Figure L-1 in Attachment L-3.

During the day white goods and electronic products that are discovered at the working face will be removed and stored in a trailer within the active working area (bermed area). At the end of the day, at a minimum, these materials will be transported directly to the Electronics Product storage area located as shown on Figure L-1. Undamaged electronic wastes recovered for recycling shall be stored in an undamaged condition and records for all quantities received by each recycler shall be kept along with the receipts with the name and address of each recycler. Recovered electronic wastes that have been damaged and will not be recycled will be removed and stored in a designated 30-foot x 45-foot covered concrete pad area adjacent to the Contractor's maintenance building located as shown in Figure L-1. The damaged waste shall be placed inside a watertight container. White goods shall be removed from the site at least monthly. Refrigerated units will be stored in an upright position until all liquids, CFCs and freon are removed.

Other unauthorized waste and small quantity household hazardous waste such as lead-acid batteries, fluorescent tubes, pesticides, solvents, cadmium batteries, and thermometers, which are discovered at the working face, will be removed and stored in the designated 30 foot by 45 foot covered concrete pad adjacent to the maintenance building. This facility is only for temporary storage of material removed from the working face and is not a designated public household hazardous waste disposal facility or transfer station. These wastes will be placed on a 4-drum spill pallet. These pallets will be made up of 100 percent polyethylene with UV inhibitors and have spill reservoirs which meet the uniform fire code capacity requirements. Two pallets will be placed in the designated area. These materials will be collected each month by hazardous materials disposal companies or removed for alternate disposal or recycling. Unauthorized special wastes will be removed from the site monthly. White goods shall be removed at least once per month. The maximum on-site storage for special wastes will be as follows:

- 200 electronic devices on e-waste slab.
- 30 batteries in a secondary containment covered tray.
- 250 gallons of used oil in double containment (near entrance).
- 20 gallons of used oil placed upright in undamaged container (at the maintenance building).
- 625 white goods, and lawnmowers, will be placed upright until all liquids, CFC's, and freon are removed.

Sarasota County will accept contaminated soil for the purpose of landfilling (disposal) at CCSWDC in accordance with the criteria included in Attachment L-4. Waste tires removed from the working face will be stored in the area designated for waste tire processing facility within the CCSWDC. The location of the waste tire processing facility is shown on Figure L-1.

At least one trained spotter will be at each working face when wastes are received at the landfill. The spotters will be trained in accordance with Rule 62-701.320(15) and in accordance with the training plan described in Attachment L-1 to recognize unauthorized waste. Each load of waste will be visually inspected by the spotter as well as the equipment operators spreading the waste. The spotters and equipment operators will look for containers and other indicators of unauthorized waste. Upon detection of unauthorized waste the spotters will require the hauler to remove the material for disposal at a proper facility. If the hauler has departed, the spotter will remove the material from the working face for temporary storage and ultimate removal from the site for proper disposal or recycling.

If any hazardous waste is detected in the load, the hauler shall be informed immediately of the violation. In the event of discovery of hazardous materials, the procedures outlined in Subparts 3, 4, 5, and 6 of Section L.6 will be followed if any prohibited wastes are discovered.

If unauthorized waste (i.e., hazardous, PCBs, untreated biomedical, or free liquid) are found at the landfill working face, the waste would be isolated and the contractor's general manager or designee would be promptly notified. The contractor's general manager or designee is trained in the proper procedure to follow including notification to the FDEP. Similarly, if suspect waste is found, the waste would be isolated, identified if possible, and the County's operation manager or designee notified. The County's operation manager or designee would prepare a suspect waste report and ensure that the waste is properly disposed. The waste load inspection form contained in Attachment L-5 is used for this purpose. Hazardous waste would be isolated and restricted from access until it is removed and properly disposed of from the CCSWDC Landfill by a licensed hazardous waste contractor. Hazardous wastes would be removed from the site within 48 hours.

Special waste such as asbestos will be accepted and managed in accordance with the requirements of 62-701.520(3), F.A.C. The asbestos waste haulers will be required to notify the landfill contract operator in advance and provide information on the estimated volume and delivery date of the asbestos. All incoming asbestos material will be required to comply with all applicable permit conditions and be wet down and properly wrapped or bagged. The uncompacted asbestos material will be covered with a minimum 6-inch layer of soil upon disposal. If additional asbestos deliveries are scheduled on the same day, the asbestos may remain uncovered until the end of the work day. The disposal location will be recorded in accordance with 40 C.F.R., Part 61.154, and a record of the asbestos location will be maintained.

Waste oil that is collected for the purpose of recycling is accepted at the CCSWDC near the main entrance. Waste oil is stored in a secure container until removed from the site for recycling purposes. Lawn mowers are accepted at the CCSWDC, as long as they drained of all fluids, and are managed as white goods. After inspection for fluids, lawn mowers are stored in the white goods area until collected by the scrap metal vendor who collects the white goods. Waste oil, lawn mowers, and yard trash will be managed as described in the Landfill Recycling Plan, Attachment L-13.

The yard waste processing facility location is shown on Figure L-1. The facility is permitted under a separate yard waste processing facility registration.

L.2.d Weighing Or Measuring Incoming Wastes

All waste entering the landfill site will be weighed. A minimum of three (3) electronic 50-ton scales are installed at the entrance facility. An Information Management System (IMS) is linked to the scales to facilitate accurate data collection and measurement of incoming materials.

L.2.e Vehicle Traffic Control and Unloading

Directional signs will be placed to safely direct vehicles to the current waste unloading area. These signs will have large legible letters and will be cleaned when necessary. Signs will be strategically placed so that the route is clear to the drivers. Speed limit, safety, and prohibitive practice signs will be placed as necessary to encourage a safe, clean operating area. Unloading will be permitted only at the designated working face. On the fill area, temporary signs, barricades and flagged stakes will be used to direct vehicles to the proper tipping area. Haulers will be responsible for unloading their own vehicles. Wastes requiring special handling will be coordinated with and unloaded under the direct supervision of landfill contract operation personnel.

L.2.f Method And Sequence Of Filling Waste

The overall phasing plan for the facilities is depicted on Sheet 4 of the Operations Drawings included in Attachment L-3. The layout for the Cells (designated disposal units) comprising Phase I of the Class I landfill is shown on Sheet 1. A detailed staging plan for the fill sequencing is provided on Sheets 6 through 13D. The typical height for each lift is 10-15 feet. The temporary roads and swales for access and surface water drainage will be phased in as the Phase I area is filled. The maximum width of the working face will be 200 feet. However, the landfill operations may be conducted with a working face width of less than 200 feet.

Filling in New Cell

Solid waste shall be deposited in each new cell (designated disposal unit) beginning at the south end of the landfill cell. A temporary rain cell cover composed of a reinforced flexible plastic membrane and designed for landfill applications shall be deployed over portions of the landfill cell to collect rainwater separate from the leachate. A portable "trash pump" will be used at the north end (low end) of the cell to pump accumulated rainwater from off the top of the new cell cover to the stormwater system or to the adjacent unused landfill cell.

The first lift will start at the southern end of the cell. The lift will progress to the north across the entire width of the landfill cell. The working face will primarily move in an east/west direction across the width of the landfill cell. Selected solid waste loads consisting of solid waste containing no rigid objects will be used for the first lift, and it will be filled to an elevation of approximately 37.0.

The method of waste disposal for each lift is described as follows. All incoming solid waste will be directed to the working face and placed against the side slope of the previous day's refuse. The first row of waste in a new lift will be placed against the toe of a containment berm to provide a guide for the placement of refuse for the remaining rows. A slope of not more than 3 to 1 will be maintained. The working face shall be less than 200 ft. wide. A maneuvering area shall be provided for large private and commercial vehicles.

Solid waste will be placed at the working face and spread in 2-foot layers. The spreading of refuse will be a continuous operation.

In compliance with 62-701.500(10), F.A.C., the stormwater management systems will be operated and maintained as necessary to meet applicable standards of Chapters 62-701, 62-302, and 62-25, F.A.C. The stormwater management system at CCSWDC Class I landfill is designed to avoid mixing of stormwater with leachate. Stormwater or other surface water which comes into contact with the landfilled solid waste or mixes with leachate will be considered leachate and subjected to applicable requirements.

The filling of each lined cell within the Phase I area will follow the sequence outlined below: (Refer to Sheet 3 of the Operation Drawings, Attachment L-3)

The cell area initially will be filled with an 8 to 15 ft. lift to bring the cover grade 1-2 feet higher than the cell's lined external containment berms to promote stormwater runoff.

Filling of each cell shall generally progress from the south end of the cell to the north end while providing a slope of generally 2 percent on the cover as shown on the Operation Drawings. Only select waste containing no rigid materials shall be used the first 4-ft. of the initial lift in a cell.

Subsequent lifts shall be added to the extent possible before removing the rain cover to open new cell area.

New cell areas shall be opened once insufficient room exists for the next lift. A minimum of 200 ft. width should be provided for a working lift area.

The surface runoff from unused portions of cells shall be directed away from solid waste by grading and using temporary cell covers.

Areas on the top and sides of each lift shall be adequately covered and stabilized to maximize surface runoff away from the bermed, sloped working area and towards the stormwater drainage areas to minimize leachate generation, as shown on Operation Drawings and Figures in Attachment L-3. Intermediate cover shall be applied to internal top and side slopes and completed external slopes within seven (7) days if the area will not receive more waste within

180 days. A two percent minimum slope shall be used on top of a lift. Intermediate covered areas that will not be landfilled or covered with final cover within 6 months will be sodded (external slopes) or seeded and mulched (internal and top slopes) to avoid slope erosion. The areas inside the bermed working area will be contained as leachate. Efficient use of these techniques will decrease leachate volumes.

L.2.g Waste Compaction And Application Of Cover

Cover material for daily operations of the landfill will be obtained from the designated stockpile area and compost generated from yard waste recycling. Compost used with soil for cover material shall be free of waste. This material will be deposited in the stockpile area location shown on Figure L-1. The designated stockpile area will result in a stockpile no higher than 25-feet with 3:1 side slopes in order to minimize erosion. Additional borrow areas will be excavated and placed within the stockpile limits during the operational life of the facility. A silt fence will be installed at the stockpile area and side slopes grassed to further reduce and control erosion.

Waste shall be spread in layers of approximately two feet thick on the working face and compacted to approximately one foot in thickness before application of the next layer. The solid waste will be compacted with a minimum of three to five passes of a compactor. Initial, intermediate and final cover will be applied as detailed in Sections L.2.f, L.7.f, L.7.g and L.7.h., of this operations plan.

L.2.h Operations Of Gas, Leachate, And Stormwater Controls

L.2.h.1 Landfill Gas System

The CCSWDC is located near the center of a 6,000-acre site. The minimum distance from the Class I landfill to the nearest property line is 1,800 feet. This distance represent a substantial buffer to allow for dispersion of odors normally associated with MSW landfill operations. Therefore, it is not anticipated that collection of landfill gas will be necessary for odor control. The landfill gas monitoring plan is described in Section L.9 - Gas Monitoring Program.

In order to comply with air quality requirements, a Non-Methane Organic Compound (NMOC) emission report will be submitted to the implementing authority on an annual basis following the requirements of New Source Performance Standards (NSPS). Within twelve (12) months after reporting NMOC emission greater than or equal to 50 Mg/year (megagram per year), a detailed landfill gas collection and control system design plan submittal shall be made to the NSPS implementing agency. Within eighteen (18) months after this submittal, the installation of the landfill gas collection and control system shall be completed. Based on Tier 2 sampling and model projections, this landfill is not expected to exceed the threshold until after 2005 when a new Tier 2 analysis will be required. At a minimum, a landfill gas management system design will be developed to coincide with the initial closure construction for Phase I of the landfill.

Separate from the requirements of the NSPS, passive flares may be utilized on site to combust landfill gas from leachate collection and removal system cleanouts and pump stations, or passive vents installed within the waste mass. The flares will include a solar-powered ignition system that provides a spark at regular intervals. The flares shall be Landfill Service Corporation (formerly Landfill Technologies, Inc.) model CF-5, or similar. The flares are intended to minimize the potential for odors by combusting landfill gas that may accumulate in leachate collection and removal system pipes, or vent from passive vents. Figure L-5 provides a typical detail for installation of a passive flare connected to a leachate collection system cleanout.

L.2.h.2 Leachate Management System

Collection System

The Class I landfill leachate collection system consists of a geonet drainage layer and perforated collection pipe above the liner system to collect and convey leachate. The leachate conveyed to sumps will be pumped to a leachate holding tank onsite. The leachate collection piping system consists of 8-inch perforated polyethylene pipe sloped in such a manner that leachate flowing through the solid waste of the landfill will be collected and transported by gravity to a sump and leachate pump. The discharge line from the sump pump connects to a HDPE header line via a valve vault. Provisions for sampling the leachate as well as monitoring flows and pressure are provided in the valve vault (as shown in Attachment L-3). Any stormwater accumulated in an un-used cell will be pumped out from the collection system to the stormwater system prior to receiving solid wastes by using the valves provided. Immediately prior to solid waste being deposited into a new landfill cell, the related valve from its leachate pump to the stormwater system shall be closed.

Leachate Disposal System: General Description

Leachate that is generated from the landfill cells will be pumped via the submersible sump pumps located in each cell to a 1,800,000 gallon storage tank. The leachate accumulating in the storage tank will be removed using leachate transfer pumps and discharged to tanker trucks for transport to an off-site wastewater treatment plant (WWTP).

The primary disposal location for CCSWDC leachate is the Bee Ridge WWTP and secondary disposal location is the Central County Utilities Water Reclamation (for facility commitment letter see Attachment L-6). CCSWDC may use other off-site secondary facilities for the treatment or disposal of leachate however will notify FDEP of the change prior to use. Another potential future leachate disposal option includes the installation of a leachate discharge pipeline from CCSWDC to a WWTP or disposal facility. In accordance with FDEP requirements, a construction permit would be obtained prior to implementing this option.

The following information provides a description of the above ground leachate storage tank in accordance with the requirements of 62-701.400(6)(c).

L, 2, h, 2.

Leachate Disposal System: General Description

Leachate that is generated from the landfill cells will be pumped via the submersible sump pumps located in each cell to a 1,800,000 gallon storage tank. The leachate accumulated in the storage tank will be removed by a leachate pumping station that will pump through a 4-inch PVC force main to a connection to the Sarasota County wastewater collection system south of the landfill on Knights Trail Road. The Sarasota County wastewater collection system in this area flows to the City of Venice Water Reclamation Facility (WRF) for treatment.

The leachate pumping and force main system is the primary disposal method for the CCSWDC leachate. Transfer pumps that discharge to tanker trucks for hauling to the Bee Ridge WRF will serve as a secondary emergency disposal location.

The following information provides a description of the above ground leachate storage tank in accordance with the requirements of 62-701.400(6)(c).

The leachate storage tank has a total capacity of 1.8 million gallons. The exposed plan area of the secondary containment system surrounding the leachate storage tank is 5,419 square feet. This will allow 27,000 gallons of water to accumulate after an 8-inch rainfall event. All liquid accumulating in the secondary containment system will be tested for specific conductance. Specific conductance of the stormwater in the secondary containment shall not be more than 50 percent above the specific conductance of water in the nearest downstream stormwater pond (Stormwater Pond No. 6) or shall not exceed 1,275 umhos/cm, whichever is greater. If the specific conductance is greater than these criteria or if a visible sheen is present, then the stormwater will be pumped directly into the leachate storage tank and managed as leachate.

A log of discharges from the secondary containment system will be maintained. The date, specific conductance measurements, and visual sheen observations shall be recorded.

An electronic water level sensor will automatically determine when the storage tank reaches capacity. The level sensor will activate an electric actuated shutoff valve in the fill line to prevent overfilling the tank. The electric actuated shutoff valve will be tested by inducing a false signal from the level sensor and confirming proper operation on a weekly schedule. The exposed tank exterior will be inspected weekly by visual observation. The inspection will included looking for leaks, corrosion, or other maintenance deficiencies. This will be accomplished by inspection from platforms at the top fo the 20-foot high secondary containment wall, positioned 120 degrees apart around the circumference of the tank. The tank interior will be inspected annually when the tank is empty or at least once every three years. If any failures are detected, the tank construction company shall be contacted immediately and appropriate repairs conducted based on the nature of the problem. Reports of the above inspections will be maintained by the County (the most recent inspection report is included as Attachment L-7).

The leachate pumping station will have automatic controls with the following set points:

	Elevation
High water alarm	40
Lag pump on	28
Lead pump on	27
Pumps off	26
Tank bottom	22

The set points can be modified by adjusting the pump control system. The duplex pumps will automatically alternate operation each time the pump is stopped by the level control system. The pumping station is equipped with a data logger to record flow, pH, and conductivity on a continuous basis.

The leachate storage tank has a total capacity of 1.8 million gallons. The exposed plan area of the secondary containment system surrounding the leachate storage tank is 5,419 square feet. This will allow only 27,000 gallons of water to accumulate after an 8-inch rainfall event. All liquid accumulating in the secondary containment system will be tested for specific conductance. Specific conductance of the stormwater in the secondary containment shall not be more than 50-percent above the specific conductance of water in the nearest downstream stormwater pond (Stormwater Pond No. 6) or shall not exceed 1,275 μmhos/cm, whichever is greater. If the specific conductance is greater than these criteria or if a visible sheen is present, then the stormwater will be pumped directly into the leachate storage tank and managed as leachate.

A log of discharges from the secondary containment system will be maintained. The date, specific conductance measurements and visual sheen observations shall be recorded.

An electronic water level sensor will automatically determine when the storage tank reaches capacity. The level sensor will activate an electric actuated shutoff valve in the fill line to prevent overfilling the tank. The electric actuated shutoff valve will be tested by inducing a false signal from the level sensor and confirming proper operation on a weekly schedule. The exposed tank exterior will be inspected weekly by visual observation. The inspection will include looking for leaks, corrosion or other maintenance deficiencies. This will be accomplished by inspection from platforms at the top of the 20-foot high secondary containment wall, positioned 120° apart around the circumference of the tank. The tank interior will be inspected annually when the tank is empty or at least once every three years. If any failures are detected, the tank construction company shall be contacted immediately and appropriate repairs conducted based on the nature of the problem. Reports of the above inspections will be maintained by the County (the most recent inspection report is included as Attachment L-7).

<u>Leachate Monitoring</u>

A detailed plan for leachate monitoring is provided in Section M of this Permit Application.

L.2.h.3 Stormwater System

The stormwater management system for this project consists of a series of swales, culverts and detention ponds. The system is designed to comply with all of the requirements of both Chapters 62-25 F.A.C. and 40 D-4 F.A.C.

All stormwater runoff will be conveyed via a perimeter drainage ditch to detention facilities. Ditch blocks located in the perimeter ditch at strategic locations act as sediment traps and will require periodic maintenance.

The ultimate discharge of the detention facilities will be to the old slough or isolated wetlands through fixed control weirs and spreader swales.

As the filling of the waste progresses, temporary stormwater letdown structures will be installed to facilitate drainage without erosion. Temporary stormwater diversion berms shall be installed around the top perimeter of each lift and connected to the temporary letdown structures. The temporary letdowns shall be located, in the approximate locations as shown on Sheet 2 of the Operations Drawings to achieve this objective. Stormwater will be directed to these stormwater diversion berms by maintaining a minimum slope of 2% on each lift. See detail of letdown structure in Attachment L-3, Operations Drawings.

Sediment collection provided by perimeter ditches and ditch blocks will minimize siltation of the main retention areas. In addition, the active fill area(s) will be surrounded by berms to capture stormwater that comes in contact with waste and to prevent run-on and mixing with the stormwater from outside the active fill area, as shown in Figure L-6 in Attachment L-3. Stormwater collected within the berms surrounding the active fill area(s) is considered to be leachate and will be allowed to percolate into the landfill for collection by the leachate collection system or removed by pumping the water to a leachate infiltration basin, as described on Figures L-6 and L-7 in Attachment L-3. This water may also be pumped to a leachate cleanout pipe (hard piped) as a backup to the leachate infiltration basin. This water will be filtered through a screen on the pump intake prior to discharge to a cleanout pipe. Not Approved

Operation and Maintenance Procedures

The stormwater management system for the CCSWDC consists of a variety of treatment and conveyance methods. The treatment system for the main solid waste handling and disposal areas includes seven wet detention basins. Conveyance to these ponds is through a series of letdown structures, perimeter ditches and swales, and culverts. Stormwater collection along the entrance road is provided by the roadside swales. All portions of the stormwater system will be visually inspected by the County weekly and immediately following a storm event of 0.5 inch or greater. The inspections will identify buildup of debris, surface sheen, erosion and sedimentation, overgrown or exotic vegetation, and structural problems. Any problems identified by these inspections will be corrected within three (3) days. The wet detention basins will be inspected to estimate quantities of sediment within each pond. If the sediment occupies 30 percent of the volume below the normal pool elevation, the sediment will be removed and disposed of in the landfill. Vegetation in all portions of the conveyance systems will be removed on an as needed basis to prevent blockage.

L.2.i Groundwater Monitoring Plan

The groundwater monitoring network and the results of the background water sampling are discussed in Section M of this application. The proposed long term monitoring network for the site is also presented in Section M of this application. This plan complies with Chapter 62-701 F.A.C. Monitoring well locations are shown on Figure L-1.

L.2.j Maintaining and Cleaning Leachate Collection System

Leachate collection system maintenance will include daily inspection of all leachate pump control panels. All running data will be recorded and checked for irregularities. Pumps are pulled and checked for operational parameters at least once every two years. An example leachate pump data form is provided in Attachment L-8. The leachate collection system will be cleaned and inspected as described in part L.8.h of this Operations Plan.

L.3 LANDFILL OPERATION RECORD

The Administrative office located adjacent to the scale facilities at the entrance of the CCSWDC is shown on Figure L-1. The office will include facilities for employees including a training/meeting room, sanitary facilities, and first aid equipment. Similar additional facilities are located at the Equipment Maintenance building. Files will be located in the Administrative office to contain the operating record for the facilities as required by regulatory agencies/permits. The Laboratory Certification are included in the plan as Attachment L-9. Items which shall be stored in the operation record include:

- This Operations Plan.
- All Permits for the facility.
- All Records and drawings used for developing permit applications.
- All monitoring information calibration and maintenance records copies of reports required by permit (maintained for at least 10 years).
- Background water quality records.
- Annual estimates of the remaining life of the constructed landfill and other permitted landfill areas.
- All Monthly waste records which shall include tonnages received for Class I, C&D, yard waste and recyclables.
- Asbestos location records.
- All Monitoring reports for groundwater, stormwater, leachate and landfill gas.
- Waste tire processing records.
- Copies of all notifications required by 62-701 F.A.C.
- On-site precipitation record.
- DEP inspection reports.

- Load checking reports.
- Leachate storage tank inspection reports
- All Training verifications.
- All Other reports related to the design, operation, monitoring or permitting for the facilities.

L.4 LANDFILL WASTE REPORTS

Each month, a summary report of waste tonnage received for Class I waste, C&D debris, yard waste, and recyclables will be compiled. Copies of the monthly report will be submitted to FDEP quarterly or upon request.

L.5 EFFECTIVE BARRIER/ACCESS CONTROL

Access control at CCSWDC includes a perimeter fence with a locking access gate at the scalehouse, which is the only entrance/exit for the facility. The access gate normally will be kept open during hours of operations and an attendant will be at the scalehouse during those times. When CCSWDC is not in operation, this access gate normally will be kept closed and locked.

L.6 LOAD CHECKING PROGRAM

At least three random loads of Class I Municipal Solid Waste (MSW) delivered to the landfill each week will be examined in accordance with the following procedure:

<u>Mechanism For Inspections</u>

(1) Specific locations within the active landfill cell are to be dedicated to load examination. The areas should be relatively free from extraneous debris and capable of maintaining isolation of the material for one calendar week.

(2) The inspection of the load shall be controlled by a Contract Operator employee. Training of contract personnel shall continue on an ongoing basis. In accordance with Rule 62-701.500(6)(a), FAC, a minimum of three random loads will be checked at the active working face(s) each week. The selected driver will be directed to discharge his/her load at a designated location adjacent to the working face. If any unauthorized special waste (i.e., lead-acid batteries, used oil, yard trash, white goods, and whole tires) is found by the random inspection, or as part of routine operations, the waste will be segregated and removed from the site for recycling as described in Section L.2.c. These special wastes will be stored as described in Section L.2.c. and removed from the site within 30 days.

(3) The inspection form (see Attachment L-5) shall be filled out and signed off by the inspector. The inspector will identify and note all unauthorized waste found during the random load inspection, estimated quantity, and the action taken. The inspector will sign the inspection form that will be retained at the CCSWDC. It shall be the County's responsibility to file/store/distribute the reports.

(4) The Sarasota County Solid Waste Operations Unit or the Solid Waste's Hazardous Waste Section will investigate violations found during the inspection process. The Contract Operator will attempt to remove or clean-up the disposed materials. If Contract Operator is unsuccessful, Solid Waste will remove or clean-up the disposed materials.

(5) Violations involving hazardous waste dumping shall be handled by the Solid Waste's Hazardous Waste Section. Every attempt shall be exhausted to place responsibility on the generator relative to having the hazardous waste in question removed from the landfill at the expense of the generator. In the event that generator responsibility cannot be determined and that the waste appears to be from a commercial source, it shall be the County's responsibility to segregate and secure the waste and pay all costs relative to safely disposing of said waste.

(6) A list of offenders shall be compiled by the Solid Waste's Hazardous Waste Section and the list shall be provided to the County with updates on a periodic basis.

L.7 PROCEDURES FOR SPREADING AND COMPACTING WASTE AT THE LANDFILL

The following guidelines will provide an efficient and environmentally sound method of operation for the CCSWDC.

- Portable litter fencing will be placed at the working face where needed to reduce windblown litter.

- Cracks or eroded sections in the surface of any filled and covered area will be repaired and a regular maintenance program will be followed to eliminate pockets or depressions that may develop as waste settles.

- If 12 inches of intermediate cover (free of waste) has been placed over a partially filled area, it will be removed, reused, and stockpiled for later use prior to the placement of a new lift.

- Tire chips, tarps, soil, or a mixture of soil/mulch may be used for initial cover. Stormwater runoff will not be allowed from waste filled areas covered with tire chips or tarp. Runoff from outside of the bermed working face area will be considered stormwater only if the flow passes over areas that have no exposed waste and have been adequately covered with at least 6 inches of compacted soil (or a mixture of soil/mulch), free of waste and stabilized to control erosion.

- Sufficient cover material will be stockpiled near the working face to provide an adequate supply for initial cover operations. In some areas, daily stockpiling may not be necessary because of the proximity of the borrow area.

L.7.a Waste Layer Thickness and Compaction Frequencies

Waste shall be spread in layers of approximately two feet thick on the working face and compacted to approximately one foot in thickness before application of the next layer. The solid waste will be compacted with a minimum of three to five passes of a compactor.

L.7.b First Layer of Waste

Selected solid waste loads consisting of solid waste containing no large rigid objects shall be used for at least the first four feet of the first lift of a new cell in order to protect the liner and leachate collection system. This first lift must be a minimum of four feet thickness and be filled to an elevation of at least 37.0 NGVD in order to promote shedding of stormwater. Waste shall be deposited at the inside toe of the cell's lined external containment berm on the south end of the cell and spread to the north. No solid waste shall be placed beyond the litter fences. For the initial lift, hauling vehicles will reach the working face by traveling on top of the previously deposited waste and depositing the loads at the top of the working face. The fill will be spread and compacted "down slope" to prevent vehicles from traveling on the protective sand layer. Also see Section L.2.f. in this Operations Plan.

L.7.c Slopes, Side Grades and Lift Height

The typical height for each lift is 10-15 feet. All incoming solid waste will be directed to the working face and placed against the toe of the side slope of the previous day's refuse. The first row of waste in a new lift will be placed against the toe of the containment berm to provide a guide for the placement of refuse for the remaining rows. A maximum slope of 3 to 1 will be maintained on the working face. All top slope areas shall be sloped to drain using a 2 percent minimum slope.

L.7.d Maximum Width of Working Face

Maximum width of the working face will be 200 feet. This will provide a sufficient area for maneuvering large private and commercial vehicles, as well as minimize the exposed area and unnecessary use of cover material.

L.7.e Initial Cover

For the Class I landfill, a minimum of six inches of compacted initial cover consisting of native sandy soils, top soil, soil, yard waste compost mixture, shredded tires, or other FDEP approved initial cover will be applied to the top of the lift and to the working face at the end of each day. Attachment L-10 provides a description and specification for initial cover materials previously approved for this facility. A 2-inch layer of shredded yard waste may be applied when needed to the initial cover to minimize erosion during rainy weather. The application of initial cover over the landfilled waste will assure control of disease vector breeding/animal attraction, odors, waste combustion (fire), blowing litter, and moisture infiltration.

The initial cover material will be spread over the exposed waste and, with the exception of tarps, compacted by the equipment used to spread the cover (likely a bulldozer or scraper). The initial cover material will not be removed prior to placement of successive lifts of waste, with the exception of tarps, which would be removed prior to placement of successive lifts. Any remaining litter and cleanings from equipment will be placed at the bottom of the completed cell and covered.

Before moving the working face, the area that will remain inactive will be covered with compacted cover (free of waste), soil or a mixture of 50 percent unscreened wood mulch and 50 percent soil, with sufficient thickness (minimum 6-inches) to prevent erosion and the mixing of leachate with stormwater.

L.7.f Application of Initial Cover

Initial cover will be applied at the end of each working day, except when solid waste will be placed on the working face within 18 hours, and a temporary cover such as a tarpaulin is used to cover the working face.

L.7.g Intermediate Cover

Intermediate cover consisting of at least 1 foot of compacted native sandy soils or composted yard trash screened through ½-inch mesh mixed with 25 percent soil, by volume, will be applied within 7 days if final cover or an additional lift is not to be applied within 180 days. Intermediate covered areas that will not be landfilled or covered with final cover within 6 months will be sodded (external slopes) or seeded and mulched (internal and top slopes) to avoid slope erosion. Also see Section L.2.f. in this Operation Plan.

To conserve the intermediate cover material, a portion of the intermediate cover will be removed immediately before placement of additional solid waste on top of the lift or before placement of additional waste. The intermediate cover material (free of waste) will be stripped and reused as intermediate cover material. The stripped intermediate cover will be pushed ahead as needed for the perimeter containment berms constructed around the active working face area. The intermediate cover areas will be graded to promote drainage (minimum 2 percent slope) and seeded to prevent erosion.

L.7.h Final Cover

Following the receipt of a closure permit, final cover will be applied to the Class I landfill on the completed portions of Phase 1 of the landfill operation. The perimeter sides of all completed cells will have a slope of 3:1.

The cap and final cover will consist of a geomembrane layer that complies with Department rules and 24 inches of local common soil of which upper 6-inches will be capable of supporting vegetative cover.

L.7.i Scavenging and Salvaging Control Devices

Scavenging and salvaging is not allowed on the working face at CCSWDC. In the event spotters working in this area observe scavenging or salvaging activities on the working face, the landfill manager will be notified.

L.7.j Litter Control Devices

Litter will be controlled by requiring covered loads, efficient unloading and cover operations, litter fences, perimeter fencing, and by routine clean-up. Litter outside the working area will be picked up within twenty-four (24) hours.

A small litter fence will be placed at the limit of each landfill cell area as shown in Figure L-2 for the full length of the active working area of the cell.

L.7.k Erosion Control Procedures

Erosion control procedures at CCSWDC mainly consist of stormwater management for active cell areas and in areas surrounding the landfill cells. Stormwater management for unused portions of active cells is achieved by applying rain covers to the cell to divert stormwater from these unused areas away from the working face. Stormwater management for used portions of active cells, whereby initial cover or intermediate over the waste has been placed in accordance with FDEP requirements, is achieved by:

- Grading the waste-in-place with a minimum 2% slope and adequately covering the waste to divert stormwater away from the working face.
- Use of terraces and letdown pipes, see Operation Drawings in Attachment L-3.
- Maintaining internal and external berms, see Figure L-6 in Attachment L-3.

Of critical importance will be maintaining the stormwater management system during the filling sequence. As each lift is constructed, temporary stormwater diversion berms will be constructed, as shown on Figure L-6 in Attachment L-3.

A containment berm will isolate the working face from the remaining covered areas. Stormwater which accumulates behind the containment berm in the area of the working face is leachate and will be retained and allowed to percolate into the landfill where it will eventually be collected in the leachate collection system.

Other berms will divert stormwater from top slopes to let down structures and will serve as erosion control to protect recent covered side slopes. These external berms will be sodded to prevent erosion and will be directly connected to the temporary letdown structures to facilitate proper management of stormwater runoff.

Sediments which reach the perimeter ditch (shown on Sheet 3 of the Operation Drawings, Attachment L-3) will collect behind the ditch blocks and will require periodic removal. Within 30 days after applying intermediate cover to side slopes that have reached designed dimensions, sod shall be applied. As filling progresses above the first terrace, the first set of temporary letdown structures will be constructed as shown on Sheet 6 of 16 of the Operation Drawings. This operating procedure will minimize the amount of erosion and sediment accumulation that must periodically be removed from the perimeter ditches.

.Intermediately covered areas, or other areas that discharge to the stormwater management system, which exhibit significant erosion, will be repaired as follows:

- If greater than 50 percent of the soil cover material has eroded, then the area will be repaired within 7 days.
- If waste or liner is exposed, then the area will be repaired by the end of the next working day.

L.8 PROCEDURE FOR LEACHATE MANAGEMENT

L.8.a Leachate Monitoring, Sampling and Analysis

The sump pumps located in Cells 1 through 5 will operate in an automatic mode based on the liquid level in the sump. Figure L-3 shows the operation levels for the sump pumps. The pressure transducer located at the end of the pump housing accurately measures the level of liquid in the sump and provides a digital readout of this level at the control panel mounted on the valve box at the top of the each cell's lined external containment berm. As shown on Figure L-3, the high water alarm will result if leachate levels rise to cause 12 inches of head on the liner system adjacent to the sump area.

Two additional pump units will be provided for backup. This allows for removal of each pump on a regularly scheduled basis to perform preventative maintenance. When a sump pump is removed for scheduled maintenance, a spare pump will be reinstalled immediately while the maintenance is being performed. Each pump will receive preventive maintenance in accordance with the manufacturer's recommendations at a frequency based on run time.

Additional details on leachate sampling location, sampling and analysis schedule, and data submission is provided in the Groundwater Monitoring Plan Addendum, Section M.

L.8.b Leachate Collection and Removal System

The Class I landfill leachate collection system consists of a geonet drainage layer and perforated collection pipe above the liner system to collect and convey leachate. The leachate conveyed to sumps will be pumped to a leachate holding tank onsite. The leachate collection piping system consists of 8-inch perforated polyethylene pipe sloped in such a manner that leachate flowing through the solid waste of the landfill will be collected and transported by gravity to a sump and leachate pump. The discharge line from the sump pump connects to a HDPE header line via a valve vault. Provisions for sampling the leachate as well as monitoring flows and pressure are provided in the valve vault (see Sheet 14, Attachment L-3). Any stormwater accumulated in a landfill cell will be pumped from the collection system to the stormwater system prior to receiving solid wastes by opening the stormwater valve in the valve box located at each landfill cell pump station. Immediately prior to solid waste being deposited into a new cell, the valve from its leachate pump to the stormwater system shall be closed.

Leachate generated within the landfill cells will be pumped via the submersible sump pumps located in each cell to a 1,800,000 gallon storage tank. Leachate that accumulates in the storage tank will be transferred, to tanker trucks using leachate transfer pumps and transported to an offsite wastewater treatment plant (WWTP).

L.8.c If Leachate Becomes Regulated As Hazardous Waste

Sarasota County will evaluate options for pretreating the leachate and alternate disposal if it becomes regulated as a hazardous waste.

L.8.d Off-site Treatment of Leachate

~~The primary disposal location for CCSWDC leachate and alternate disposal is the Bee Ridge WWTP with secondary disposal location at the Central County Utilities Water Reclamation (see Attachment L-6 for facility commitment letter). CCSWDC may use other secondary facilities for the offsite treatment or disposal of leachate; however, the County will notify FDEP of the change prior to use.~~

~~The CCSWDC will dispose of leachate at the primary treatment location provided the leachate meets the disposal quality requirements. Should leachate quality change such that it is no longer acceptable at the primary treatment location, the CCSWDC will dispose of leachate at the secondary facility.~~

L.8.d Off-site Treatment of Leachate

The primary disposal location for CCSWDC leachate and alternate disposal is the City of Venice WWTP (for facility commitment see FDEP Form 62-604.300(8)(a) for construction of a wastewater collection system signed by the City of Venice on Page 10 of 11 as the Wastewater Facility Owner) with secondary disposal location at the Bee Ridge Water Reclamation. CCSWDC may use other secondary facilities for the offsite treatment or disposal of leachate; however, the County will notify FDEP of the change prior to use.

The CCSWDC will dispose of leachate at the primary treatment location provided the leachate meets the disposal quality requirements. Should leachate quality change such that it is no longer acceptable at the primary treatment location, the CCSWDC will dispose of leachate at the secondary facility

L.8.e Contingency Plan for Leachate Management

Should one of the following events occur, the leachate contingency management plan shall be implemented.

- Any mechanical failure of the leachate management system that would prevent operation of the landfill leachate collection system pumps or the leachate transfer pumps for more than three (3) consecutive days.
- Liquid accumulation in the holding tank leak detection system in amounts greater than expected from rainfall.
- Rise of leachate levels inside the holding tank greater than 52.6 (high water alarm elevation represented by 31 foot mark on the external tank gauge).

Implementation of the contingency plan includes the following actions.

(1) The landfill manager shall notify the FDEP (within twenty-four (24) hours) and leachate disposal facilities of the emergency event.

(2) If the problem is excess leachate in the detection system of the holding tank, remedial measures shall be taken immediately to eliminate the leak. Additional tractor trailer tanker unit or units and operators shall be called to the site to expedite transport of leachate to the receiving wastewater treatment plant. The primary holding tank shall be emptied completely, if required, to facilitate repairs.

(3) If the problem is excessive levels of leachate in the holding tank (elevation exceeds 52.6), the maximum amount of leachate shall be diverted from the tank by increasing the number or frequency or tanker trucks hauling leachate to the primary or secondary WWTPs.

(4) Once the problem causing the implementation of the contingency plan has been resolved to an acceptable degree, the landfill manager shall notify FDEP (within three (3) days) that the facility is ready to return to normal operating conditions.

L.8.f Recording Quantities of Leachate Generated

A control panel for each sump pump in Cell Nos. 1 through 5 is mounted on the valve box at the top of each cell's lined external containment berm. Each control panel will be equipped with a pump hour meter.

The following information will be recorded once per operating day from each cell sump pump location.

Cell No.	______________________
Flow Meter Reading	______________________
Hour Meter Reading	______________________
Sump Liquid Level	______________________

The above information is recorded on the form provided as Attachment L-8.

L.8.g Precipitation and Leachate Generation Rates

Rainfall for each 24-hour period measured at an official gauge located onsite will be recorded and entered onto a spreadsheet (format included in Attachment L-11) to compare precipitation to leachate generation.

L.8.h Leachate Collection System Inspection and Cleaning

CCSWDC will conduct a video inspection of the leachate collection system at least once every five years in accordance with Rule 62-701.500 F.A.C. requirements, and cleaned as necessary. The most recent inspection of the leachate collection system at CCSWDC was completed on June 14, 2001. Leachate pumps at CCSWDC will be inspected for operation failures at least daily. Control panels will be inspected and operational data recorded as described in L.8.f.

L.9 GAS MONITORING PROGRAM

A gas monitoring program will be implemented to prevent explosions and fires and to minimize off-site odors and damage to vegetation. The landfill gas monitoring program for CCSWDC will include monitoring of the landfill perimeter at the monitoring locations shown on Figure L-1, as well as, inside the Contractor's maintenance building, the County's Maintenance Building, and all enclosed structures at the C&D recycling facility. Monitoring shall be conducted on a quarterly basis. The outside monitoring locations (gas monitoring probes) shall consist of a monitor probe as shown on Figure L-4.

The gas monitoring locations shall include four (4) gas monitoring probes as described above and numbered GP-1, GP-2, GP-3 and GP-7 and six (6) gas monitoring locations GM-1, GM-2, GM-3, GM-4, GM-5 and GM-7 in structures as shown on Figure L-1. Low areas, base boards, floor drains, and floor mounted cabinets shall be monitored inside the structures. Other structures on the site are not monitored because the great distance from the landfill (over 3,400 feet), and the shallow groundwater table (5-7 feet below surface) at the site would cause any migrating gas, if it existed, to purge to the atmosphere before it would travel to these structures through the ground. Also, there are no connections via conduit pipes, etc. between these structures and the landfill area.

The monitoring will be conducted for the Lower Explosive Limit (LEL) of methane. A Gasman II CEA Instruments or an equivalent unit will be used. No purging of the probe shall be allowed. Once the meter is connected to the sampling port, the valve shall be opened and the meter pump shall be engaged and meter reading observed. The highest value observed is recorded as well as the steady state value observed.

If the LEL is greater than 25 percent inside any monitor location probe, a temporary monitor probe shall be established 50 feet from the monitor location in the opposite direction from the landfill. The temporary monitor probe shall be of the design as shown in Figure L-4. The temporary monitor probe will be monitored on a monthly basis for at least one quarter and until the temporary monitor station records zero percent LEL and the monitor location probe records less than 25 percent LEL. If the LEL is greater than 25 percent inside the structures, or equal to, or greater than 100 percent at any monitor probe, the landfill operator will submit to the FDEP within seven (7) days a remediation plan detailing the nature and extent of the problem and the proposed remedy. The remedy will be completed/ implemented within sixty (60) days of the detection unless otherwise approved by the FDEP.

L.10 STORMWATER MANAGEMENT SYSTEM

The landfill stormwater management system for CCSWDC is discussed in Section L.2.h.(3) - Stormwater System.

L.11 EQUIPMENT AND OPERATION FEATURE REQUIREMENTS

L.11.a <u>Adequate In-Service Equipment</u>

Equipment proposed for the CCSWDC will include the equipment listed in Table L-1. The exact equipment complement may vary from time to time and additional equipment will be acquired if needed. One roll-off container will be placed at the Class I landfill area.

TABLE L-1. EQUIPMENT USED AT THE CCSWDC

NUMBER	EQUIPMENT
1	Bulldozers
2	Compactors
1	Dump Truck
1	Front-end Loader
1	Graders
1	Hydraulic Excavator
1	Water Truck
1	Fuel Truck
2	Pick-up Truck
2	UD Gators
1	Roll-off Containers

NUMBER	EQUIPMENT
1	Compressor
1	Pressure Washer
1	Welder

Emergency Electrical Generation Equipment is of adequate size to assure complete operation of the Leachate Disposal and Collection Systems.

L.11.b Reserve Equipment

Cooperative lending agreements with the Contract Operator's company and standing agreements with local equipment suppliers will provide a means for procuring additional back-up equipment.

L.11.c Communication Facilities

A telephone will be available at the scale house and the maintenance/administration building. Radios and other communication devices will be in select landfill equipment to provide safe conditions for landfill personnel.

L.11.d Dust Control Methods

Dust from unpaved haul roads and construction areas within the Class I landfill area will be controlled through the use of a water spray truck. An alternate dust control measure that may be used in active cells of the Class I landfill area is leachate reuse (see Attachment L-12 for FDEP approval letter). This reuse of leachate involves spraying small quantities of leachate from a spray bar mounted on the rear of a tank truck onto active fill areas of the landfill. The landfill operation crew will monitor the rate of leachate application, soil moisture conditions, and the specific landfill areas used to prevent the generation of leachate runoff. Leachate will only be applied under the following conditions.

- Leachate may only be sprayed on active, bermed fill areas, including the working face, and areas with the required six (6) inches of initial cover.
- Leachate may not be sprayed on areas with intermediate or final cover.
- The maximum grade leachate will be sprayed on is 10H:1V slope. Areas within 150 feet of a 4H:1V or steeper side slope will not be sprayed on. At all times areas receiving leachate must be controlled to prevent run-off from entering the stormwater system.
- Leachate will not be sprayed during a rainfall event, and when the application area is in a saturated condition.

- The tank truck spray bar method maximizes evaporation. The application rate of leachate should be such that leachate does not accumulate on the landfill surface, and infiltrates quickly into the covered refuse. It is evaporation that is the main goal of this leachate disposal method, rather than recirculation of leachate.

- Leachate will not be sprayed at the end of the day on the initial cover of the working face or other areas. Spraying should be done early in the morning after any dew evaporates and continue until early afternoon or until all available areas have been utilized.

The Site Manager will record daily the gallons of leachate sprayed per this method.

If needed, dust masks will be available to personnel working in excessively dusty areas.

L.11.e Fire Protection And Fire Fighting Facilities

Small fires on the working face will be controlled by use of dump trucks, a landfill compactor, and a bulldozer to move earth cover material over hot areas. Additionally, the water truck will be available to apply water to any fires. In the event that an uncontrollable fire does occur at the CCSWDC site, the Nokomis Fire Department will be contacted immediately. The Nokomis Fire Department is equipped with pumper trucks capable of drafting water from surface sources. In the event of a fire, the landfill operator will notify the FDEP within twenty-four (24) hours. Within seven (7) days, a full written report on the fire will be submitted to FDEP describing the origins of the fire, the actions that were taken to deal with it, the results of the actions taken and an analysis of the success or failure of the actions.

A hot load area will be 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 covered with soil. 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.

No chemicals will be accepted at the landfill. All waste coming through the scale house will be observed to eliminate unwanted chemicals capable of starting a fire. In the event a chemical accident does occur, the following steps will be taken:

- Call local Fire Department (911).

- Contain fire in small area until Fire Department arrives. To eliminate inhalation of potentially toxic fumes, fight fire from upwind side.

- Stay with fire until out and cover with sand.

L.11.f Litter Control Devices

See Section L.7.j. in this Operations Plan.

L.11.g Signs Indicating Name Of Operating Authority, Traffic Flow, Hours Of Operation, And Charges For Disposal

There is a permanent sign at the south property line along the access road to the facility identifying the Sarasota County Central County Solid Waste Disposal Facility and indicating hours of operation and charges for different types of loads. The sign indicates materials that are not accepted for disposal in the landfill. Signs indicating approach and exit routes and one-way roads are strategically placed so traffic at the landfill will move smoothly and efficiently to and from the working face area.

L.12 ALL WEATHER ACCESS ROADS

A paved entrance from Knights Trail Road terminates at the landfill perimeter roadway. In addition, paved perimeter roads around the landfill areas are shown on Figure L-1. All weather access roads will be constructed within the Class I area to route traffic to the active working face. The all weather access roads will be constructed of earth, ground shingles, crushed rock, shell or any other stabilizing material, as appropriate.

L.13 ADDITIONAL RECORD KEEPING AND REPORTING

See Section L.3 of this Operations Plan.

ATTACHMENT L-1

TRAINING PLAN

May 2, 2003

ATTACHMENT L-1

TRAINING PLAN

As stated in 62-701.500, F.A.C., all Class I landfills shall have at least one trained operator at the landfill during all times when the landfill receives waste. The operator training includes a 24 hour initial course and 16 hours of continuing education every 3 years. Spotter training includes an 8 hour initial course and 4 hours of continuing education every 3 years.

In accordance with Rule 62-701.320(15), the owner or operator of a landfill, or other solid waste management facility required by this chapter to have trained operators or spotters, shall not employ a person to perform, nor may any person perform, the duties of an operator or spotter at such a facility unless that person is a trained operator or trained spotter, or an interim operator or interim spotter.

Operator and spotter training courses are available at the University of Florida Center for Training, Research and Education for Environmental Occupations (UF/TREEO) and through other sources. A listing of the current year training courses available through TREEO follows. A listing of the County's current trained operators and their continuing education needs is also provided. In addition, several of the contract operators personnel have had spotter training, and the following Sarasota County personnel are trained spotters:

Personnel	Date Training Received
Gary Bennett	11/9/00
Mark Rhoades	11/9/00
Dan McAllister	5/3/01

UNIVERSITY OF FLORIDA
TREEO CENTER

Solid Waste Management Facilities Courses

2002

	Courses	Hours Awarded: I II III	C&D	Transfer	MRFs	Spotter	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Initial Landfill	Construction & Demolition Debris Landfill Short Course	24	24				TREEO 1/29-31							Tampa 8/21-23				
Initial Landfill	Manager of Landfill Operations [MOLO®]	30	30					TREEO 2/12-15							Port Charlotte 9/10-13			
Initial Landfill	MOLO® Exam							TREEO 2/15		Panama City 4/9					Port Charlotte 9/13			
Initial Spotter	8-hour Spotter Training for I,II,III, C&D, TS Mgmt Facilities	8	8	8	8	8	TREEO 1/18											
Initial Spotter	Training for Spotters at LDF, C&D Sites and TS	8	8	8	8	8			Daytona 3/21			TREEO 6/26						
Initial Spotter	Waste Screening and Identification for Landfill Operators and Spotters	8	8	8	8	8										Tampa 10/8		
Continuing Education	Bird Management at Solid Waste Facilities	4	4	4					Daytona 3/19									
Continuing Education	Groundwater Issues for Landfill Operators	6	6							TREEO 4/9								
Continuing Education	Landfill Gas and Leachate Systems	8	8															
Continuing Education	Management of Leachate, Gas, Stormwater & Odor	8	8						Daytona 3/20									
Continuing Education	Two-Hour Spotter Refresher	2	2			2		On-line training available anytime										
Continuing Education	Health & Safety Training for Landfills Operations	5	5	5	5	2		On-line training available anytime, after January 2002								Tampa 10/7		
Continuing Education	Hazardous Materials in C&D Waste	4	4					On-line training available anytime, after January 2002										
Continuing Education	Health & Safety Training for HazMat: 40 Hr OSHA	8	8	8	8	8		On-line training available anytime										
Continuing Education	Asbestos Awareness for Landfill Operations	4	4	4	4	4		On-site training available										
Other Courses of Interest	Permit Required Confined Space Training	8	8	8	8			Shalimar 2/22				TREEO 6/27						
Other Courses of Interest	Excavation and Trenching Competent Person	7	7					Shalimar 2/21				TREEO 6/28						
Other Courses of Interest	HazMat Chemistry for Environmental Professionals	8	8	8	8	8				TREEO 4/8								
Other Courses of Interest	Pumps and Pumping	16	16			16		TREEO 2/18-20							TREEO 9/2-4			
Other Courses of Interest	Health & Safety Training for HazMat: 8 Hour OSHA	4	4	4	4	2		Shalimar 2/28	Daytona 3/19									
Other Courses of Interest	Health & Safety Training for HazMat: 40 Hr OSHA	8	8	8	8	8				TREEO 4/1-5								
Other Courses of Interest	Hazardous Waste Regulations for Generators	4	4	4	4	4		Shalimar 2/27	Daytona 3/20									
Other Courses of Interest	US DOT Hazardous Materials / Waste Transportation	6	6	6	6				Daytona 3/21									
Other Courses of Interest	Introduction to Electrical Maintenance	16	16			16		TREEO 2/26-28						TREEO 8/6-8				

To meet the training requirement of FAC 62-701 Operator(s) or spotter(s) must:
Successfully complete an approved initial training course, be in attendance for entire course, pass exam – 70% or higher
Effective May 27, 2001 - C&D / Transfer Station / MRF facility operators all have to pass exam with 70% or higher

Classification	Initial Course	Continuing Education
Landfill – Class I, II, III	24 hours [previous 20 hours]	16 hours [previous 15 hours]
Construction and Demolition [C&D] Landfill	24 hours [previous 20 hours]	16 hours [previous 15 hours]
Transfer Station	16 hours	8 hours
Material Recovery Facility [MRF]	16 hours	8 hours
Landfill Clearing Debris Facility	no operator training required	no training required
Spotter [of all type facilities]	8 hours [previous 8 hours]	4 hours [previous 8 hours]

For information: contact Dawn Jenkins, 352/392-9570 ext 127 or djenkin@treeo.doce.ufl.edu or www.treeo.ufl.edu
To register: on-line at www.treeo.ufl.edu

All previously approved courses have been reviewed by the SWMTC for continuing ed requirements under 62-701FAC effective May 27, 2001. Please view the list of approved courses for updated hour awards for TS and MRFs. The list may be obtained at www.treeo.ufl.edu or by requesting a copy at 352/392-9570 ext 127.

Updated: Friday, December 14, 2001

Florida DEP Current Landfill Operators

Companies starting with: 'Sarasota County'
All districts included
Printed: 04/11/02

Operator	Company City County / FDEP District	Certification	Initial Date	Start Date	Total Hours Needed	Expiration Date
BENNETT, GERALD	SARASOTA COUNTY GOVERNMENT NOKOMIS Sarasota County / Southwest	Class I, II, III Landfill Operator	11/20/98	11/20/01	5	11/19/04
BOATWRIGHT, ROBERT	SARASOTA COUNTY GOVERNMENT SARASOTA Sarasota County / Southwest	Class I, II, III Landfill Operator	01/01/00	07/19/99	15	07/18/02
FOXWORTHY, TERRY	SARASOTA COUNTY SOLID WASTE Nokomis Sarasota County / Southwest	Class I, II, III Landfill Operator	05/17/96	05/17/99	3	05/16/02
GRUMBLEY, GARY	SARASOTA COUNTY SOLID WASTE OPS Nokomis Sarasota County / Southwest	Class I, II, III Landfill Operator	05/21/93	05/21/99	15	05/20/02
Largent, Anita	Sarasota County Government Sarasota Sarasota County / Southwest	Class I, II, III Landfill Operator	02/09/01	02/09/01	15	02/08/04
MCALLISTER, DANIEL	SARASOTA COUNTY GOVERNMENT NOKOMIS Sarasota County / Southwest	Class I, II, III Landfill Operator	05/19/95	05/19/01	15	05/18/04
Mcallister [MRF], Daniel	Sarasota County Government Nokomis Sarasota County / Southwest	Material Recovery Facility Operator	11/28/01	11/28/01	8	11/27/04
RHOADES, MARVIN	SARASOTA COUNTY SOLID WASTE NOKOMIS Sarasota County / Southwest	Class I, II, III Landfill Operator	11/19/93	11/19/99	0	11/18/02
Rhoades [MRF], Marvin	Sarasota County Solid Waste Nokomis Sarasota County / Southwest	Material Recovery Facility Operator	11/28/01	11/28/01	8	11/27/04
TERMINE, VINCENT	Sarasota County Public Works SARASOTA Sarasota County / Southwest	Class I, II, III Landfill Operator	11/18/94	11/18/00	15	11/17/03
WINGLER, PAUL	SARASOTA COUNTY Nokomis Sarasota County / Southwest	Class I, II, III Landfill Operator	11/17/95	11/17/01	15	11/16/04

ATTACHMENT L-2

CONTINGENCY PLAN

Solid Waste Operations Division

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX

STANDARD OPERATING PROCEDURES

File No. 09201010.01

May 2, 2003

SAFETY

Training 1

Equipment 1

Special Procedures 1

Safety Meetings 2

Safety Officer 2

EMERGENCY AND FIRE SAFETY

Notification: Call 911 3

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Procedure to be Followed for Cleanup 4

CONTINGENCY PLAN

Contingency Plan 5

SAFETY

The program shall consist of the following parts:

Training - General training of all employees will be required to develop the skills of emergency first aid and CPR. General training includes:

- Red Cross Multimedia certification is required initially upon employment and subsequently re-certification on a three-year schedule is required.
- Red Cross Cardiopulmonary Resuscitation Basic Life Support Course certification initially upon employment and subsequently on an annual basis thereafter is required.
- All employees shall be trained in the job-specific aspects of their position. This training will be provided by and is the responsibility of the employee's immediate supervisor.
- Special training shall be required for each employee on a job-specific basis. Each operator of a. piece of equipment shall be trained in the operation of that piece of equipment by the immediate supervisor. This training shall be given in accordance with the manufacturer's recommendations and operating manuals. This training will be provided by and is the responsibility or the immediate supervisor in charge of the employee.

Equipment - This section shall outline the basic safety equipment to be provided to the employees of this Division.

- Uniforms shall be furnished for and shall be worn by all employees except office personnel. Special exemption from this requirement may be granted by the Director of Solid Waste Operations Division on a case-by-case basis.
- Special safety equipment such as rain gear including rubber boots, boots having steel toes and stainless steel puncture resistant soles, work gloves, goggles, dust masks, protective eye glasses, rubber gloves, face guards, hearing protection, and rubber aprons shall be utilized as part of the day-to-day operational procedures of this Division. It shall be the responsibility of each individual employee and the immediate supervisor to assure that proper safety equipment is in use. Standard operating procedures will be developed and included as a part of this program. Development of these procedures will be the responsibility of all supervisory personnel.
- All employees will be required to wear safety shoes or boots when working in an environment dictating the need for such equipment. Generally, safety shoes will be required except when working in the scalehouse or office. Safety shoes will be issued to all employees whose duties require the wearing of safety shoes.

Special Procedures - Special procedures shall consist of operational plans, which shall be prepared by the supervisor in charge of each separate operation within the Solid Waste

Operations Division. Operational plans shall be prepared for the following separate functions within the Solid Waste Operations Division - office, landfill, transfer station, hazardous wastes and infectious wastes.

Safety Meetings - Safety meetings shall be held as deemed necessary by the Solid Waste Operations Division Safety Officer but no less than one meeting shall be held every other month.

Safety meetings shall be the responsibility of the Solid Waste Operations Division Safety Officer.

Safety meeting topics shall include a discussion of all incidents, which have occurred within the Division since the last safety meeting was held, along with topics of current importance and interest.

Safety Officer - the Manager of the Solid Waste Operations Division shall appoint the Solid Waste Operations Division Safety Officer. The Solid Waste Operations Division Safety Officer is Terry Foxworthy. The Solid Waste Operations Division Manager is Gary Bennet.

The-position of solid -Waste Operations Division Safety Officer shall be held in conjunction with the regular duties of the position for which the person was hired. However, the Solid Waste Operations Division Safety Officer shall be given time during the regular working hours to perform the duties of the Solid Waste Operations Division Safety Officer.

May 2, 2003

EMERGENCY AND FIRE SAFETY

This section provides the standard operating procedure for all personnel in the event of an emergency or fire of any nature that may take place within the boundaries of landfill or transfer station.

Notification: CALL 911 as in any emergency, the first thing to do is to immediately notify the proper emergency response team. In the case of FIRE, immediately notify the Fire Department through the emergency phone number 911. Remember, if you are calling from a phone, which is connected to the County switchboard, you must dial 4911 to reach the emergency operator.

If the office or one of the scalehouses is open, you can contact them by radio for your emergency, and they will be able to place the necessary phone call.

Be sure to SPEAK SLOWLY, DISTINCTLY, DELIBERATELY, and remain as calm as possible. Briefly tell the person to whom you are reporting the emergency the following:

- the nature of the emergency;
- any injuries or persons involved; and
- where the emergency is located.

If there are injuries, you should render whatever assistance you can without endangering yourself. Use the First Aid and/or CPR training you have learned to assist where necessary. if possible, evacuate any person or equipment that may be endangered.

In the event of small fires, the use of a fire extinguisher may be sufficient to contain the fire until the arrival of the Emergency Responders. Fire extinguishers are found in every Solid Waste Operations Division vehicle and on every machine. In the event of larger fires, a 4000-gallon water tanker and the pressure washer trailer is available for fighting fires.

Upon arrival of the Emergency Responders, you should take whatever steps necessary to assist.

In the event of fire in the landfill, it may be necessary to smother the fire using available dirt from the dirt stockpiles located at the landfill. In this case, the Manager of the landfill shall make immediate provisions to provide that earth cover. Also, the procedures described in Section L.11.e of the Operations Plan shall be followed.

Used Tire Storage Area Special Rules - In the event there is a fire or other emergency in the used tire storage area, the following special rules shall apply:

- After following the emergency procedure outline above, the Manager shall insure that the dike around the waste tire pile is intact and that the valve of the drainpipe through the berm is closed. This shall be accomplished by patrolling the exterior of the dike and by adding earth to the dike wherever necessary to assure that no oily material generated by the combustion of the tires escapes the immediate area.
- The State of Florida, Department of Environmental Regulation, shall be immediately

notified by calling the Tampa office at 813\744-6100 if fire, or another emergency, poses an unanticipated threat to the public health or environment. Within two weeks of any emergency involving potential off-site impact, a report shall be submitted to the Department including information on the emergency, the results of the action taken, and an analysis of the success or failure of the actions.

- In addition, any special conditions as set forth by the Sarasota county Fire Department shall be net.

List of Emergency Response Equipment - In the event of a fire emergency, the following equipment is available at the landfill and may be used as the situation dictates in the evolution of responding to a fire emergency, such as repair of dikes, smothering with earth and materials, and then use of water in extinguishing fires:

(2) D-6N bulldozers	4000-gallon water tanker
623-B Excavator	8-inch Mac Pump w/diesel engine
950 Endloaders	Pressure washer trailer

It should be noted that from time to time the equipment available for fire emergency use may be changed, and it should be the responsibility of the persons in charge at the facility to be aware of those changes and respond accordingly with the appropriate equipment in the event of a fire emergency.

Dry hydrant connections are available as shown on the drawings for the purpose of supplying water in the event of a fire or other emergency.

Also available at the site is an 8-inch Mac pump with hose and discharge pipe to be used and for filling the 4000-gallon tanker. Upon arrival of the fire department, this pump and water supply will be used under the direction of the officer in charge from the fire department.

Fire extinguishers are available in every vehicle and piece of equipment on the site. Although fire extinguishers are very ineffective against a large fire, it may be possible through their use to control the fire until larger equipment is brought to bar the fire.

List of Emergency Responses Persons:

	Home Phone Number
Gary Bennett	(941)497-3191
Don Shaulis	(941)921-2674

Procedure to be Followed for Cleanup - Any residual from a fire at the tire storage area shall be removed for proper disposal by County personnel. The County will provide all cleanup services and equipment required. All debris and contaminated soil will be placed in the landfill and all liquids will be pumped into a hauling truck for proper disposal.

CONTINGENCY PLAN

In the event an emergency should occur that would interrupt operations at the landfill, the emergency provision of Section L.2.b.1 of the Operations Plan shall be followed and the following procedures shall be implemented:

1. The waste collection entities operating within the County shall be notified of the operational interruption and approximate time when operations will be restored.

2. If it is anticipated that the interruption of operations will be no longer than 48 hours, an alternate disposal site shall be determined. The following alternate disposal sites are available and listed in order of preference. Should one facility also not be available the next facility on the list shall be contacted.

   a. Manatee County Lena Road Landfill
   b. Charlotte County Zemel Road Landfill
   c. Waste Management Landfill in Okeechobee County

   Sarasota County will develop agreements with the first three facilities listed above to provide disposal capacity on an emergency basis.

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APR 01 2004
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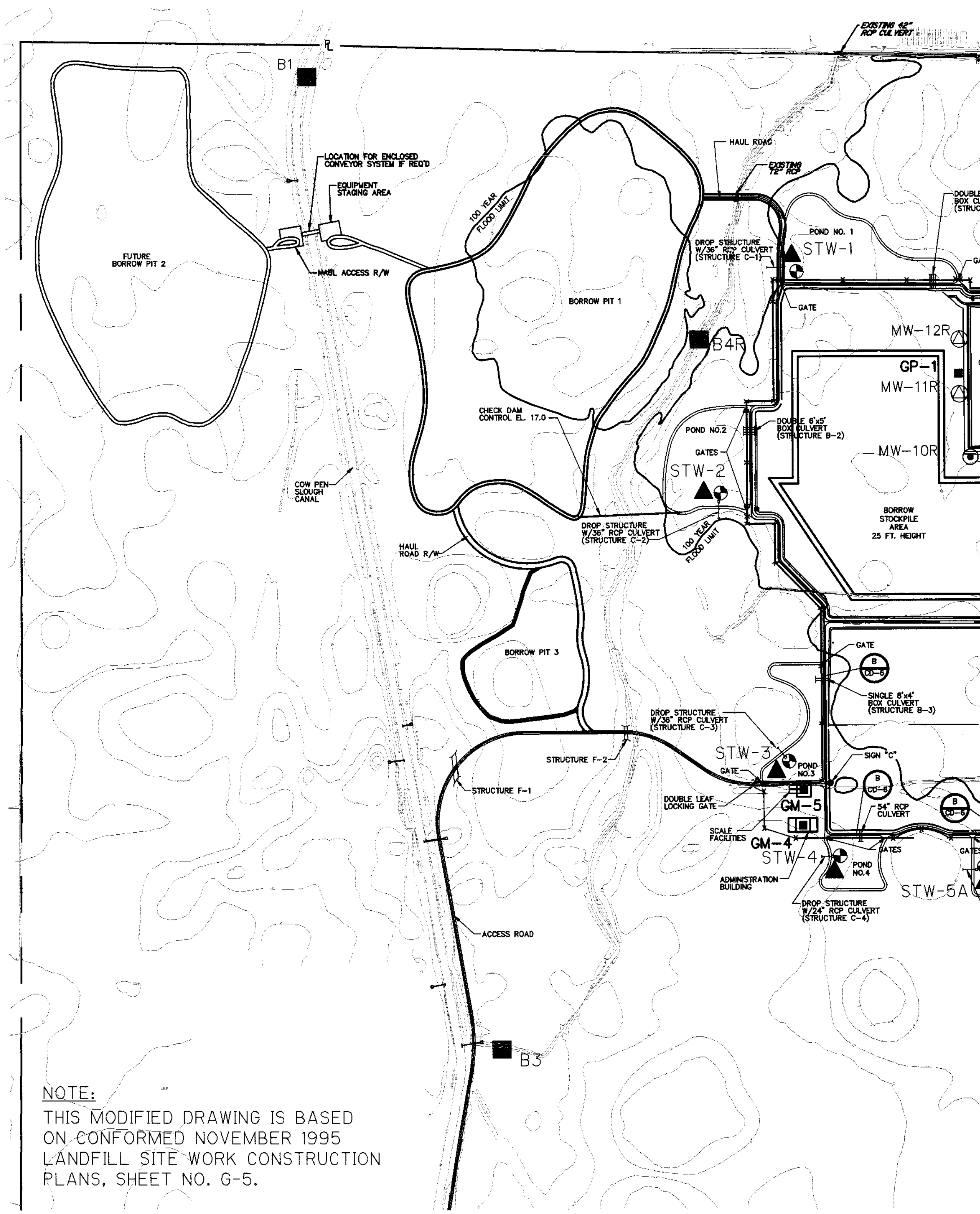
ATTACHMENT L-3

FIGURES AND OPERATION DRAWINGS

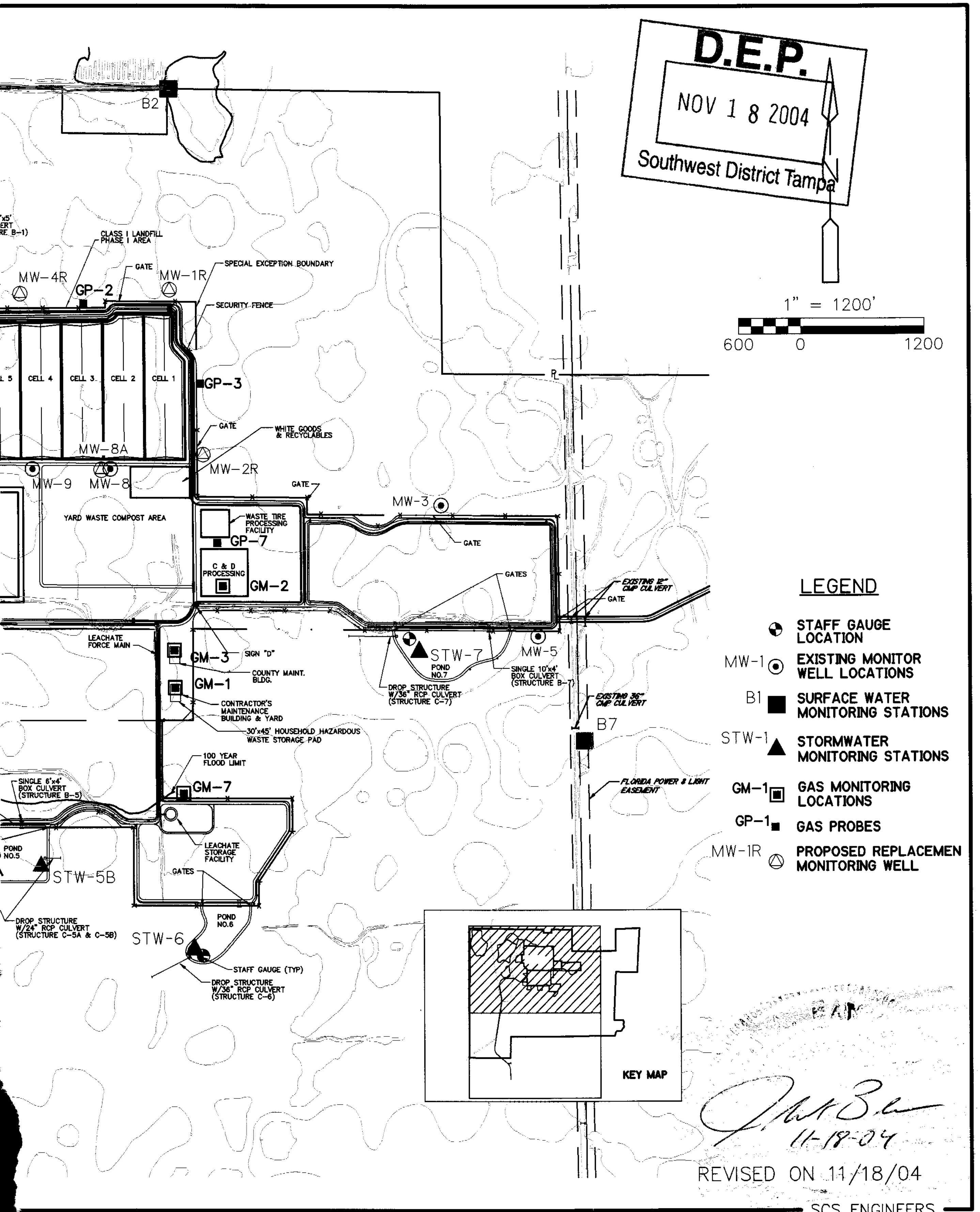
3-31-04



NOTE:
THIS MODIFIED DRAWING IS BASED ON CONFORMED NOVEMBER 1995 LANDFILL SITE WORK CONSTRUCTION PLANS, SHEET NO. G-5.

G:\PROJECT\Sarasota\09201010.01\figureL-1b.dwg Nov 17, 2004 - 4:37pm Layout Name: Layout1 By: 2378sda

Figure L–1. Site Plan, Central County Solid Wast



...isposal Complex, Sarasota County, Florida.

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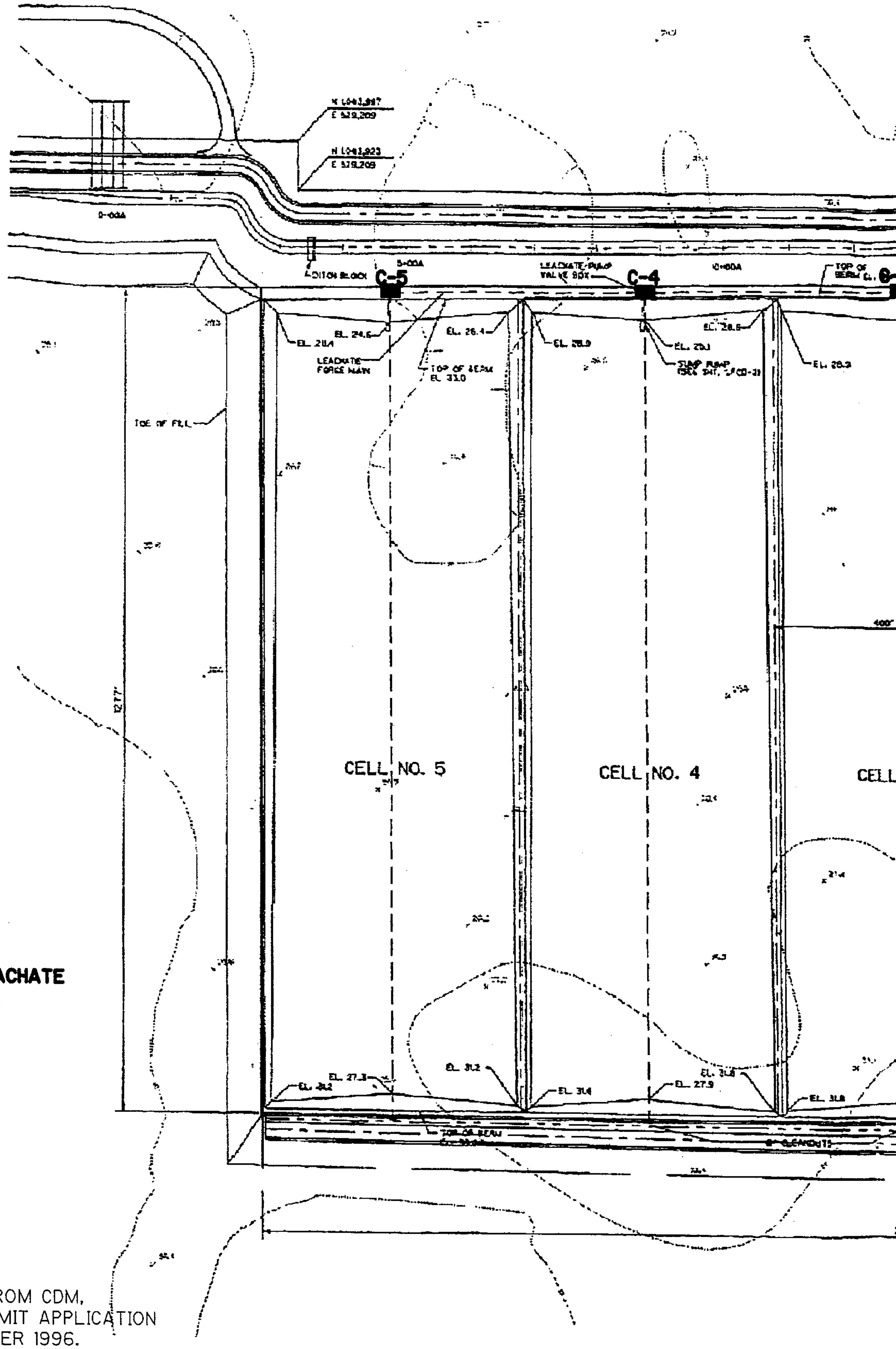


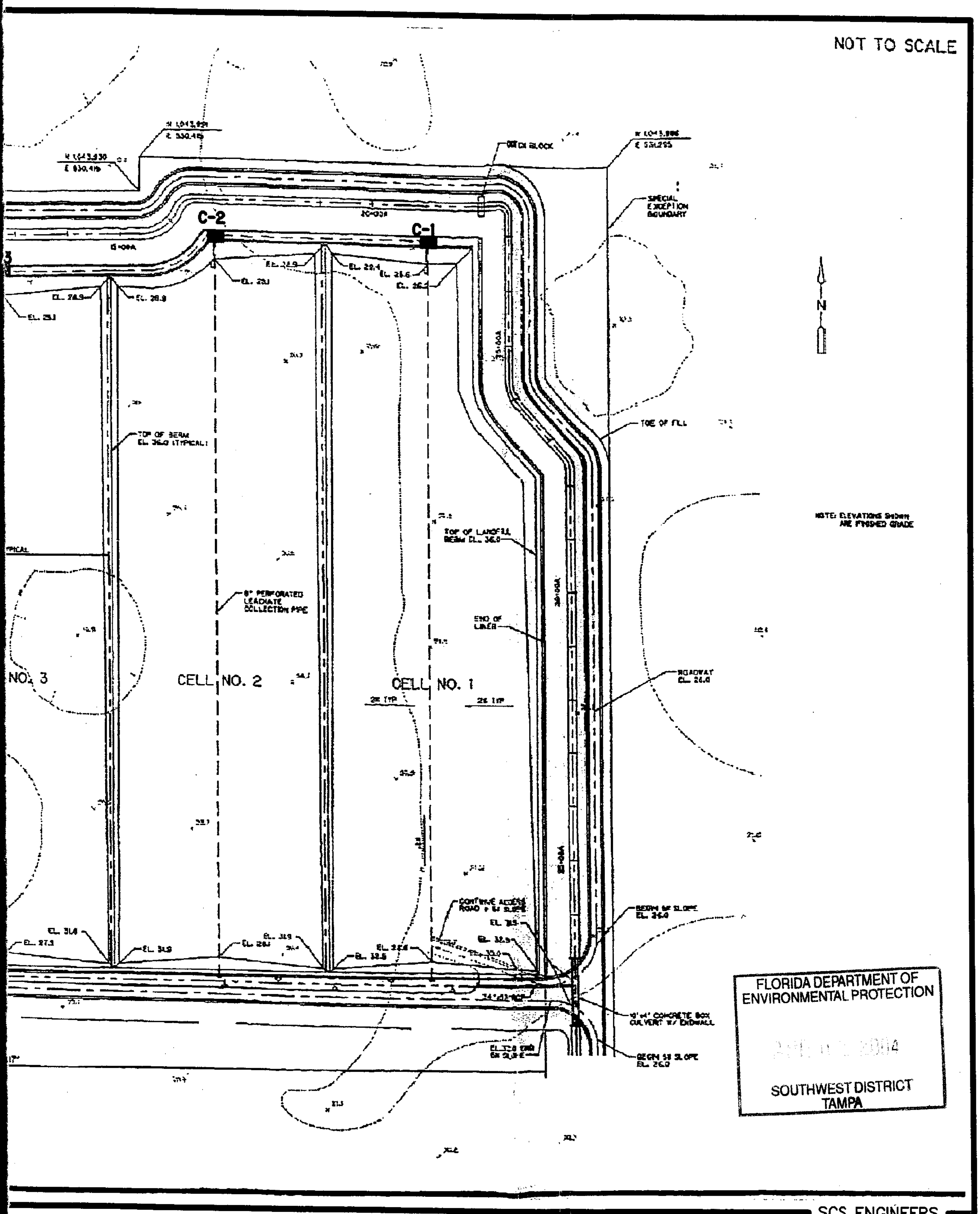
LEGEND

C-1 LOCATION OF LEACHATE PUMP VALVE BOX

NOTE:

SOURCE: MODIFIED FROM CDM, 1996 OPERATION PERMIT APPLICATION SHEET NO. 1. DECEMBER 1996.

Figure L–1A. Site Plan Showing Leachate Pump



/alve Boxs, Central County Solid Waste Disposal Complex, Sarasota County, Florida.

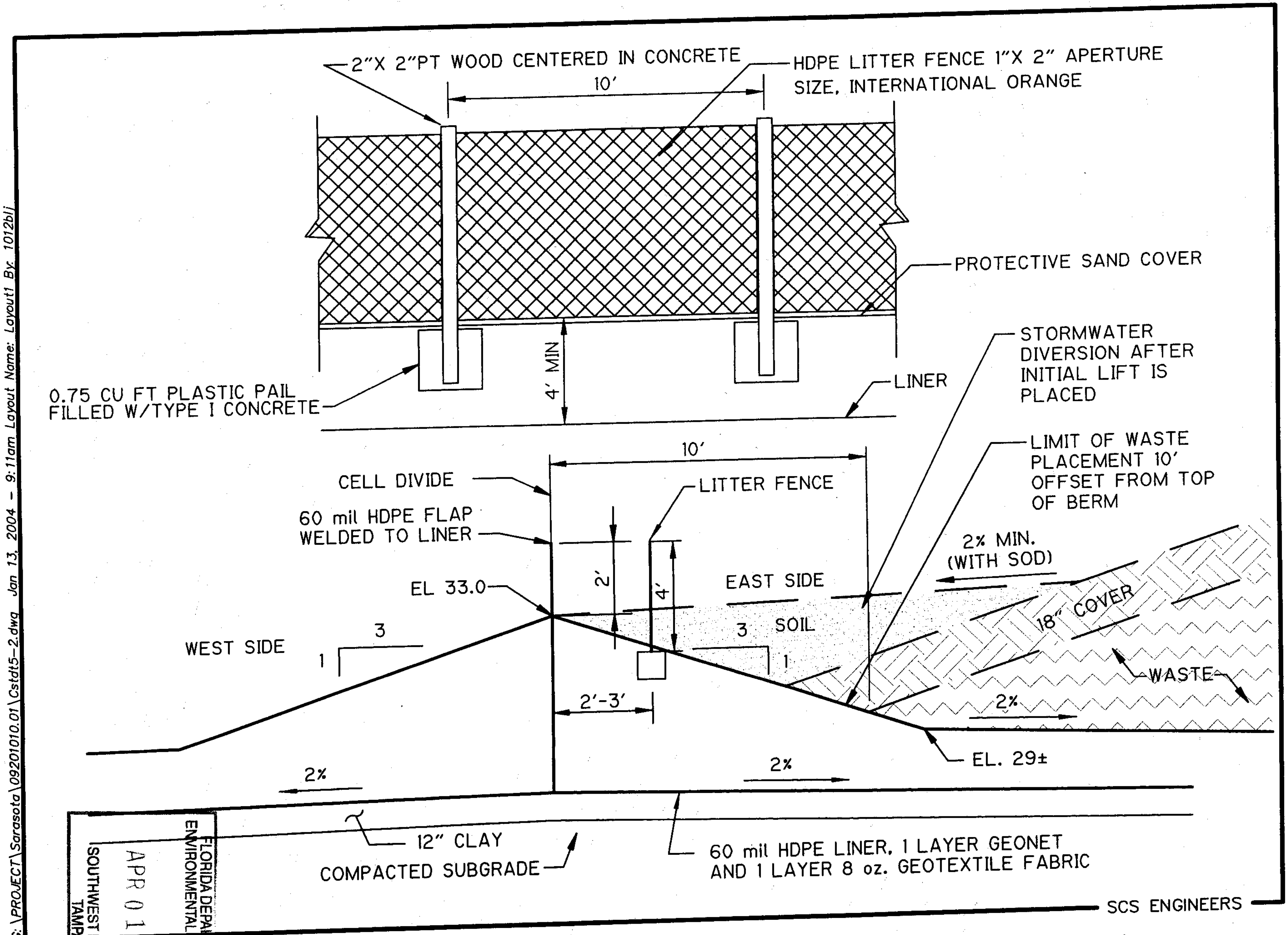


Figure L-2. Litter Fence Detail and Typical Interior Berm Low End, Central County Solid Waste Disposal Complex, Sarasota County, Florida.

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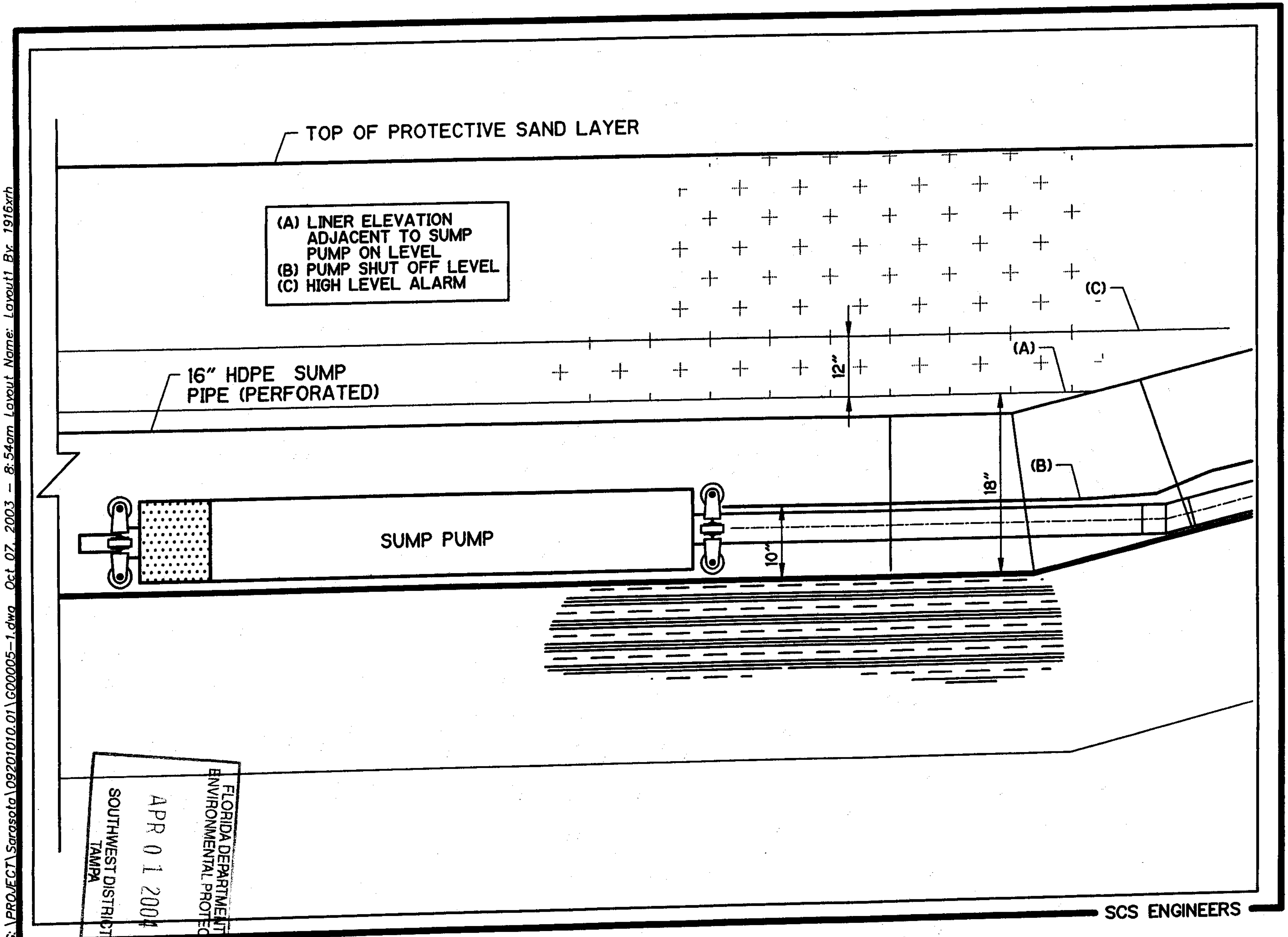

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Figure L-3. Operating Levels, Central County Solid Waste Complex, Sarasota County, Florida.

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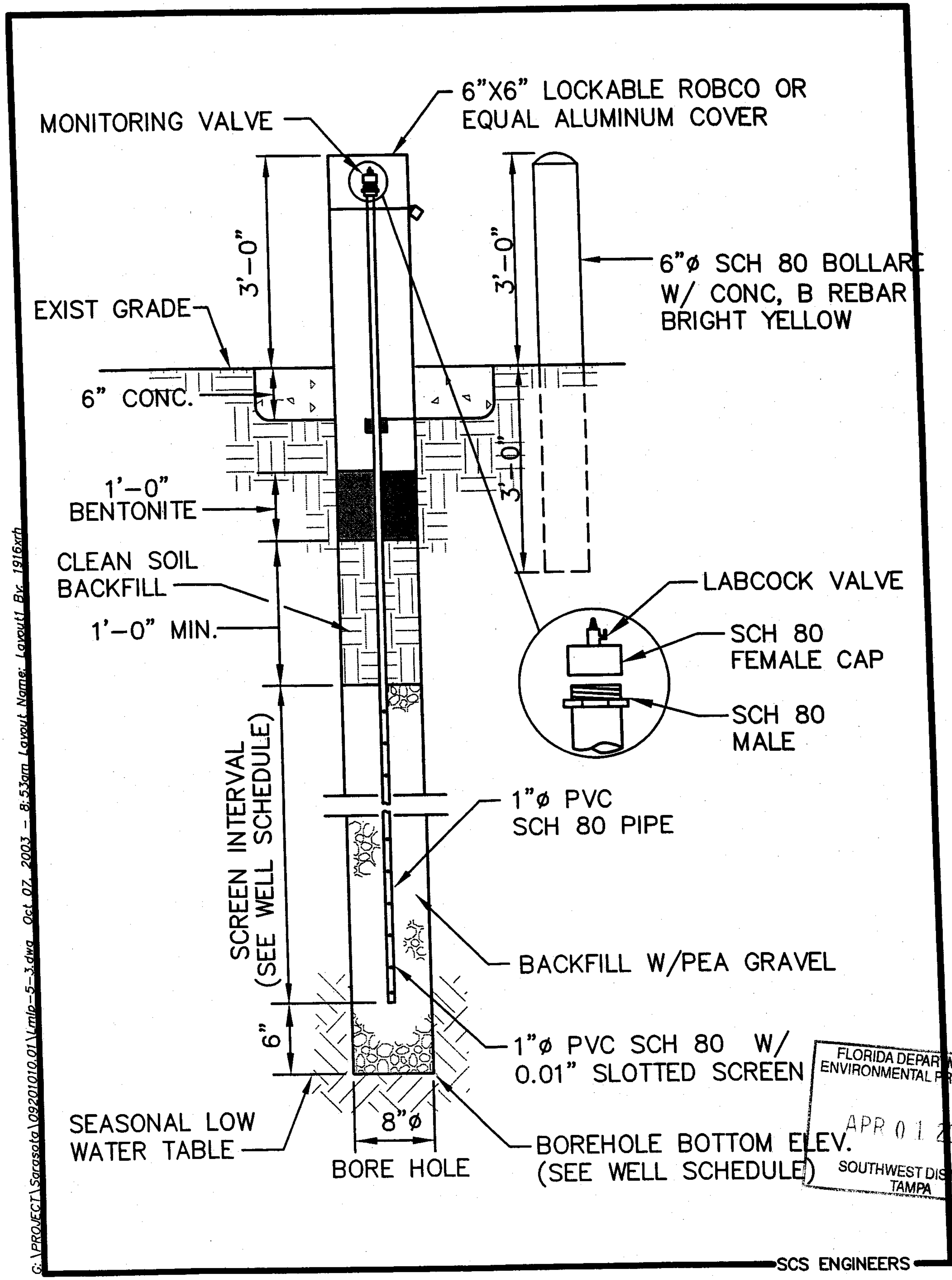

Figure L–4. LFG Monitor Probe, Central County Solid Waste Disposal Complex, Sarasota County, Florida.

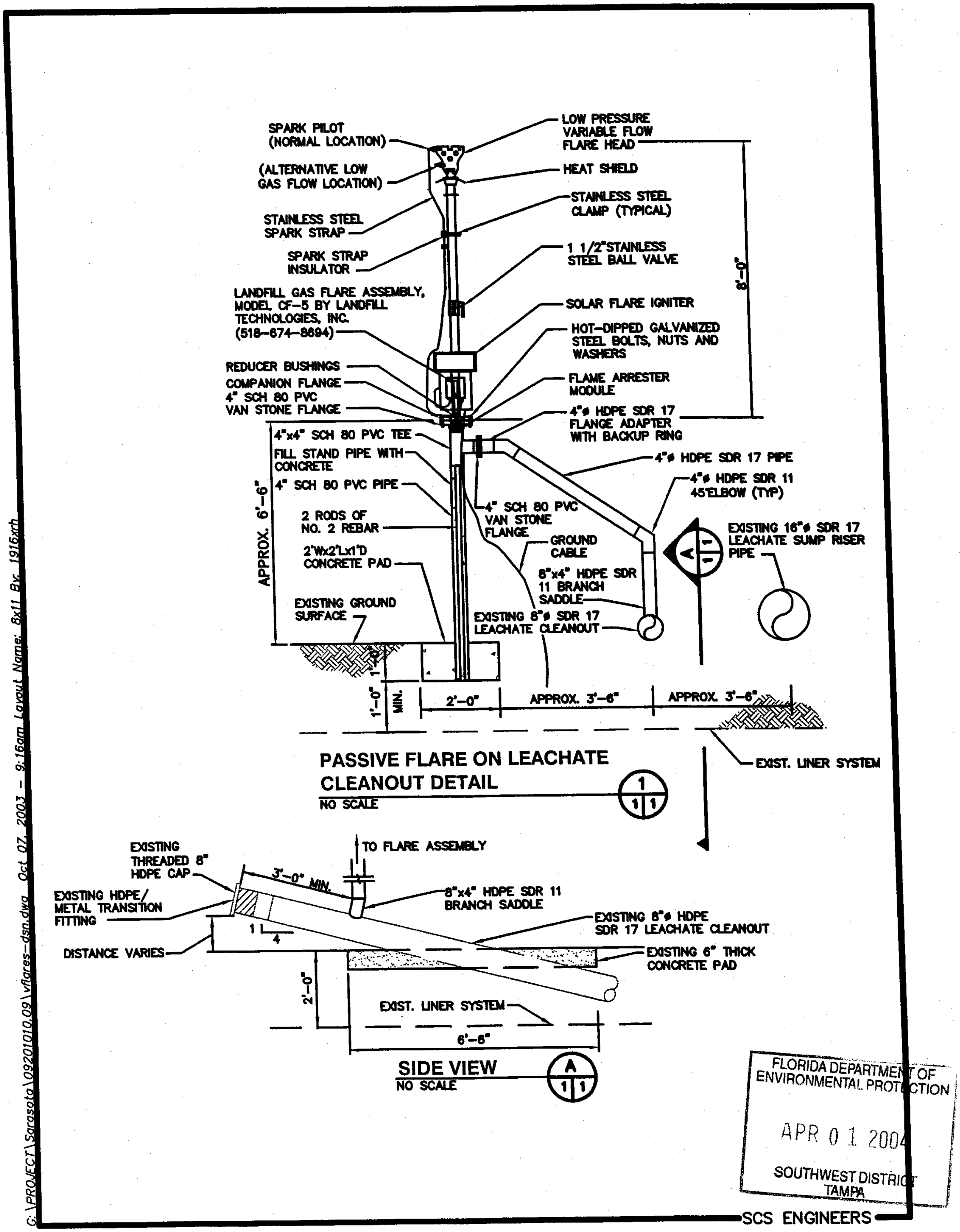

Figure L-5. Passive Vent Installation at LCRS Cleanouts, CCSWDC

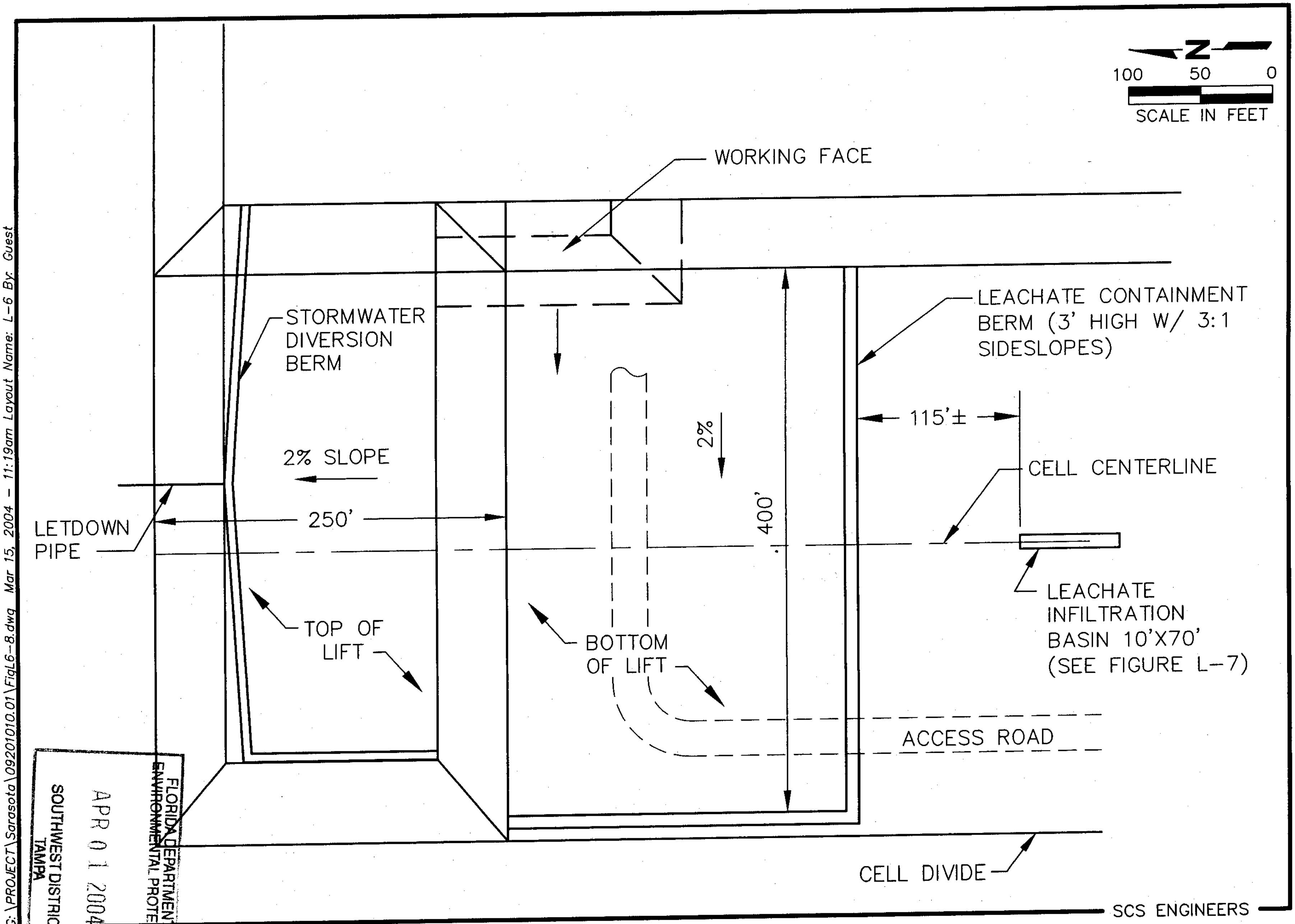

Figure L-6. Typical Active Working Area.

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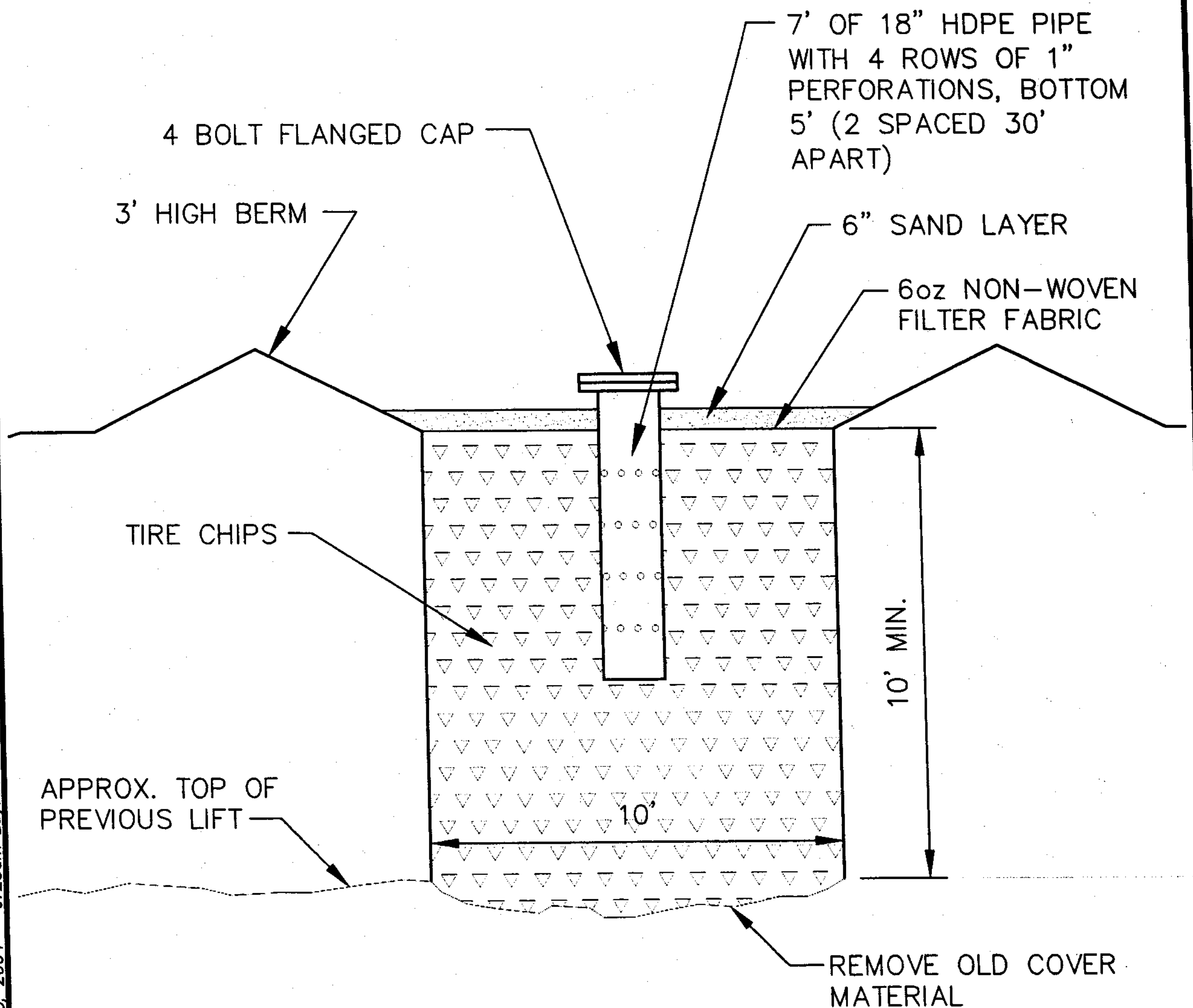

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Figure L-7. Leachate Infiltration Basin Detail.

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DRAWING INDEX

DRAWING NO.		DRAWING TITLE
1	–	PHASE I AREA LAYOUT
2	–	LANDFILL BUILDOUT PLAN
3	–	TYPICAL LIFT DEVELOPMENT
4	–	OVERALL SITE PHASING PLAN
5	–	NOT USED
6	–	FILL SEQUENCING PLAN
7	–	FILL SEQUENCING PLAN
8	–	FILL SEQUENCING PLAN
9	–	FILL SEQUENCING PLAN
10	–	FILL SEQUENCING PLAN
11	–	FILL SEQUENCING PLAN
12	–	FILL SEQUENCING SECTIONS
13	–	A, B, AND C FILL SEQUENCING SECTIONS
14	–	LINER PROFILE AND COLLECTION PIPE DETAILS
15	–	SUMP DETAILS AND SECTIONS
16	–	CLOSURE AND DRAINAGE DETAILS
17	–	ROADWAY SIGNAGE DETAILS

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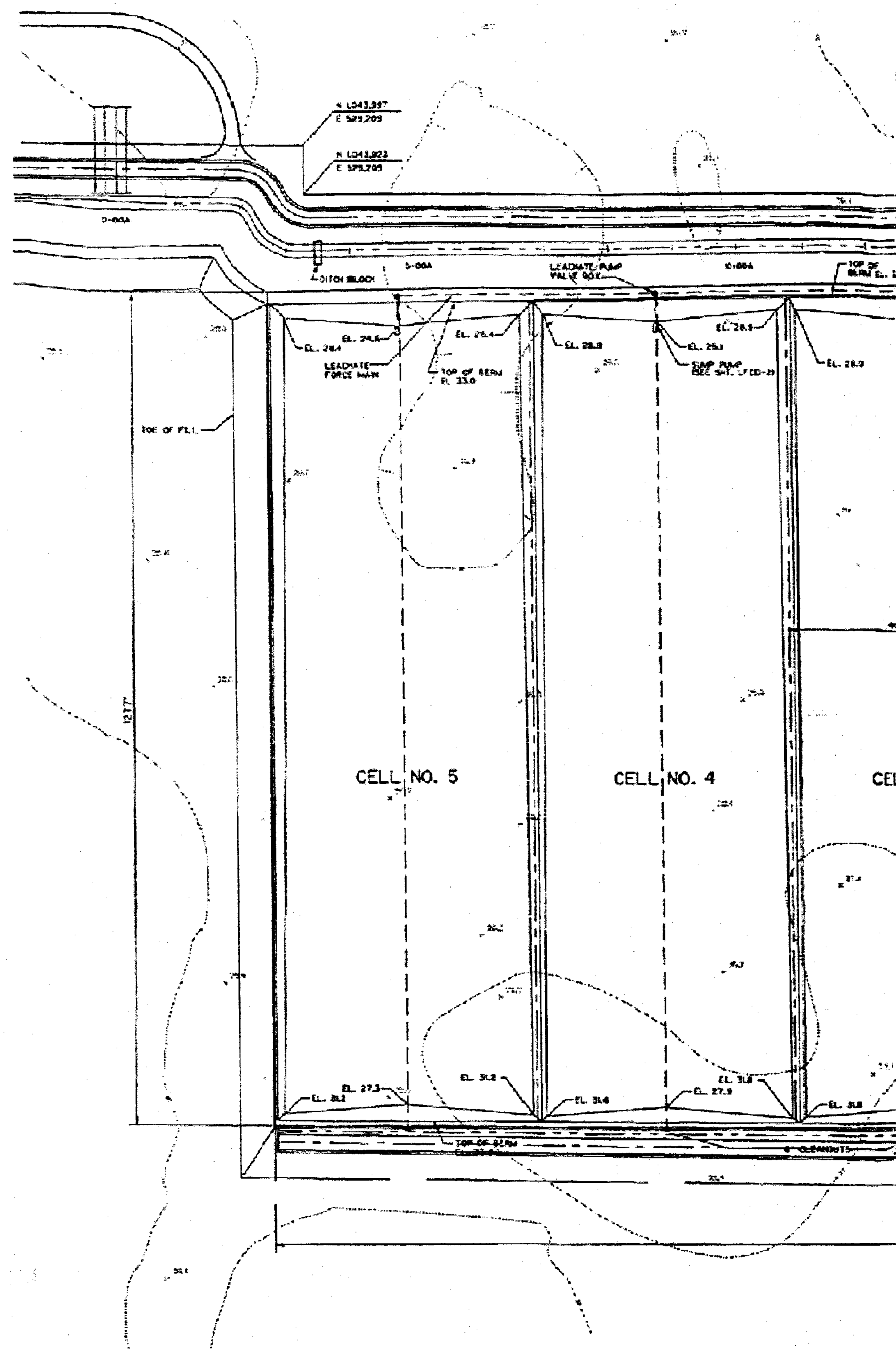

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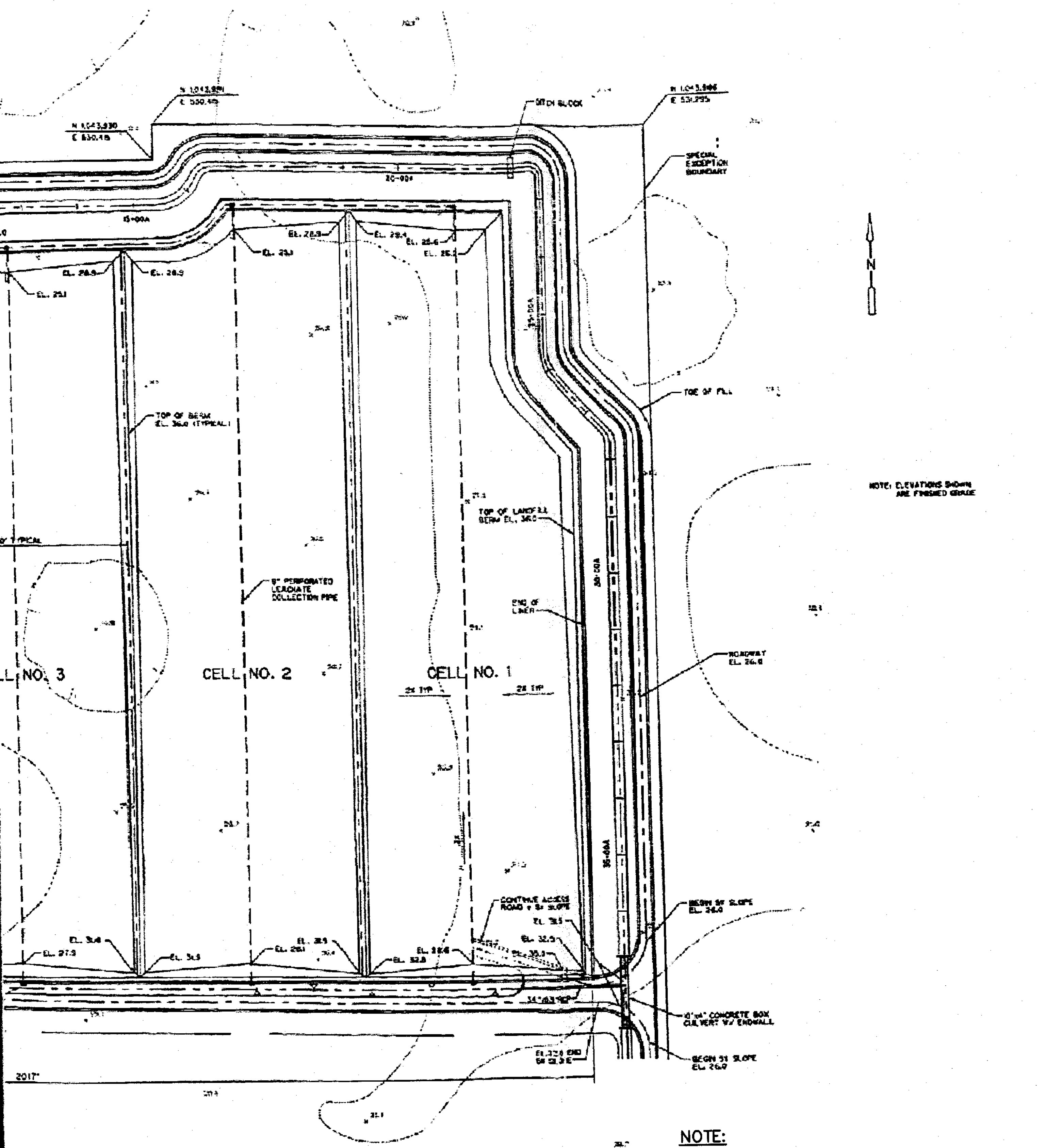

NOTE:

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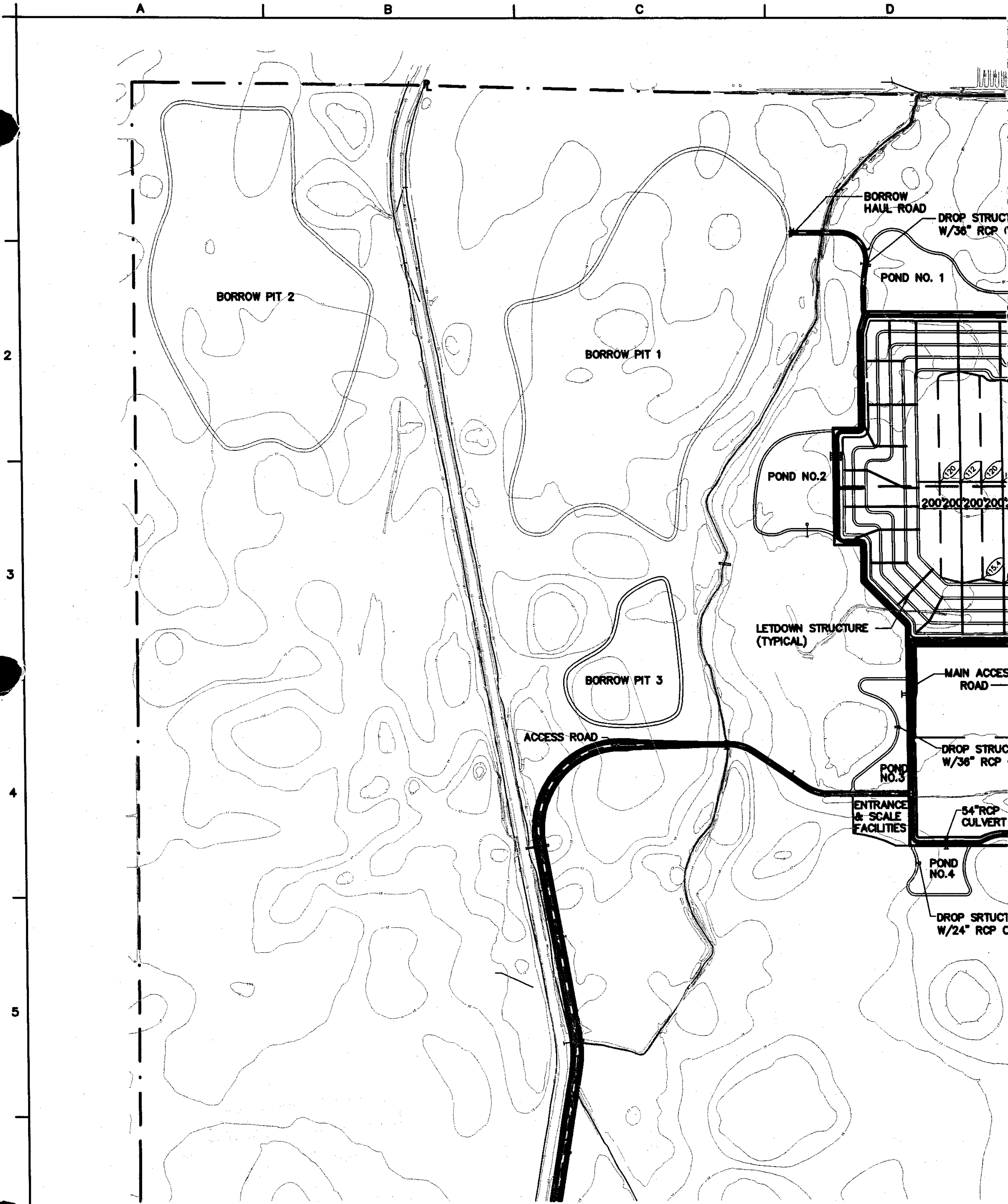
		Checked By:	JAB		Date: JULY 2002	
		Drawn By:	GRD III			



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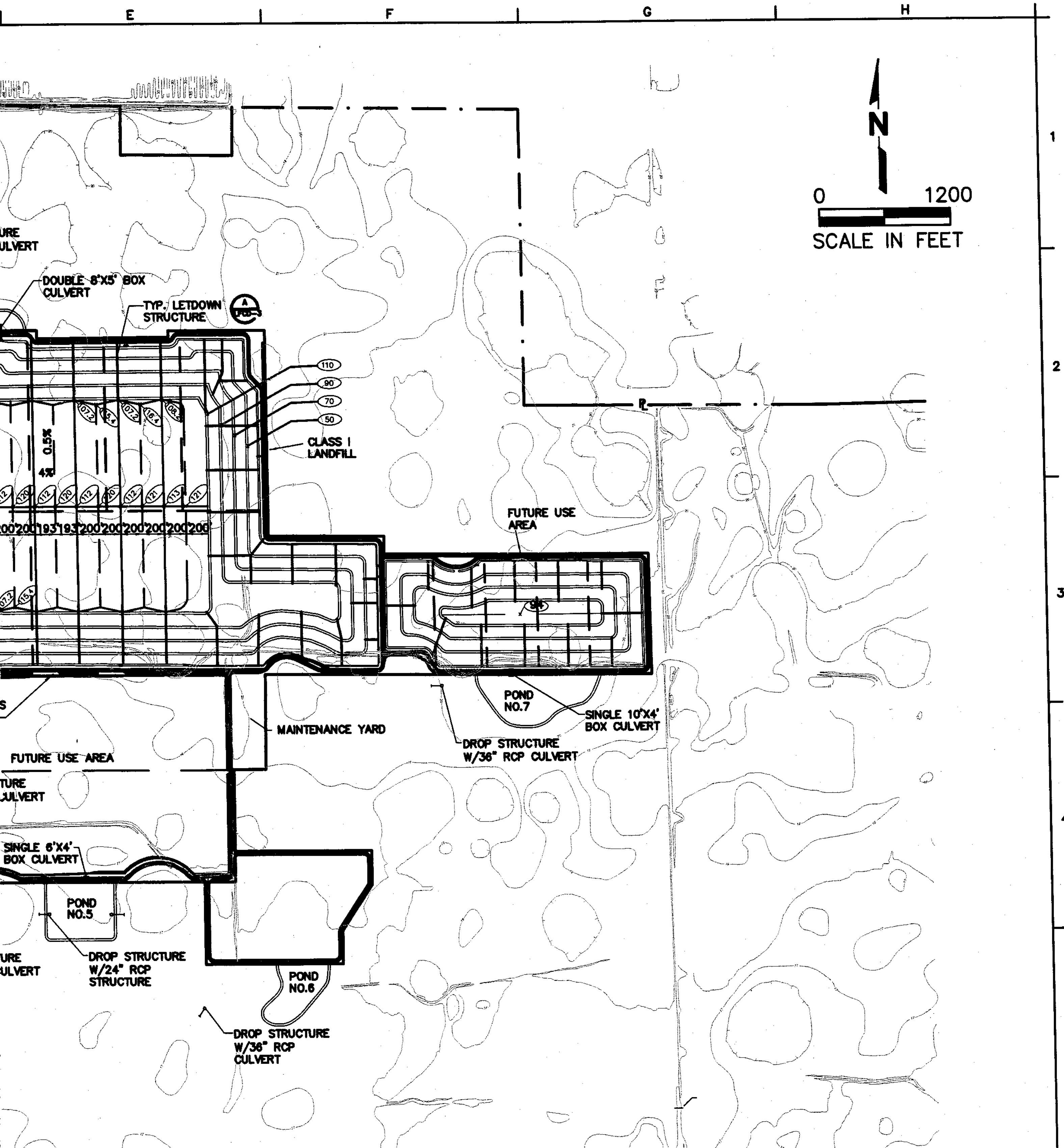

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		Checked By: JAB		
		Drawn By: GRD III		

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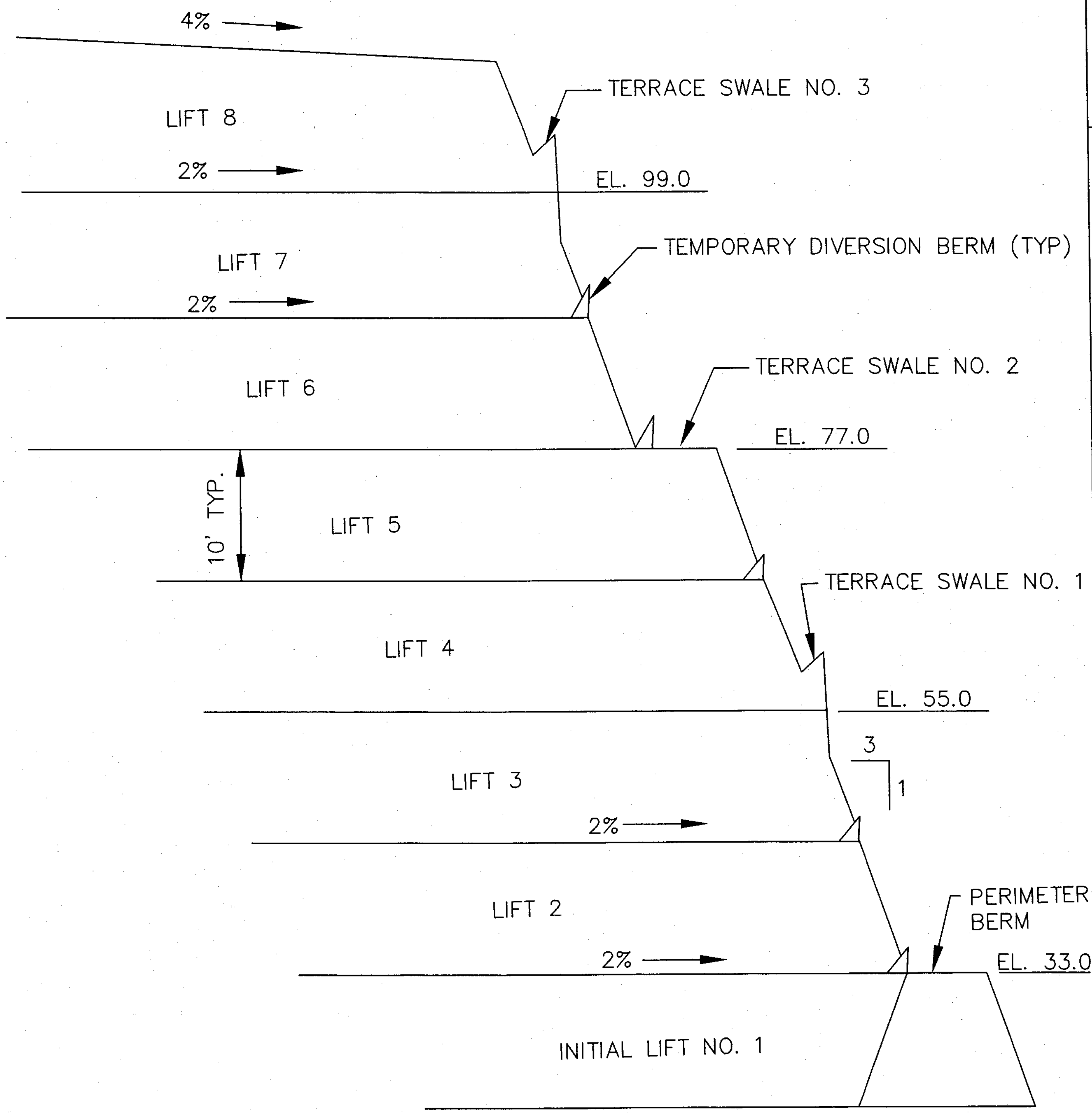

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REVISED ON 10/06/03

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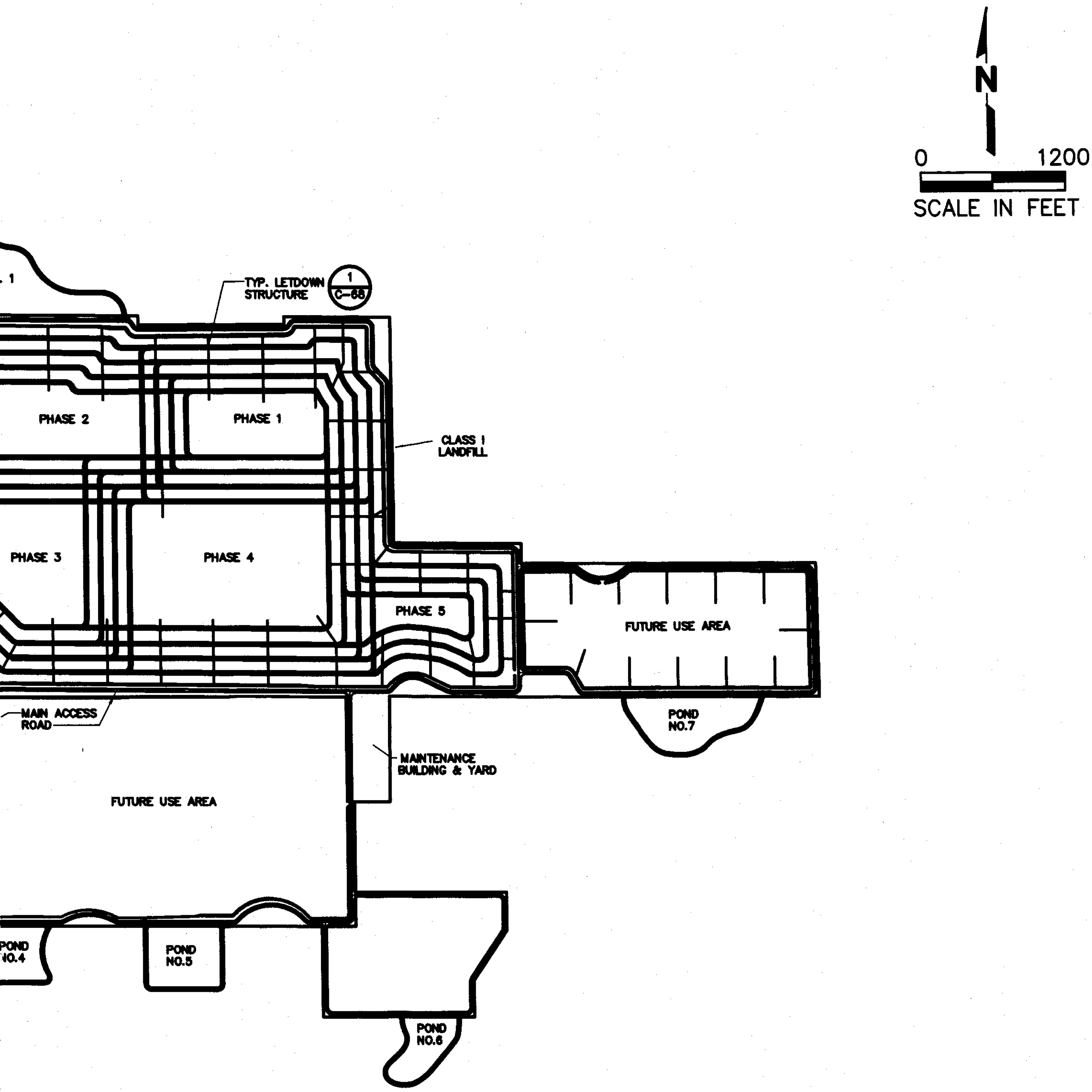

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NOTE:

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ite	By	Approved By:	RBG
		Checked By:	JAB
		Drawn By:	GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA

FACILITIES PHASING PLAN

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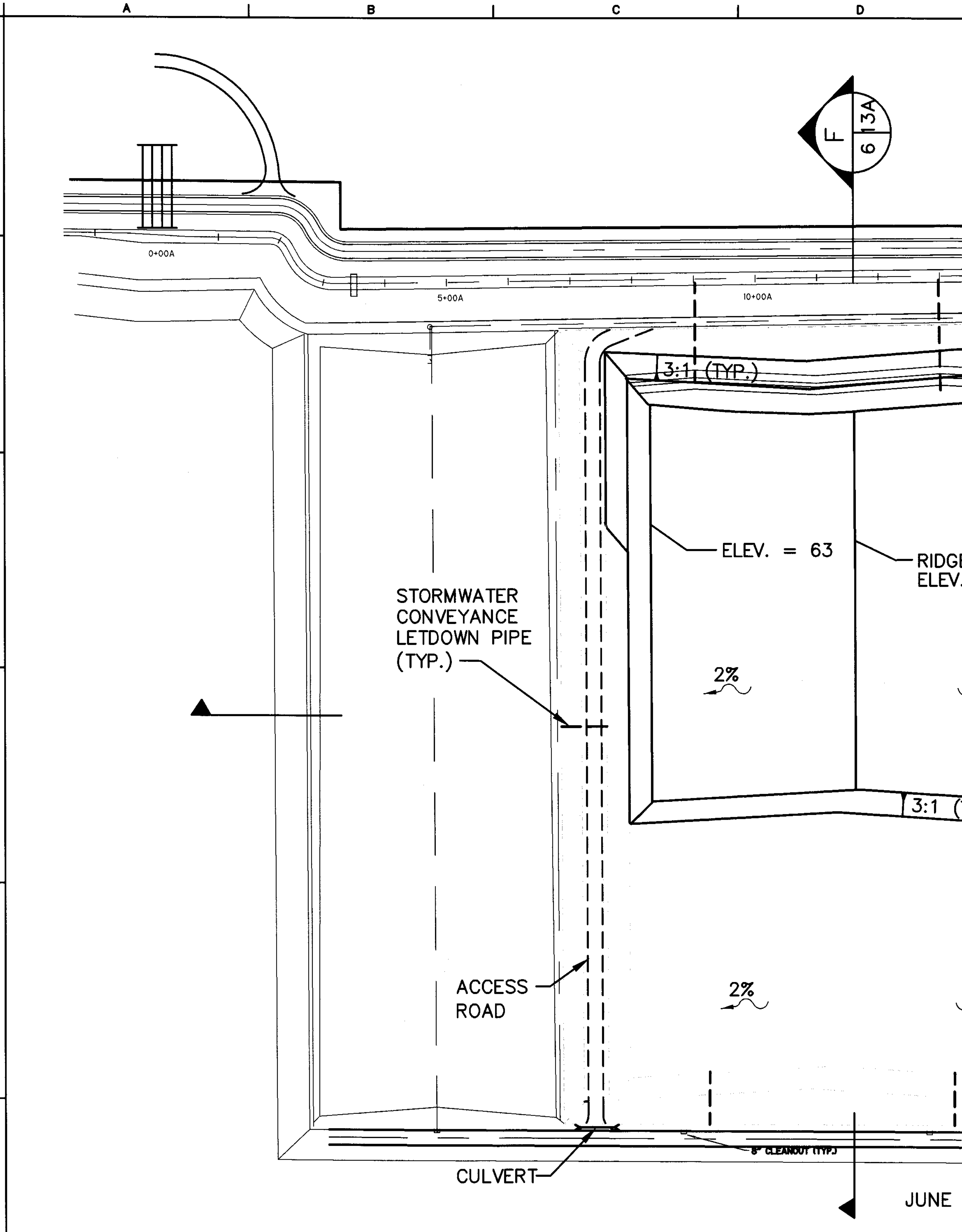

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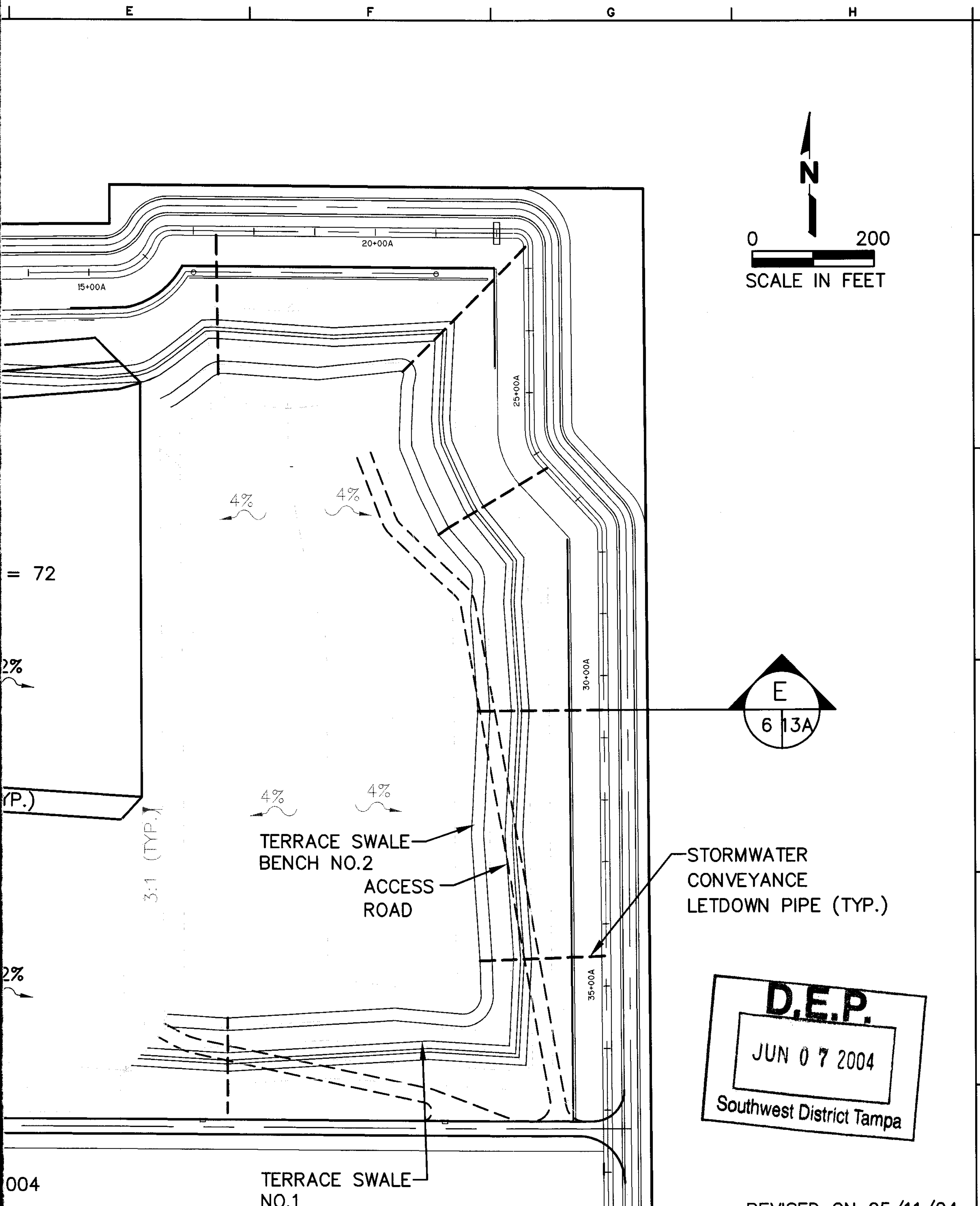

REVISED ON 05/11/04

Approved By: RBG
Checked By: JAB
Drawn By: GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

Drawing No. 09201041.00\PHASES.dwg

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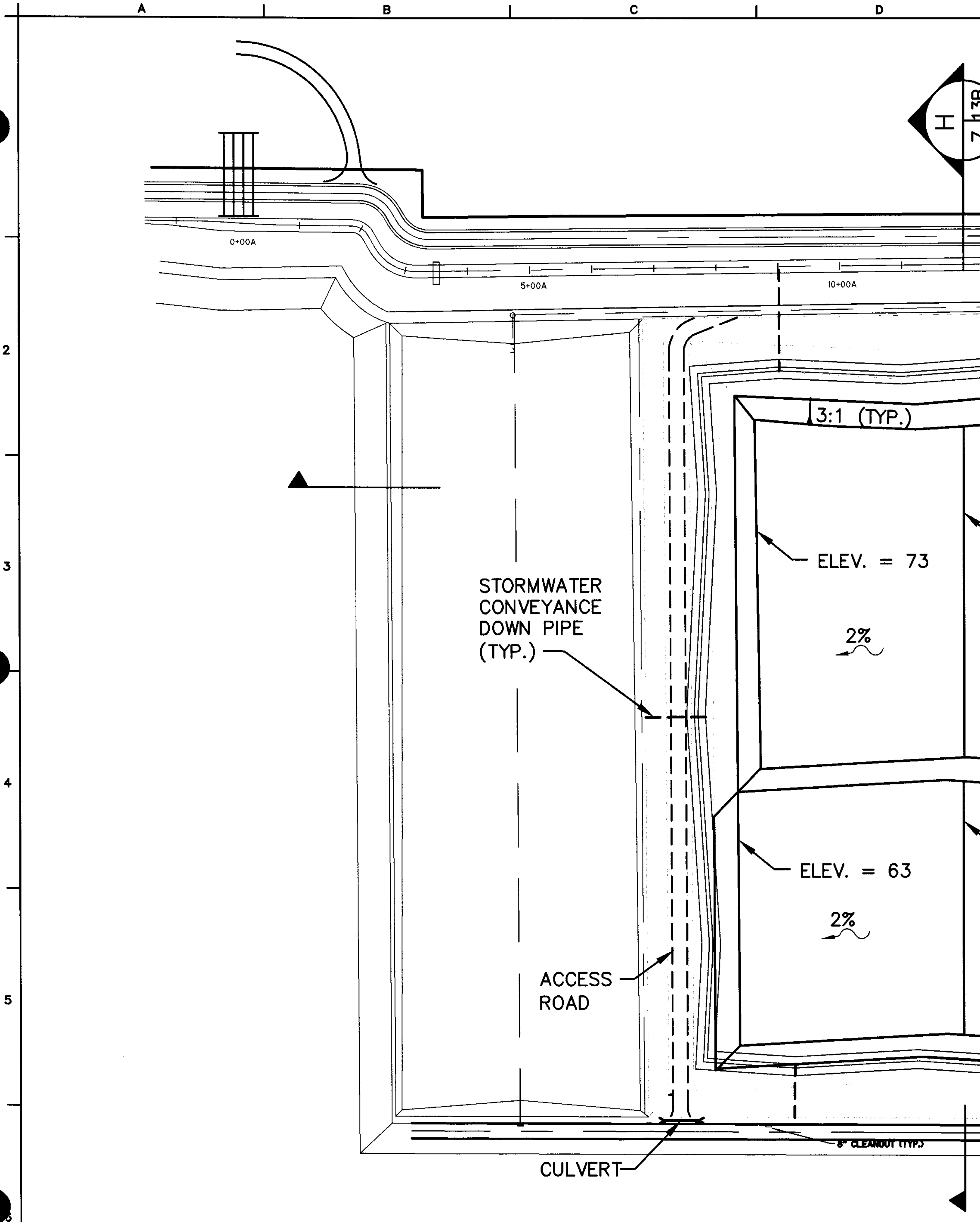
Date: JULY 2002
Sheet Number: 6



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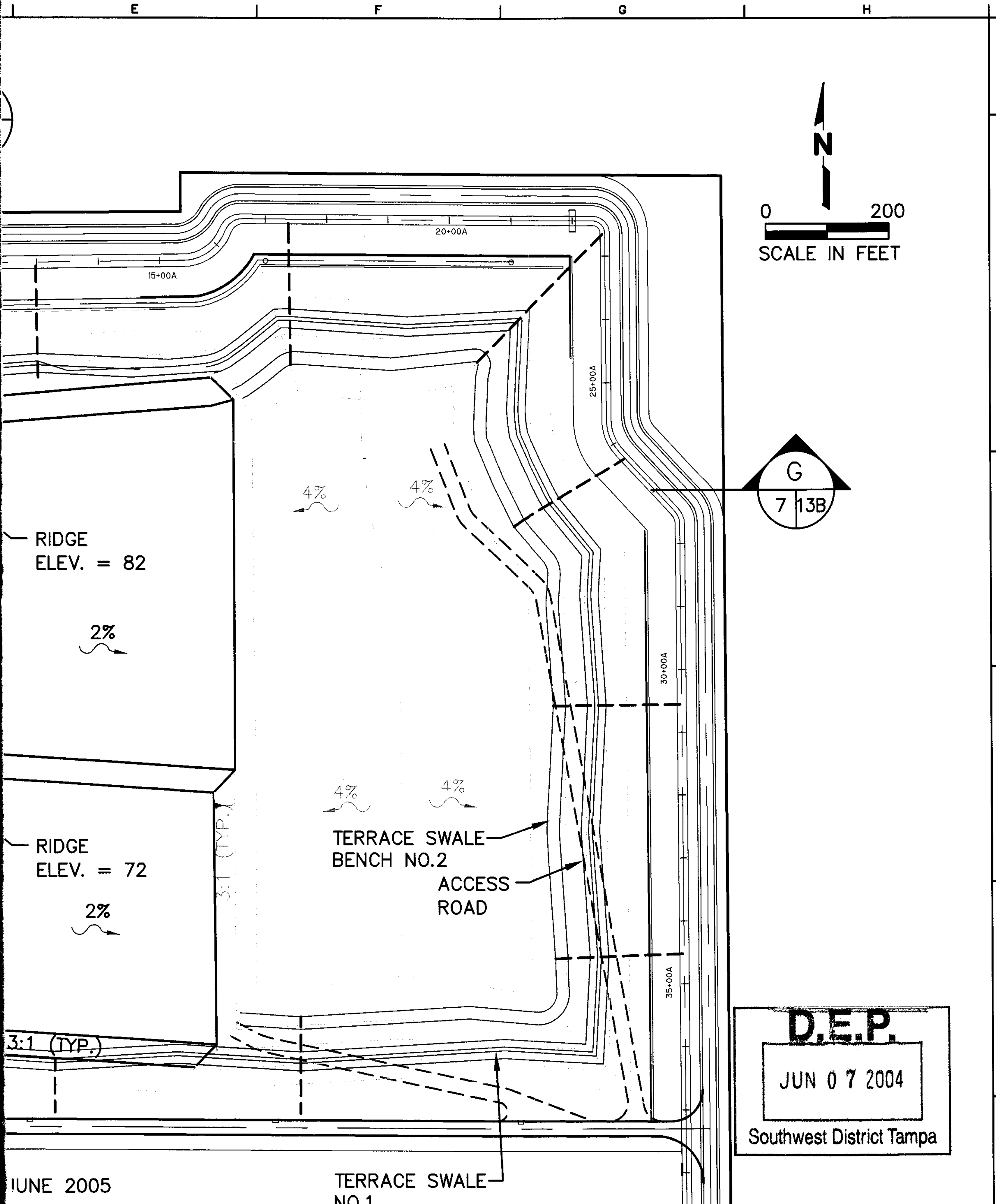

D.E.P.
JUN 0 7 2004
Southwest District Tampa

REVISED ON 05/11/04

Date	By	Approved By:	RBG	Project Location: CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA		Drawing No. 09201041.00\PHASES.dwg	
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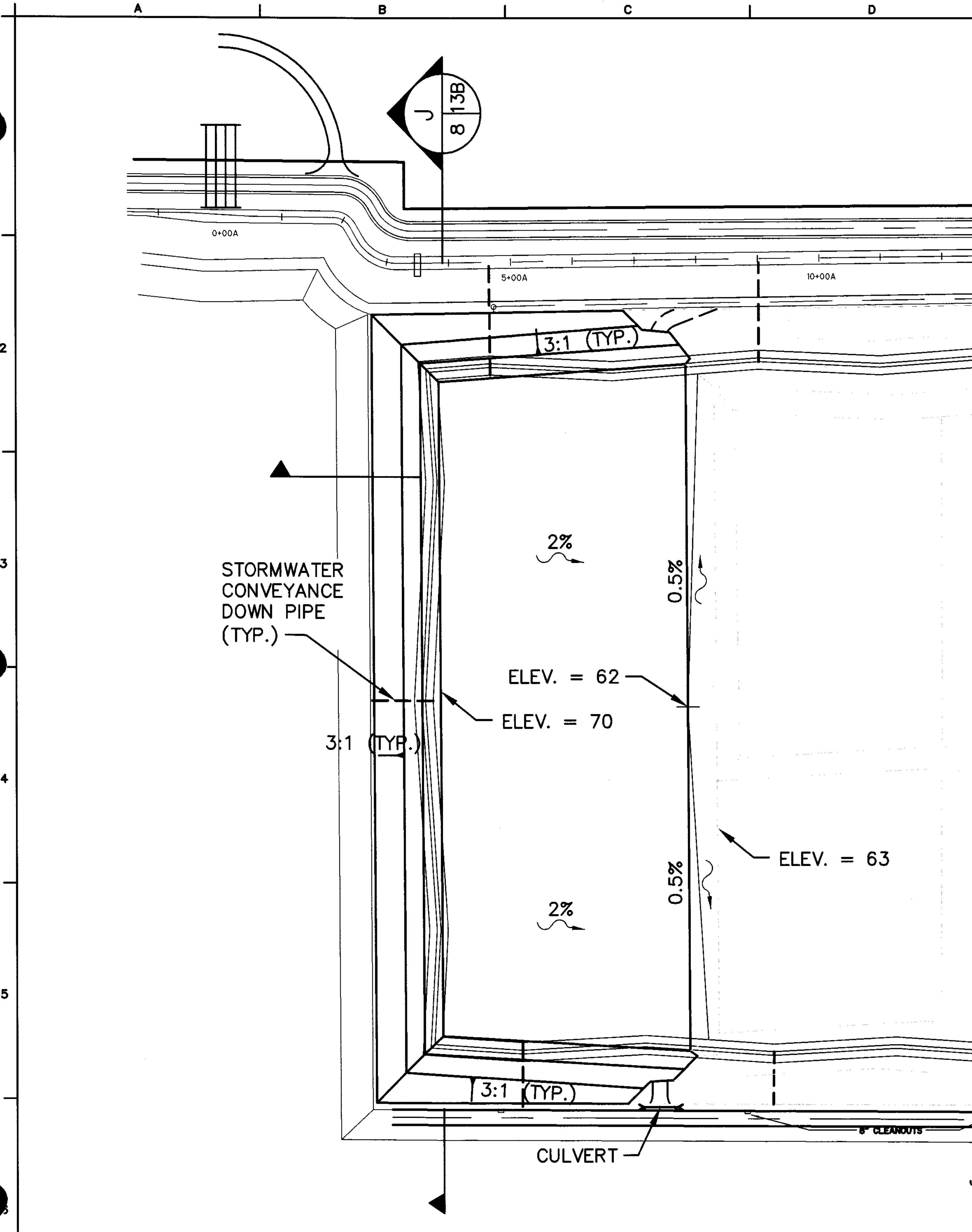
		Drawn By:	GRD III			Date: JULY 2002	



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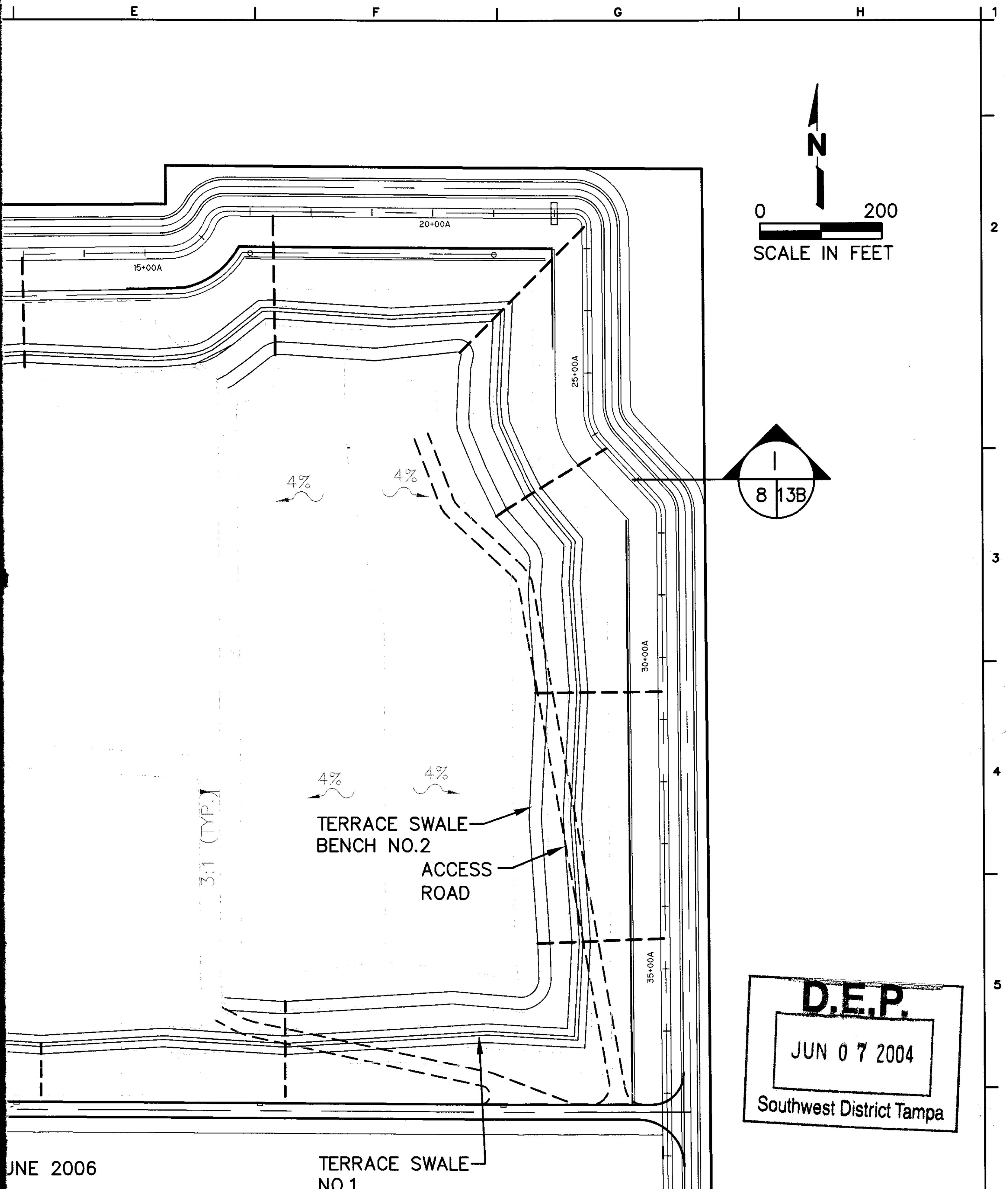
No.	Description	Date	By	No.	Description



REVISED ON 05/11/04

Date	By	Approved By: RBG	Project Location: CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA	Drawing No. 09201041.00\PHASES.dwg	
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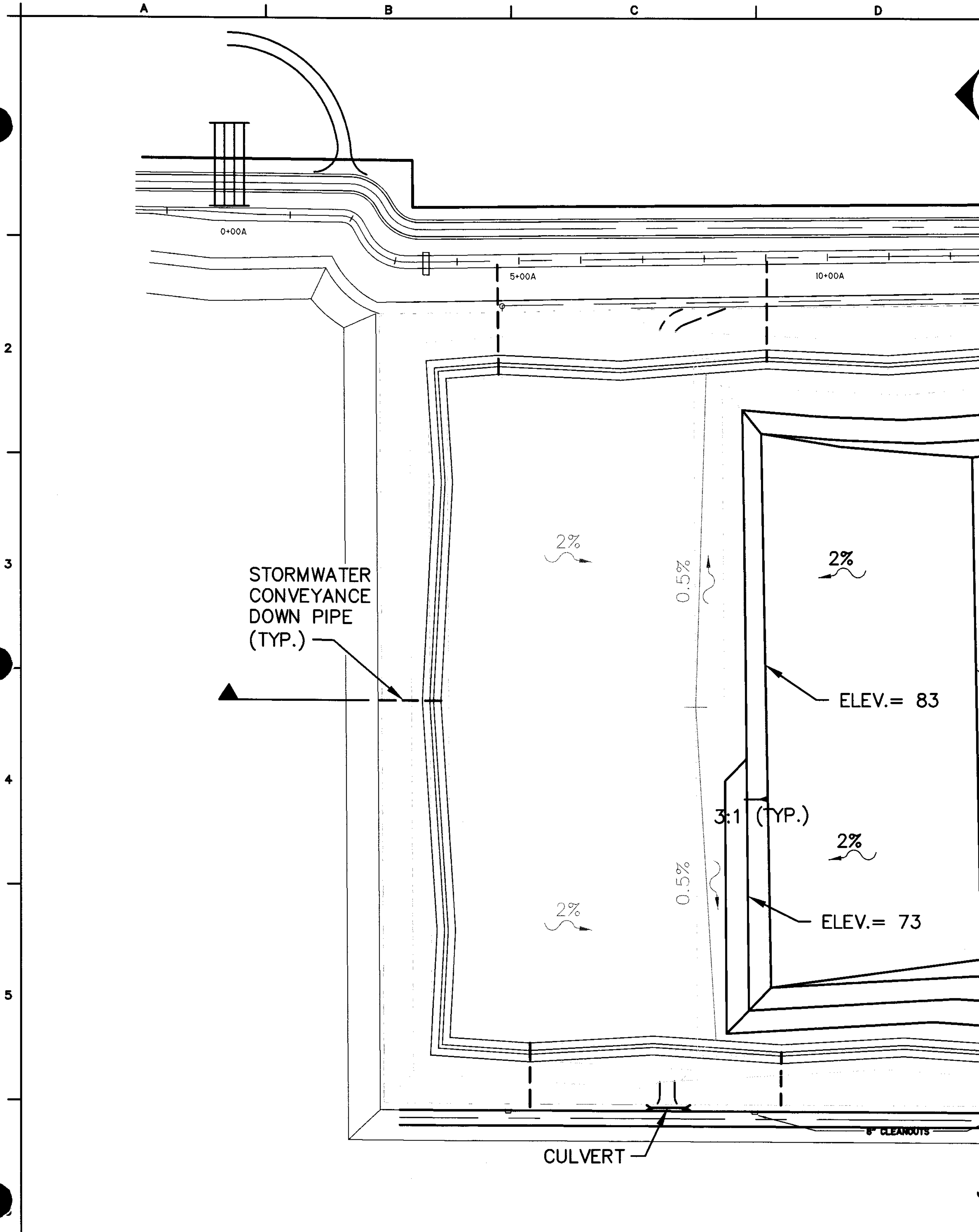
		Drawn By: GRD III		Date: JULY 2002	



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No.	Description	Date	By	No.	Description

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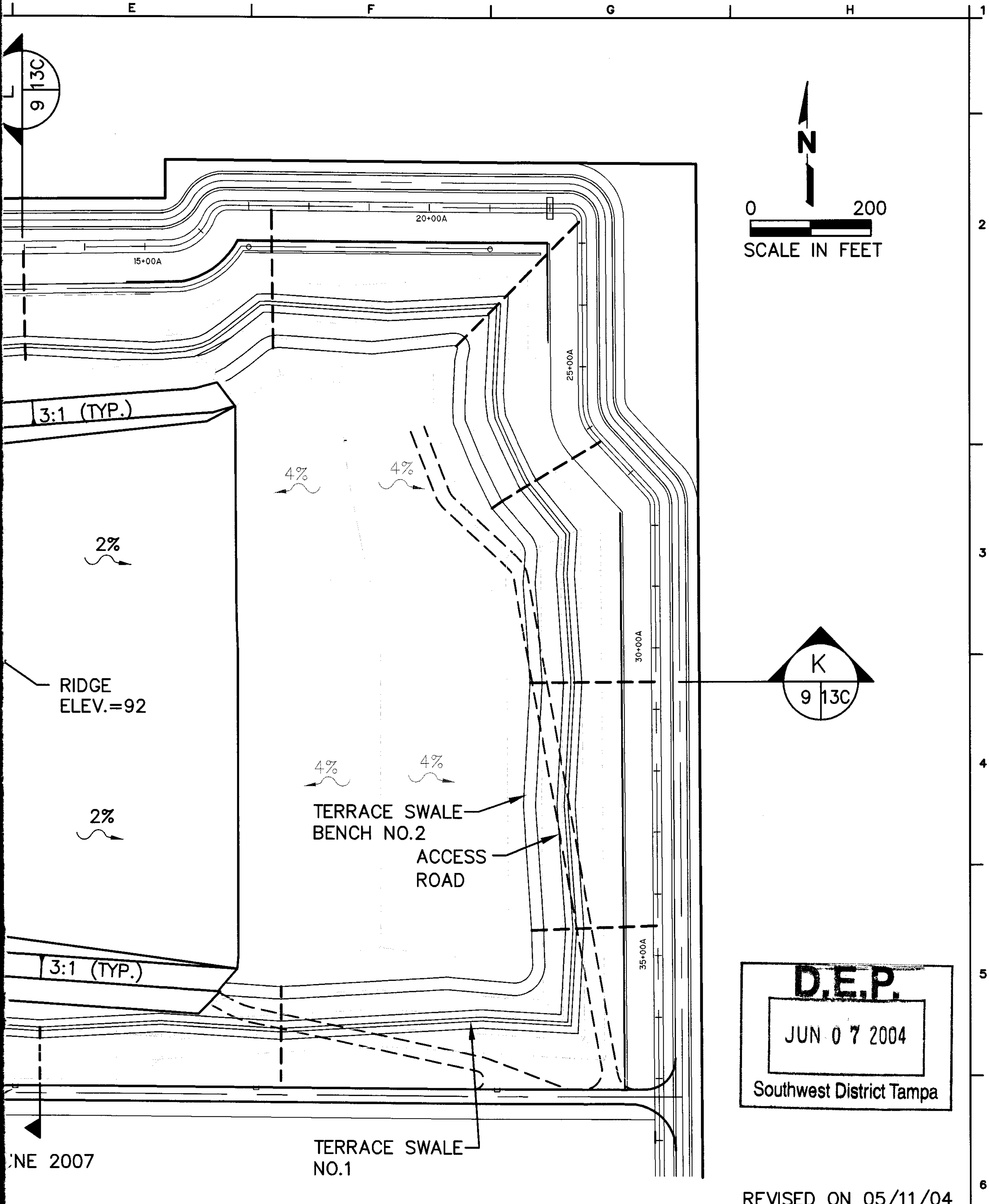
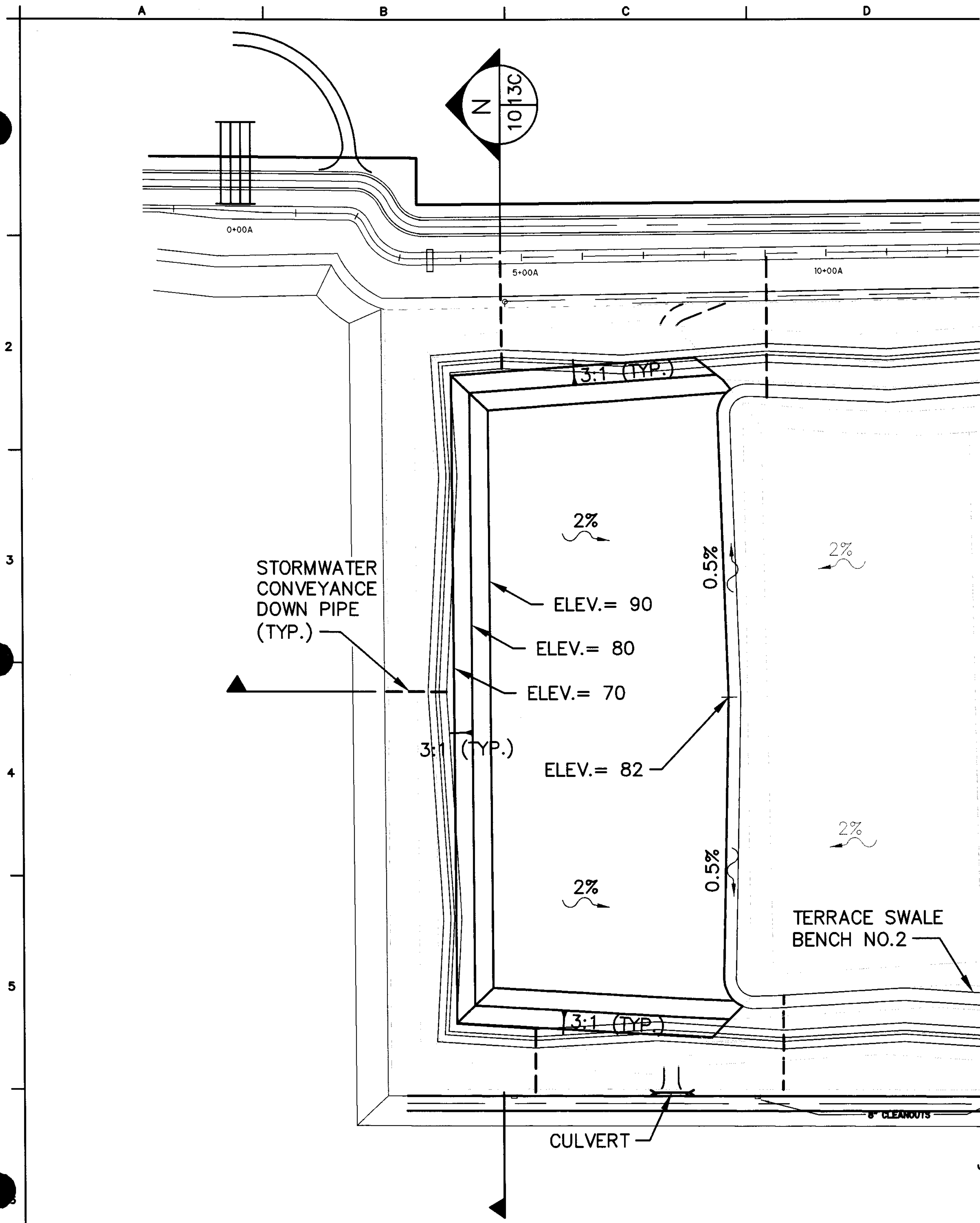


REVISED ON 05/11/04

Approved By: RBG	Project Location: CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA		Drawing No. 09201041.00\PHASES.dwg
Checked By: JAB		Scale: As Shown	Sheet Number: 9
Drawn By: GRD III		Date: JULY 2002	



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No.	Description	Date	By	No.	Description	D

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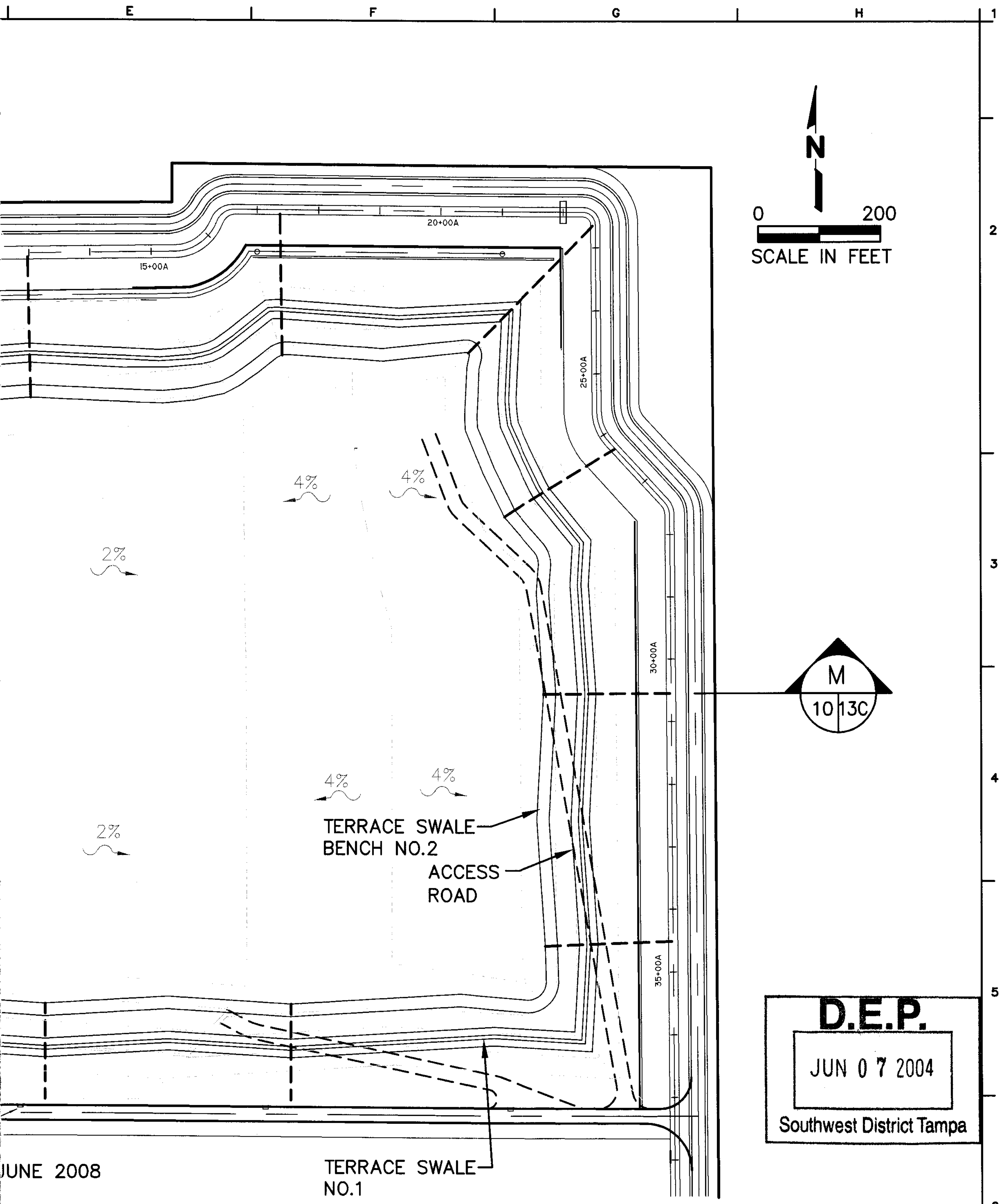

D.E.P.

JUN 07 2004

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Approved By: RBG	Project Location: CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA		Drawing No. 09201041.00\PHASES.dwg	
Checked By: JAB		Scale:	As Shown	Sheet Number: 10
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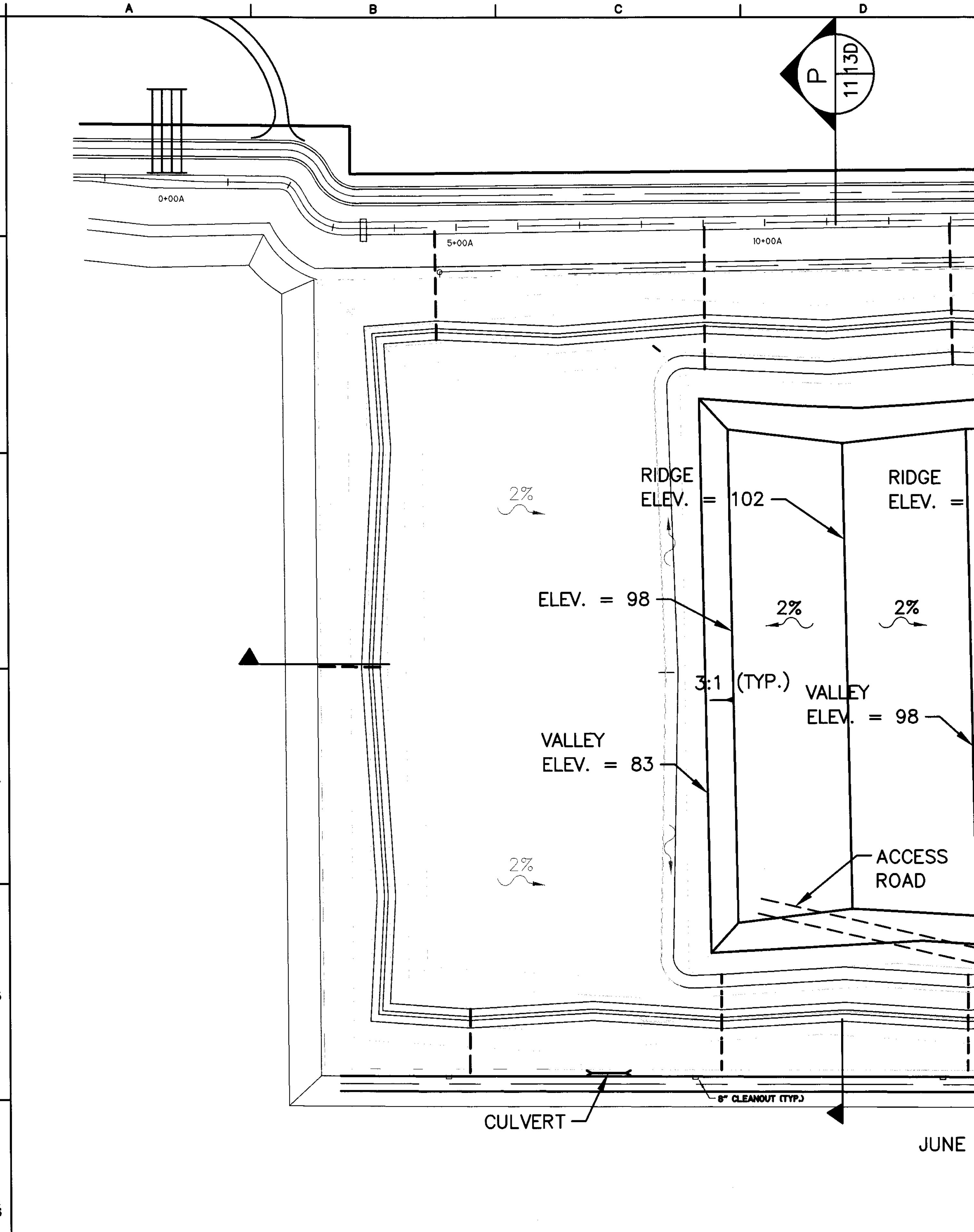

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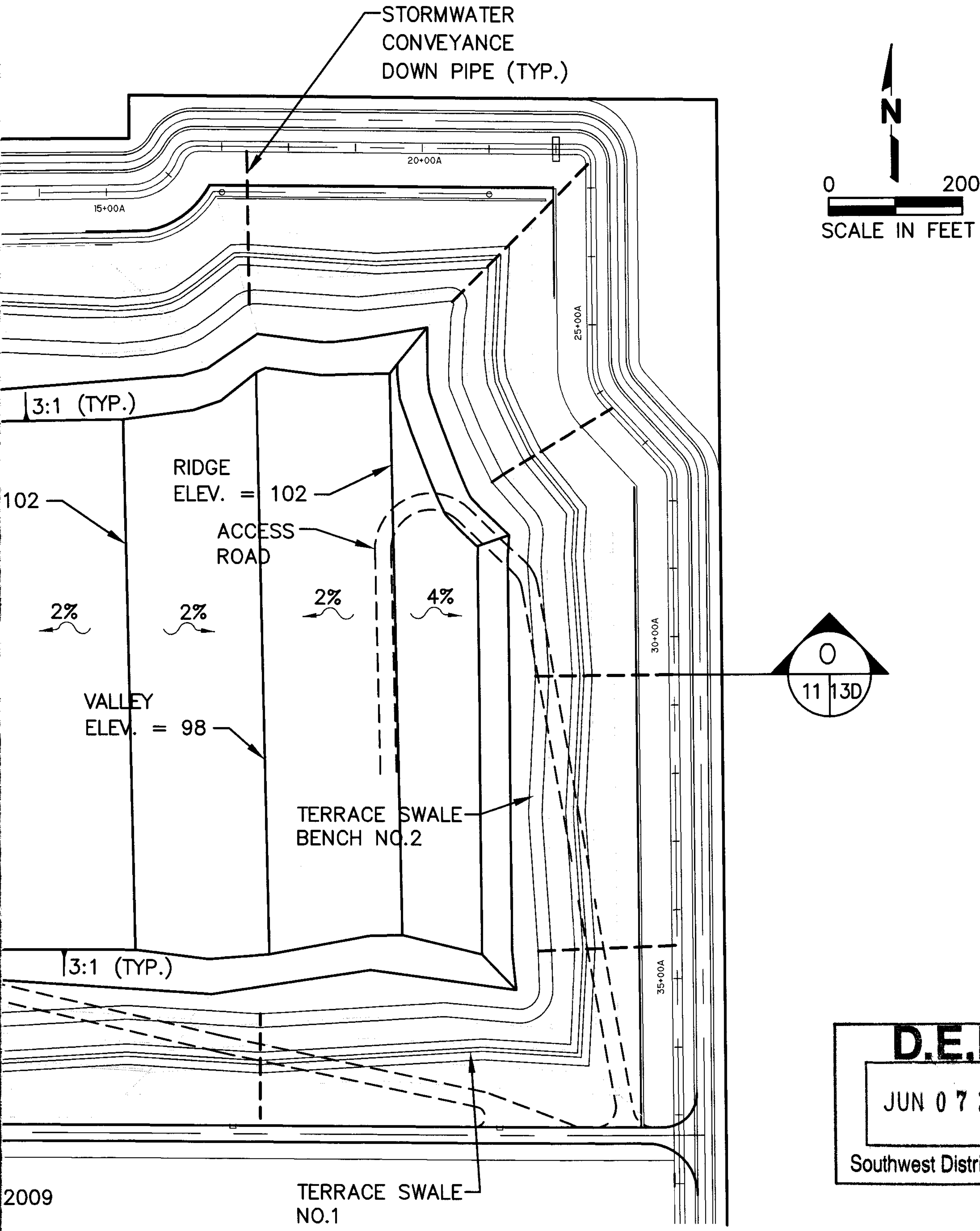
No.	Description	Date	By	No.	Description



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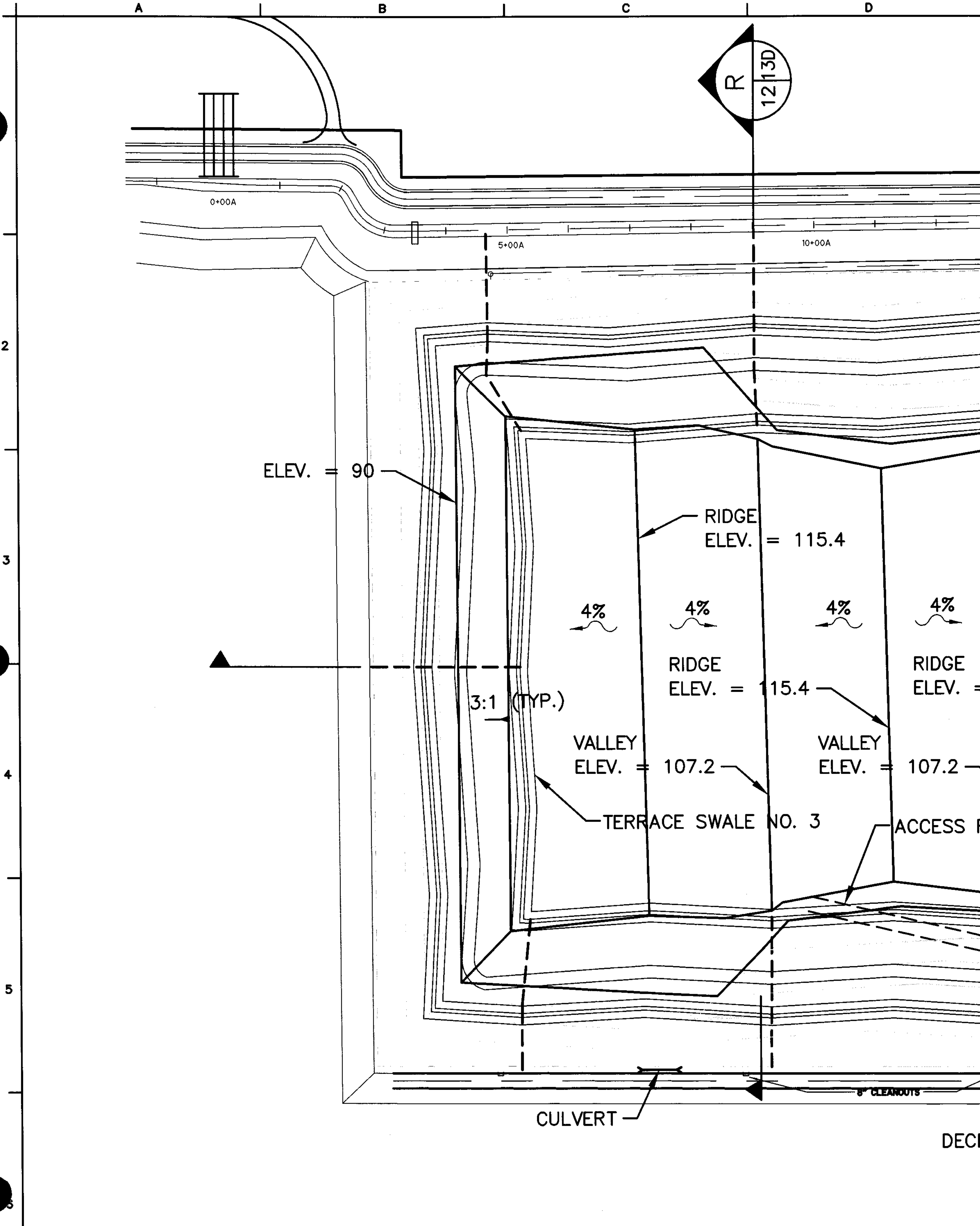
Approved By: RBG	Project Location: CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA	Drawing No. 09201041.00\PHASES.dwg	
Checked By: JAB		Scale: As Shown	Sheet Number: 11
Drawn By: GRD III		Date: JULY 2002	



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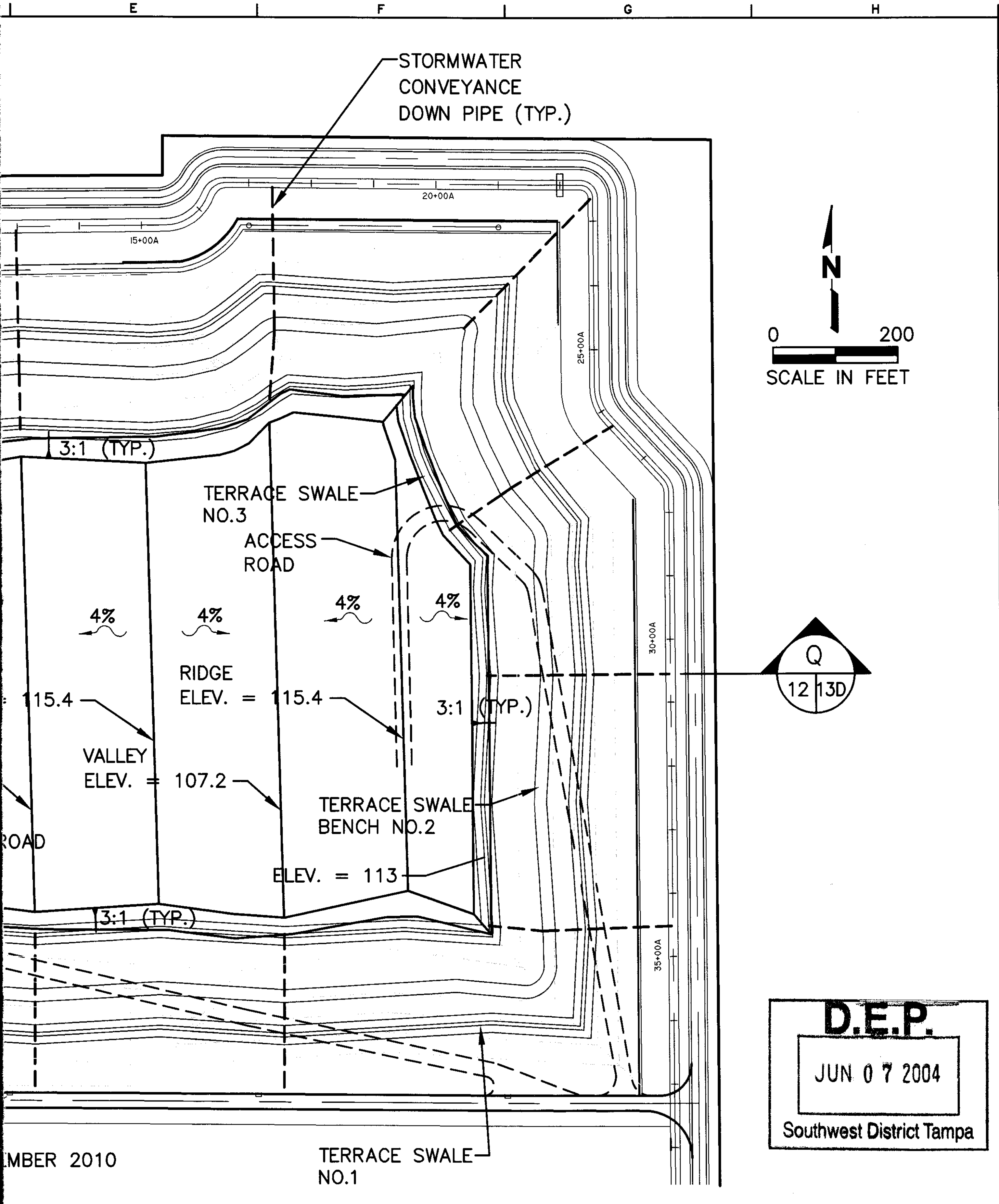
No.	Description	Date	By	No.	Description	D



REVISED ON 05/11/04

Approved By: RBG	Project Location: CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA	Drawing No. 09201041.00\PHASES.dwg	
Checked By: JAB		Scale: As Shown	Sheet Number: 12
Drawn By: GRD III		Date: JANUARY 28, 1999	

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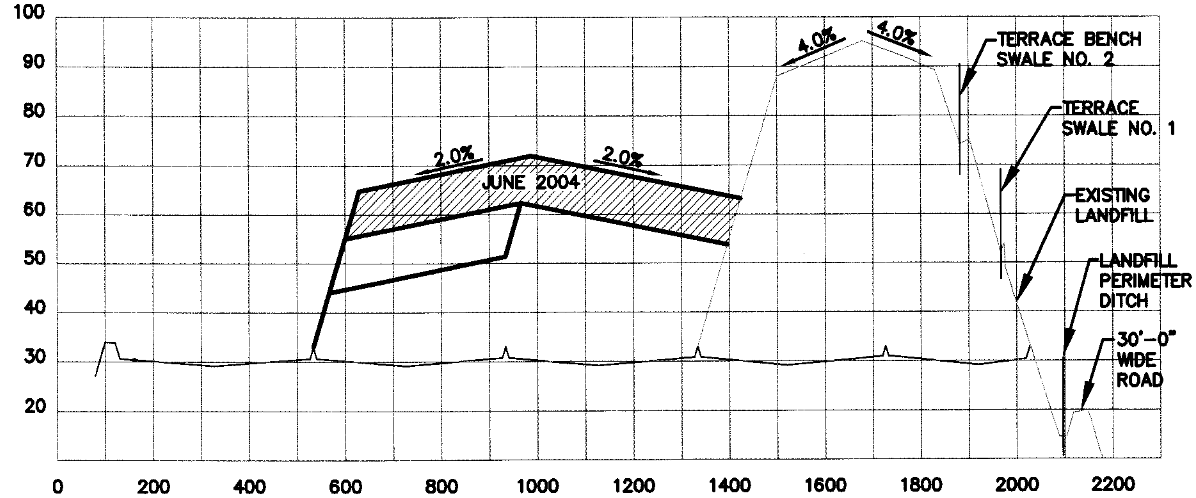
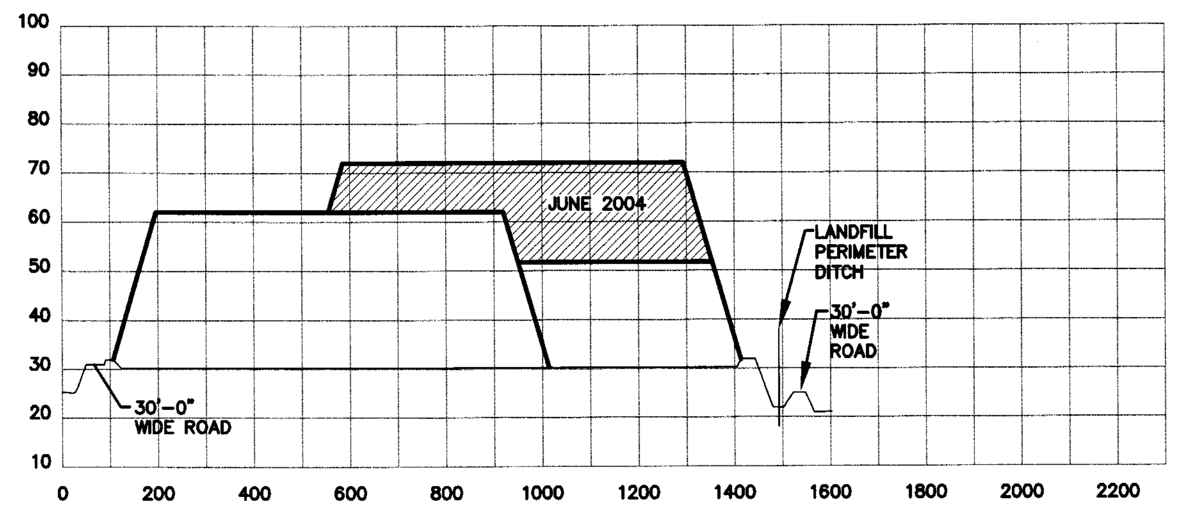


NOTE:
PROVIDE TEMPORARY STORMWATER SWALE AT CELL INTERFACE WITH A NEGATIVE GRADE AT 0.5% TOWARDS THE PERIMETER OF THE LANDFILL.

SECTION E (6 / 13A)
NOT TO SCALE



NOTE:
PROVIDE TEMPORARY STORMWATER SWALE AT CELL INTERFACE WITH A NEGATIVE GRADE AT 0.5% TOWARDS THE PERIMETER OF THE LANDFILL.

SECTION F (6 / 13A)
NOT TO SCALE

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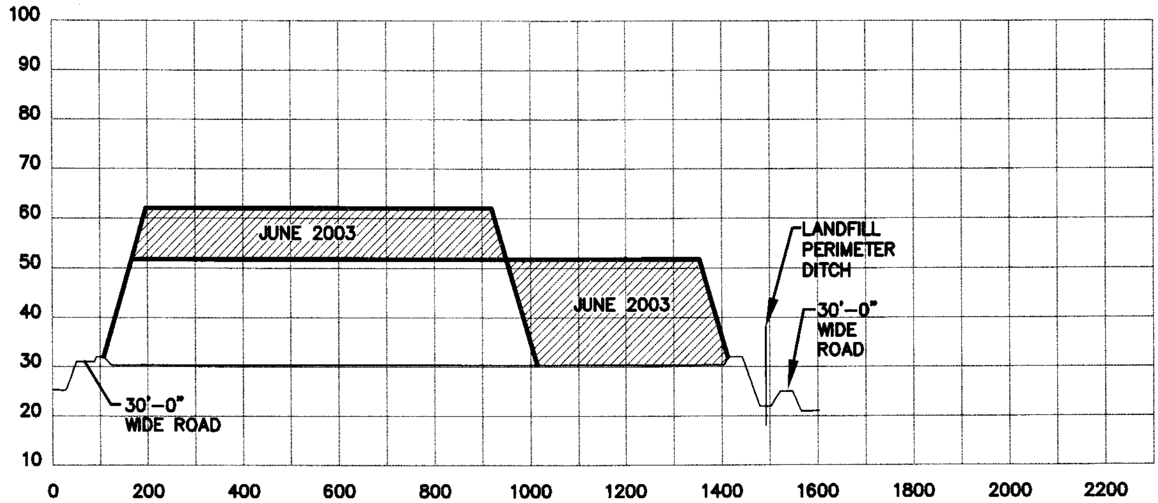
No.	Description	Date	By	No.	Description

E | F | G | H



NOTE:
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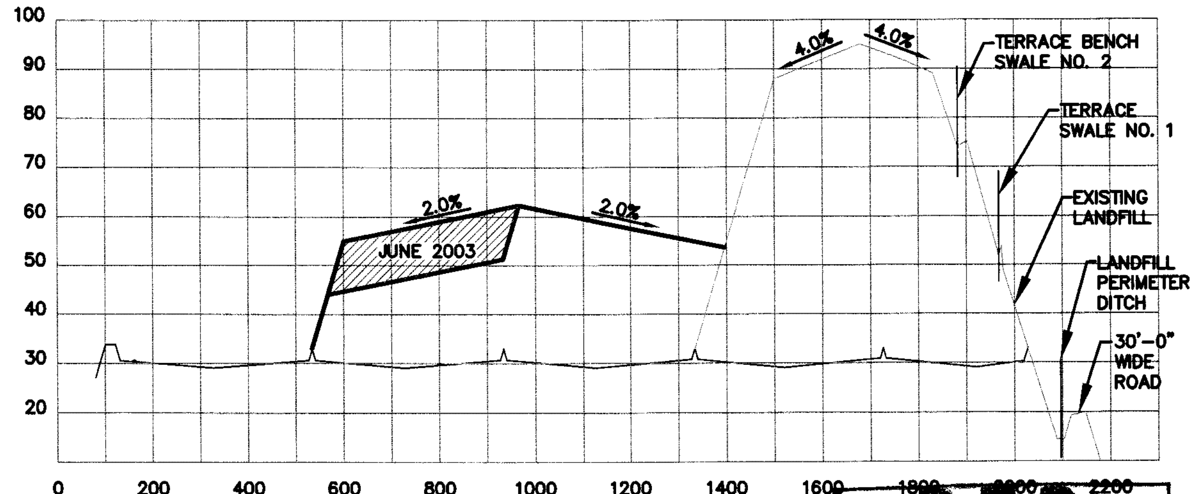
SECTION D 5 13A
NOT TO SCALE



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SECTION C 5 13A
NOT TO SCALE

REVISED ON 05/11/04

Approved By: RBG	Project Location: CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA		Drawing No. 09201041.00\PHASES.dwg	
Checked By: JAB			Scale: As Shown	Sheet Number: 13A
Drawn By: GRD III			Date: JULY 2002	

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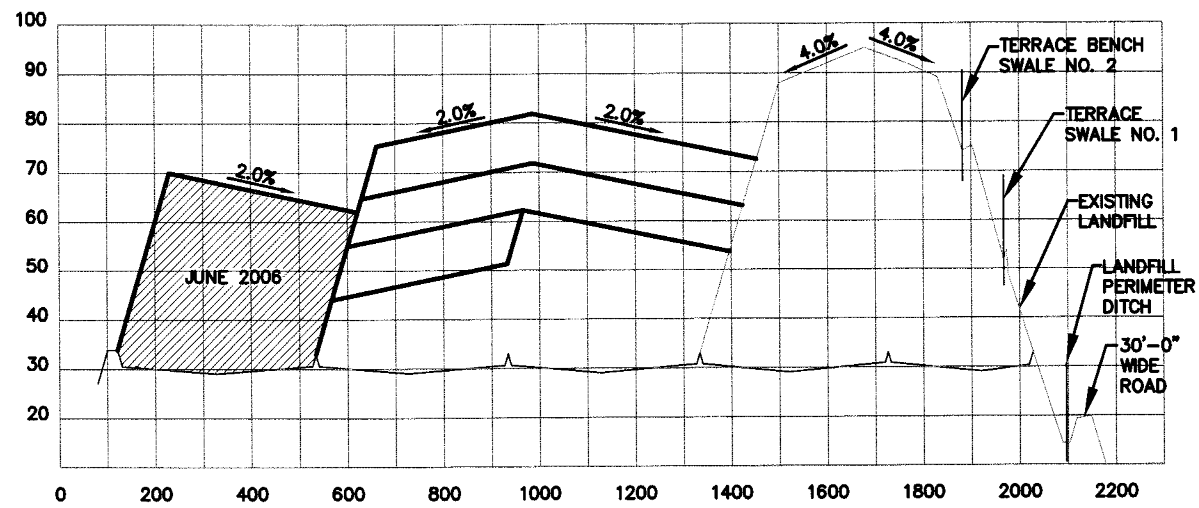

NOTE:
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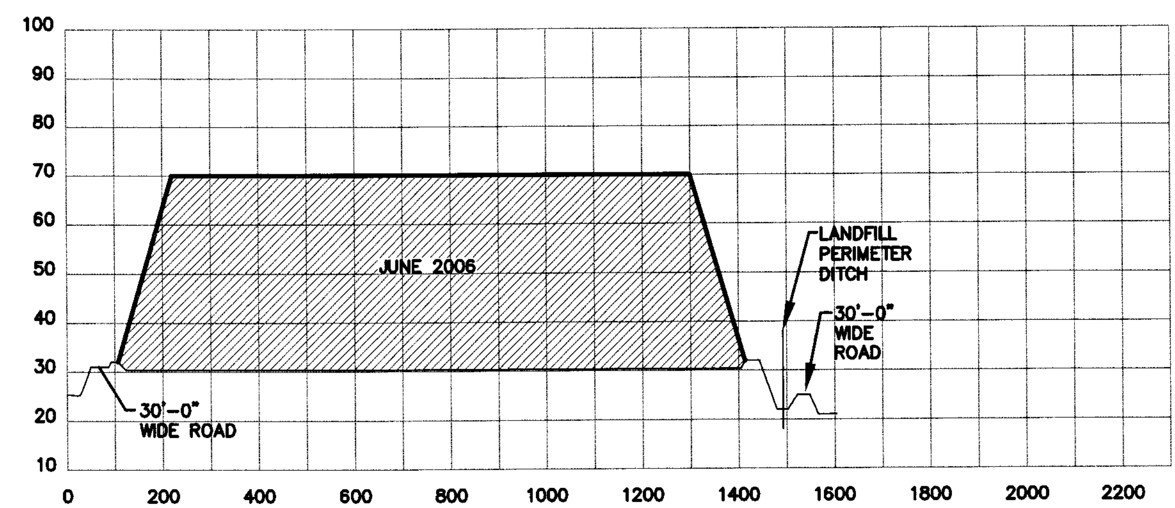
SECTION I 8 13B
NOT TO SCALE



NOTE:
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SECTION J 8 13B
NOT TO SCALE

\PROJECT\Saras... 9201041.00\PHASES.dwg 07/26/2002 12:02:50 PM EDT

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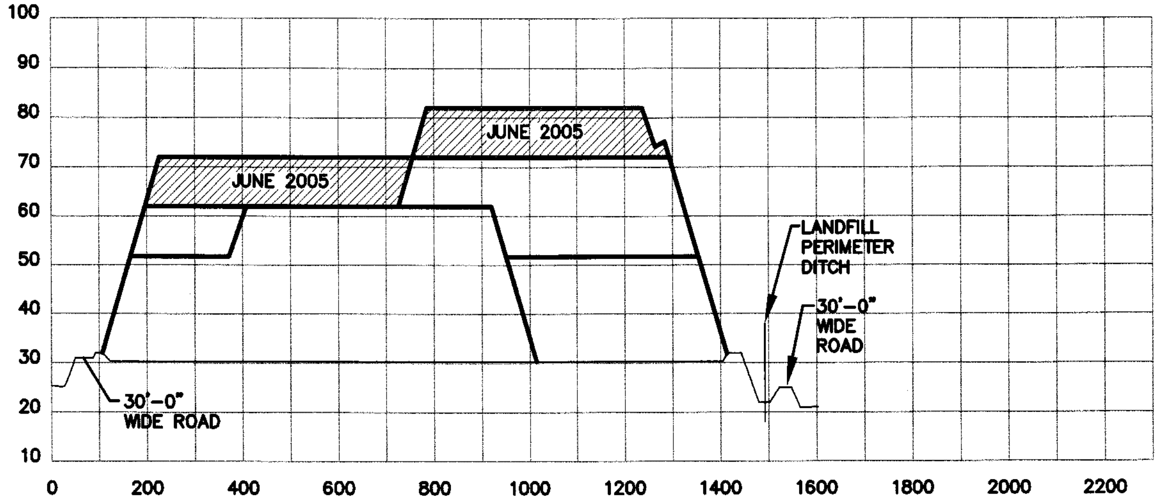

NOTE:
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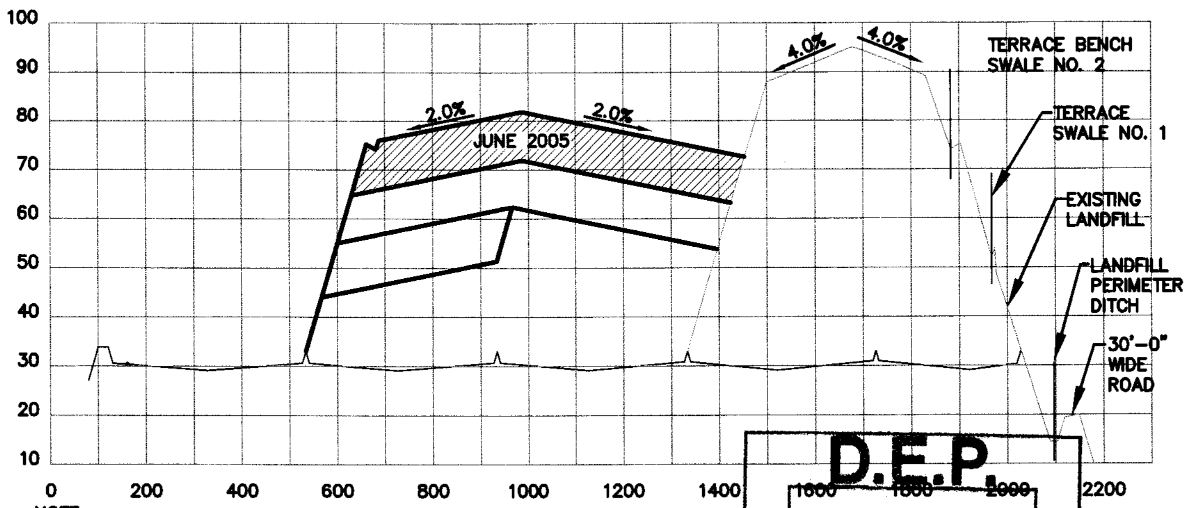
SECTION H 7 13B
NOT TO SCALE



NOTE:
PROVIDE TEMPORARY STORMWATER SWALE AT CELL INTERFACE WITH A NEGATIVE GRADE AT 0.5% TOWARDS THE PERIMETER OF THE LANDFILL.

SECTION G 7 13B
NOT TO SCALE

D.E.P.
JUN 0 7 2004
Southwest District Tampa

REVISED ON 05/11/04

Approved By: RBG	Project Location: CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA	Drawing No. 09201041.00\PHASES.dwg	
Checked By: JAB		Scale: As Shown	Sheet Number: 13B
Drawn By: GRD III		Date: JULY 2002	

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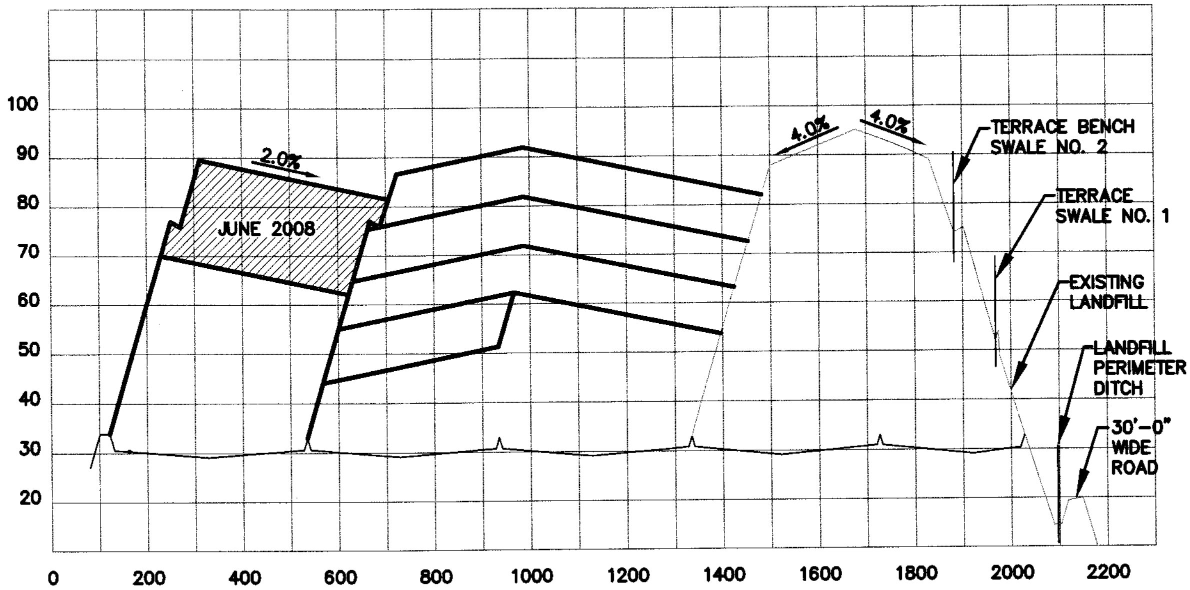

NOTE:
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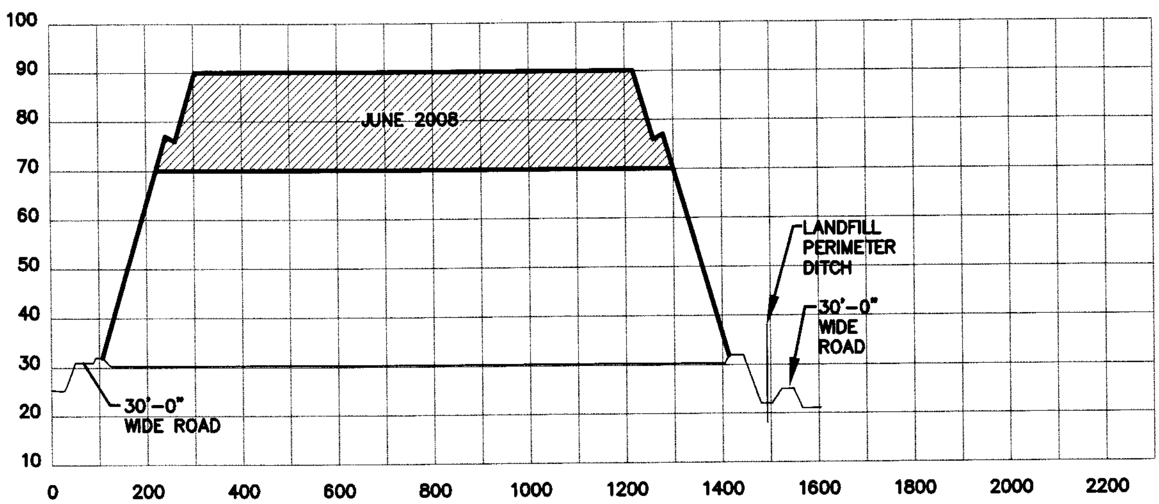
SECTION M 10|13B
NOT TO SCALE



NOTE:
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SECTION N 10|13B
NOT TO SCALE

\PROJECT\Saraso[...]9201041.00\PHASES.dwg 07/26/2002 12:02:50 PM EDT

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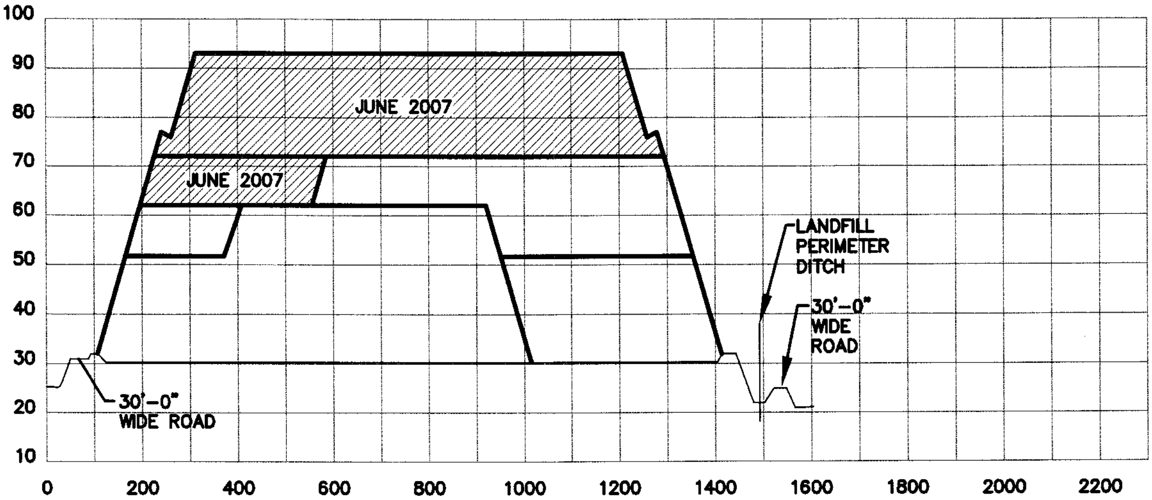

NOTE:
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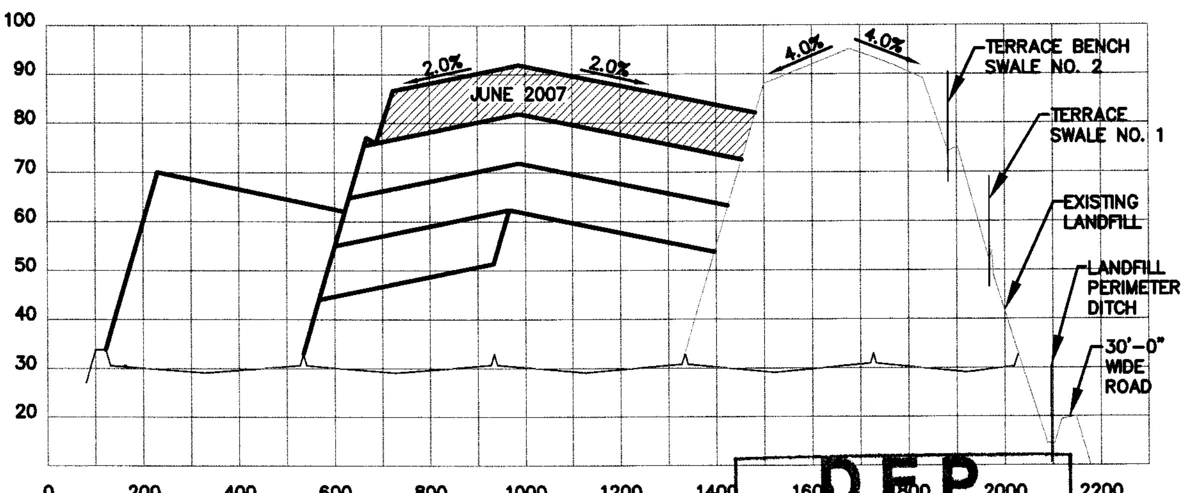
SECTION L 9 13C
NOT TO SCALE



NOTE:
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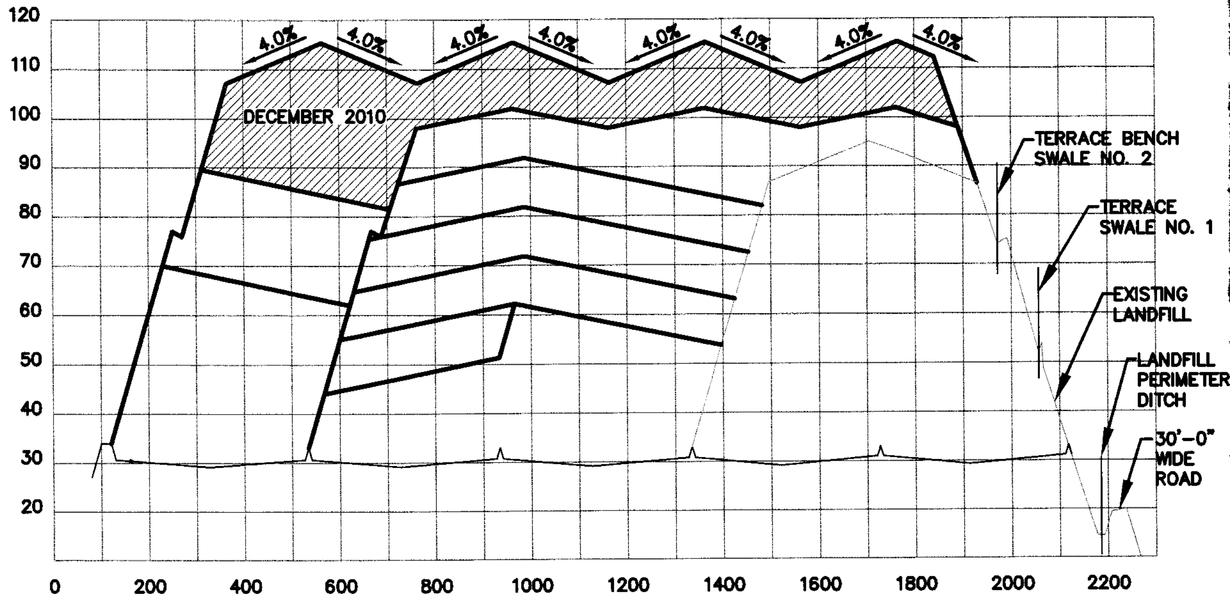
SECTION K 9 13C
NOT TO SCALE

REVISED ON 05/11/04

Approved By:	RBG
Checked By:	JAB
Drawn By:	GRD III

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

Drawing No.	09201041.00\PHASES.dwg		
Scale:	As Shown	Sheet Number:	13C
Date:	JULY 2002		



NOTE:
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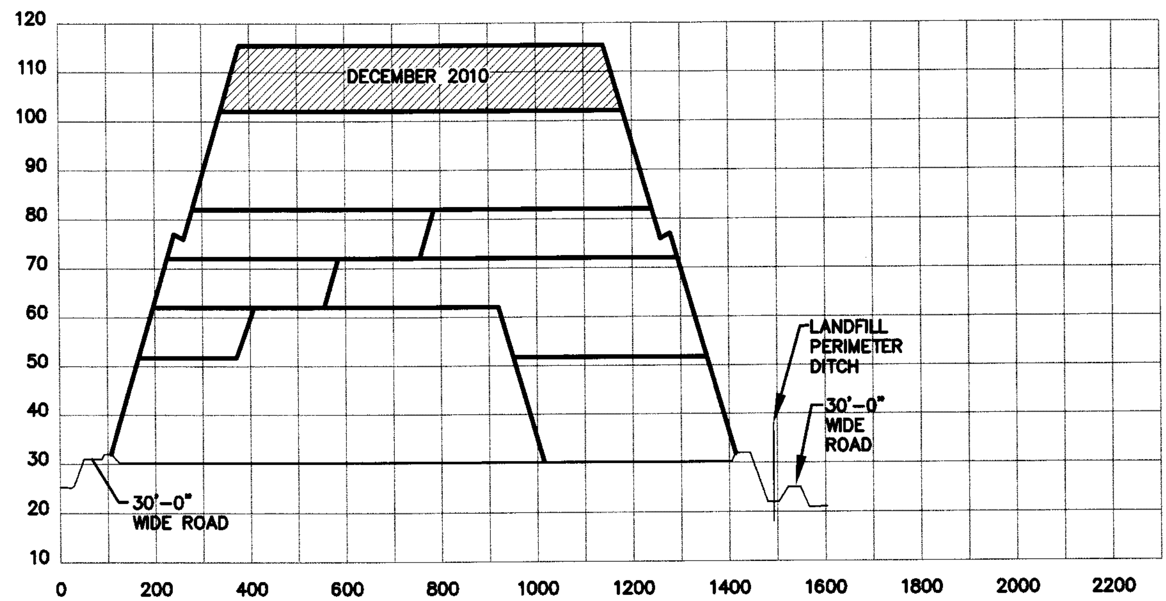
SECTION Q 12 130
NOT TO SCALE



NOTE:
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SECTION R 12 130
NOT TO SCALE

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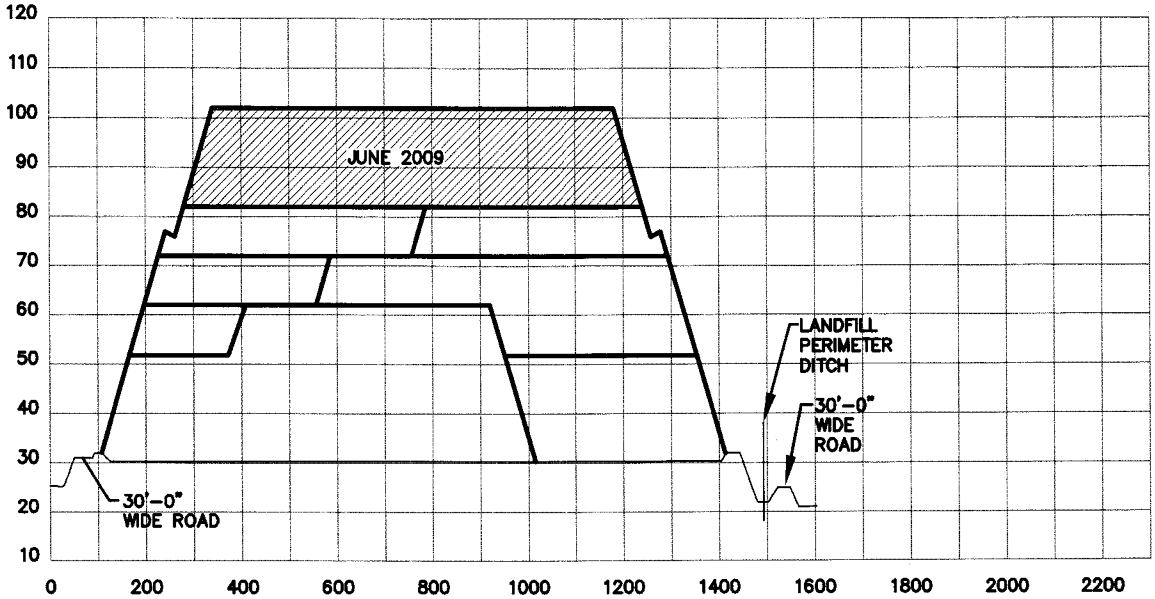

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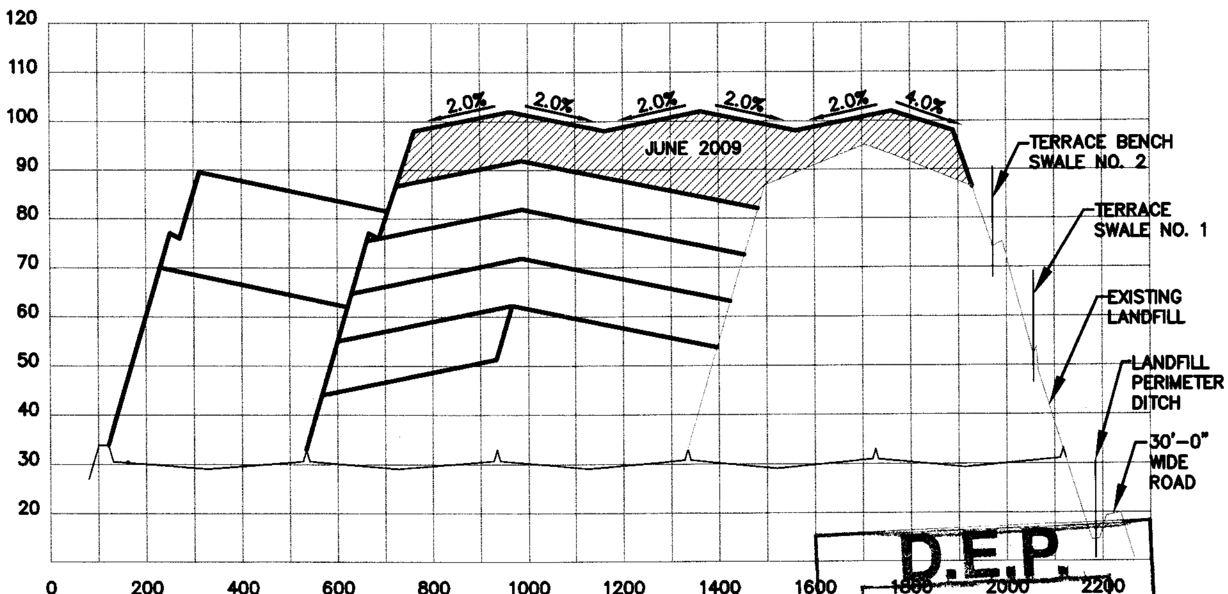
PROVIDE TEMPORARY STORMWATER SWALE AT CELL INTERFACE WITH A NEGATIVE GRADE AT 0.5% TOWARDS THE PERIMETER OF THE LANDFILL.

SECTION P (11 / 13D)
NOT TO SCALE



NOTE:
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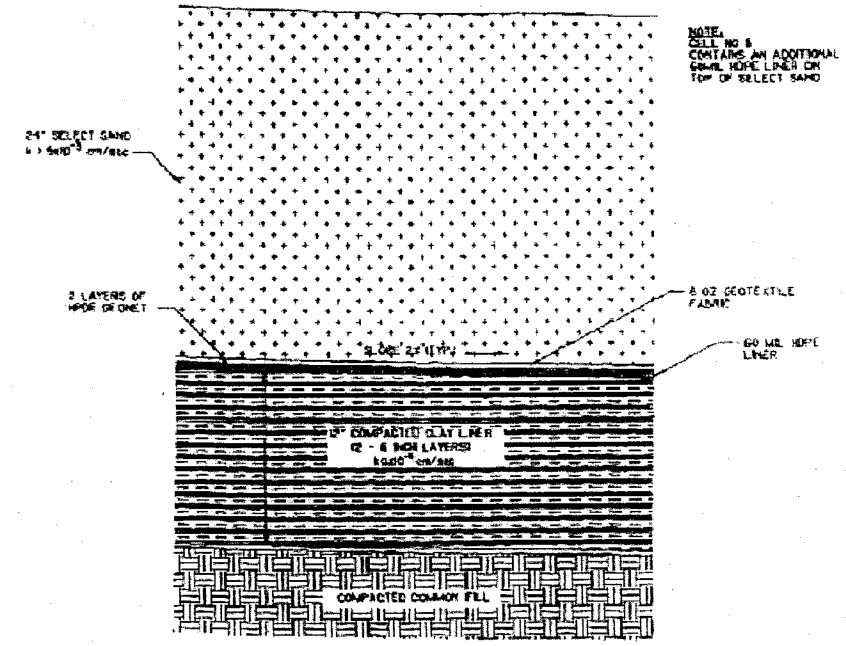
SECTION O (11 / 13D)
NOT TO SCALE

REVISED ON 05/11/04

Approved By:	RBG
Checked By:	JAB
Drawn By:	GRD III

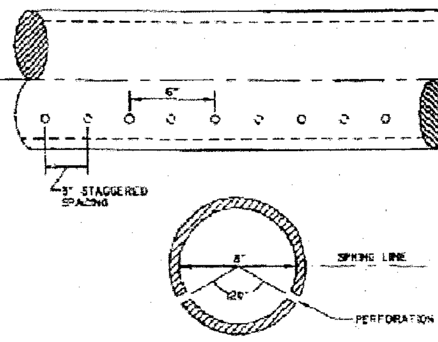
Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

Drawing No.	09201041.00\PHASES.dwg	
Scale:	As Shown	Sheet Number: 13D
Date:	JULY 2002	



LINER SYSTEM PROFILE

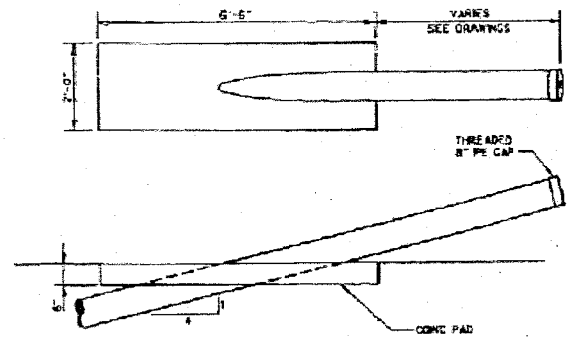
DETAIL A



PIPE PERFORATION

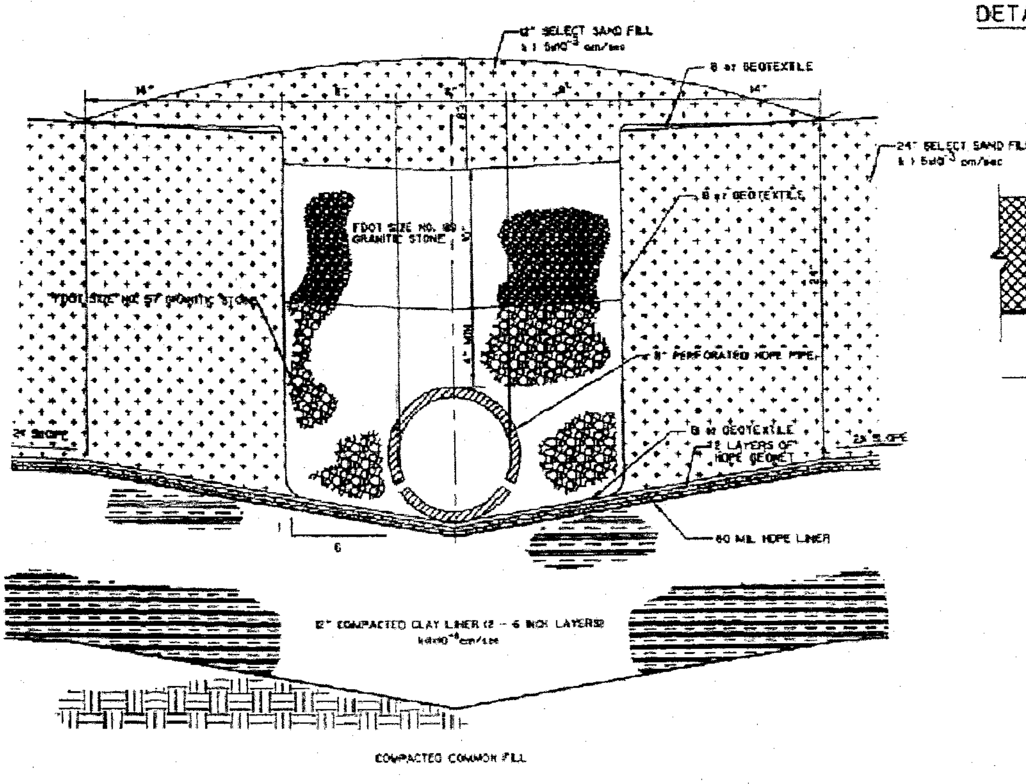
DETAIL B

TYPICA



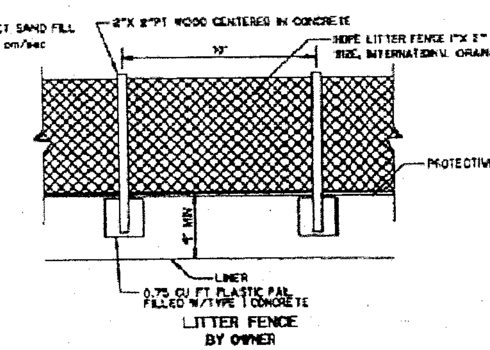
CLEANOUT

DETAIL D



LEACHATE COLLECTION TRENCH

DETAIL C



LITTER FENCE
BY OWNER

DETAIL G

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No.	Description	Date	By	No.	Description	

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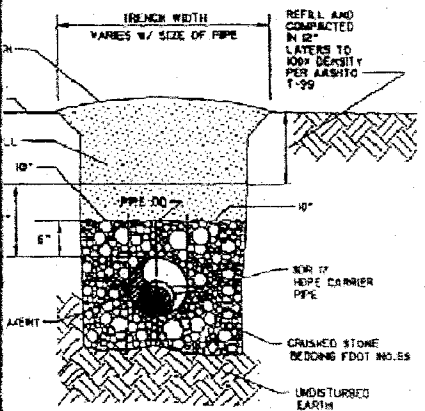
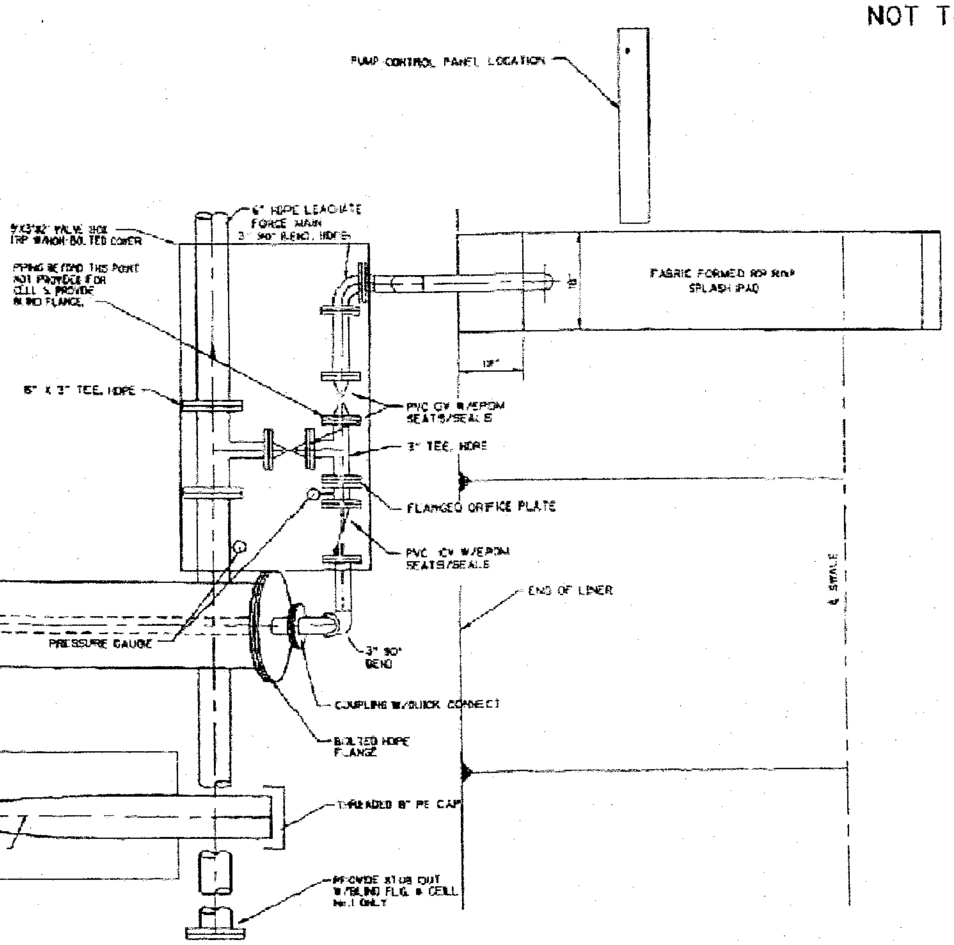
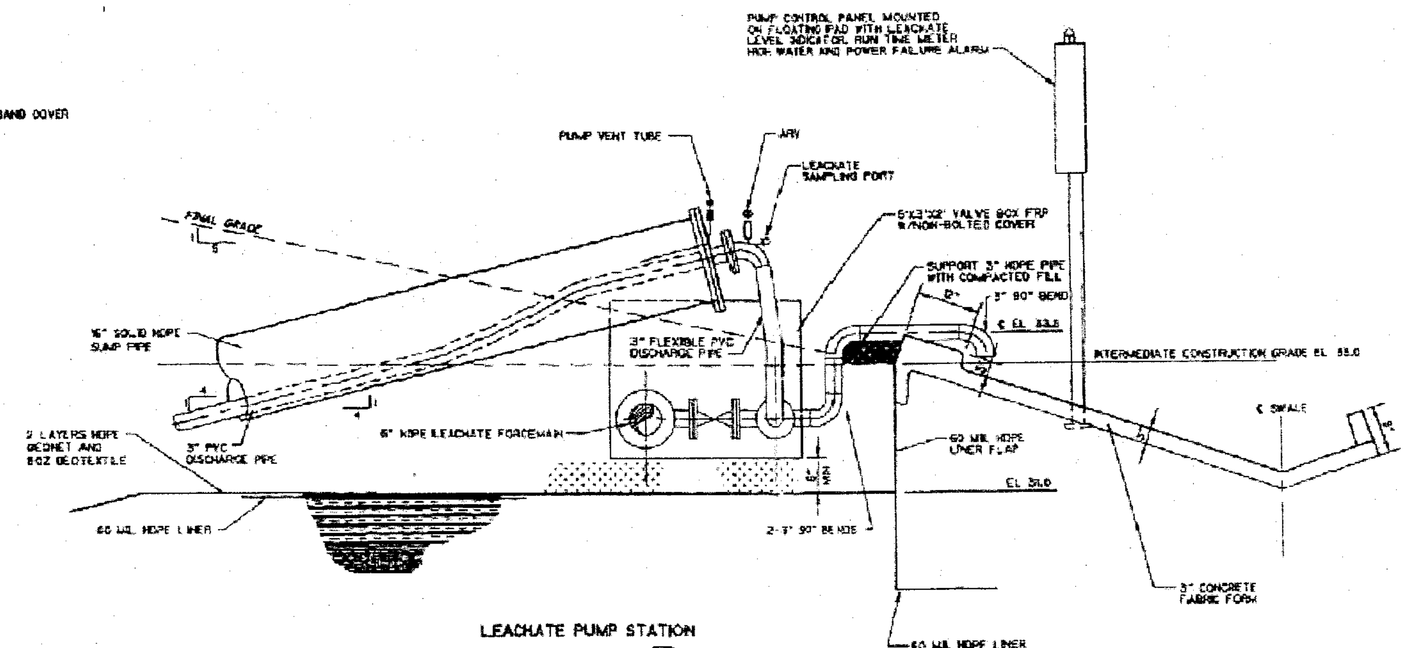


DOUBLE WALLED LEACHATE FORCEMAIN TRENCH

DETAIL F





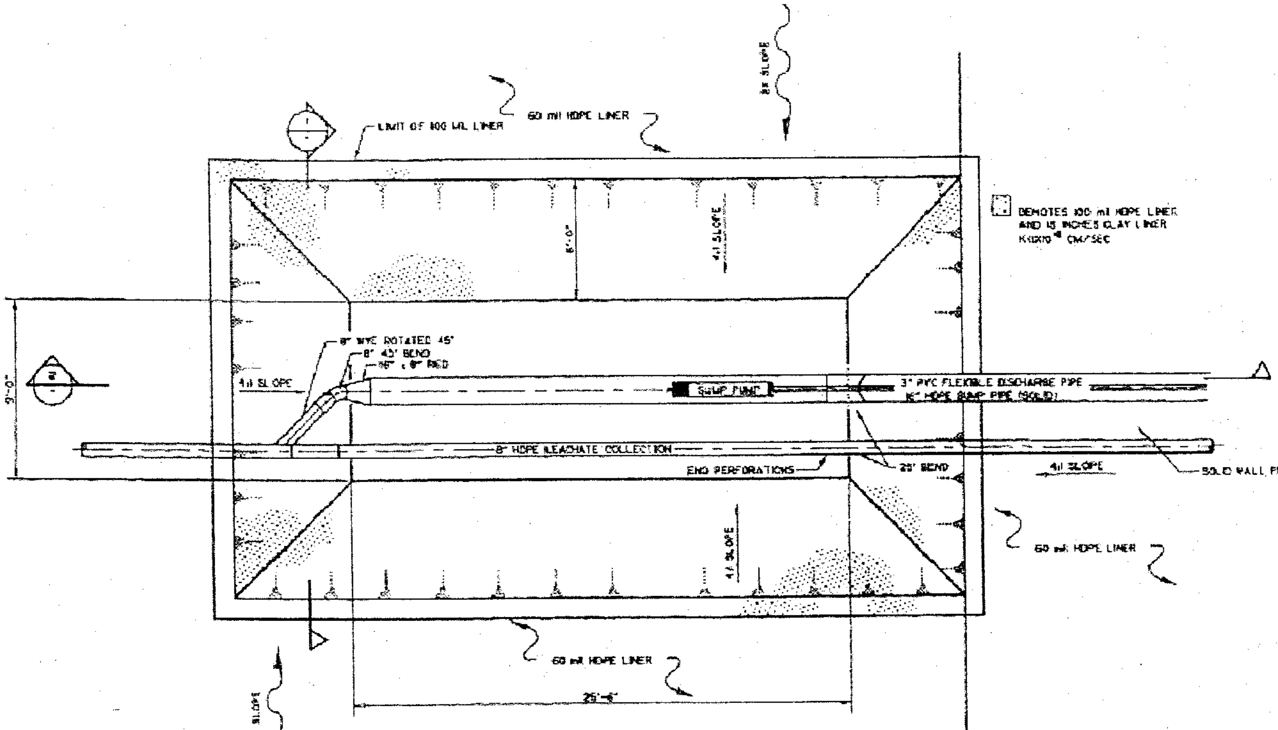
LEACHATE PUMP STATION

DETAIL E

NOTE:

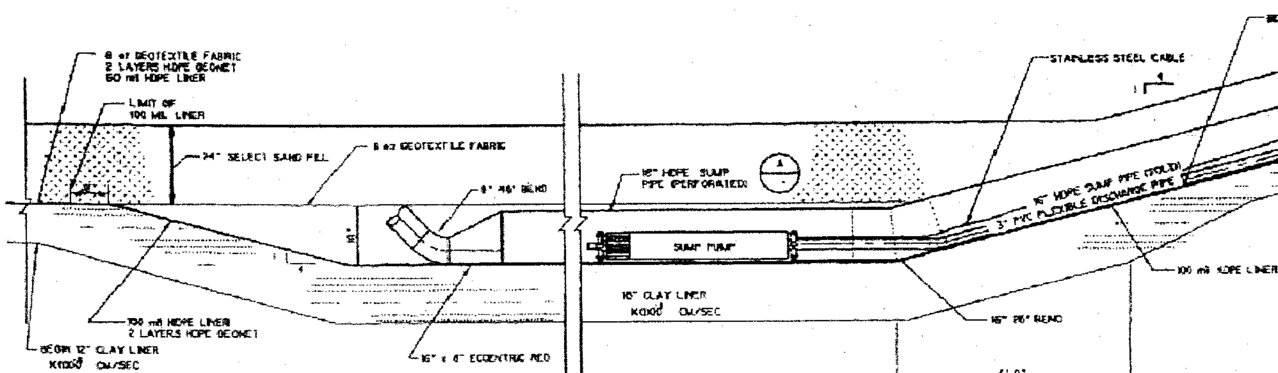
THIS MODIFIED DRAWING IS BASED ON AUGUST 1993 CONSTRUCTION, OPERTAION, AND CLOSURE PLANS, SHEET NO. LFCD-1 LANDFILL SITE WORK CONFIRMED PLANS, FROM ORIGINAL CDM DRAWINGS DATE: 2/97.

Approved By: RBG	Project Location: CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA	LINER PROFILE AND COLLECTION PIPE DETAILS	Drawing No. 09201010.01\CDMDETAILS.dwg
Checked By: JAB			Scale: As Shown / Sheet Number: 14
Drawn By: GRD III			Date: JULY 2002



SUMP PUMP

PLAN



SECTION 2

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Revisions					
No.	Description	Date	By	No.	Description

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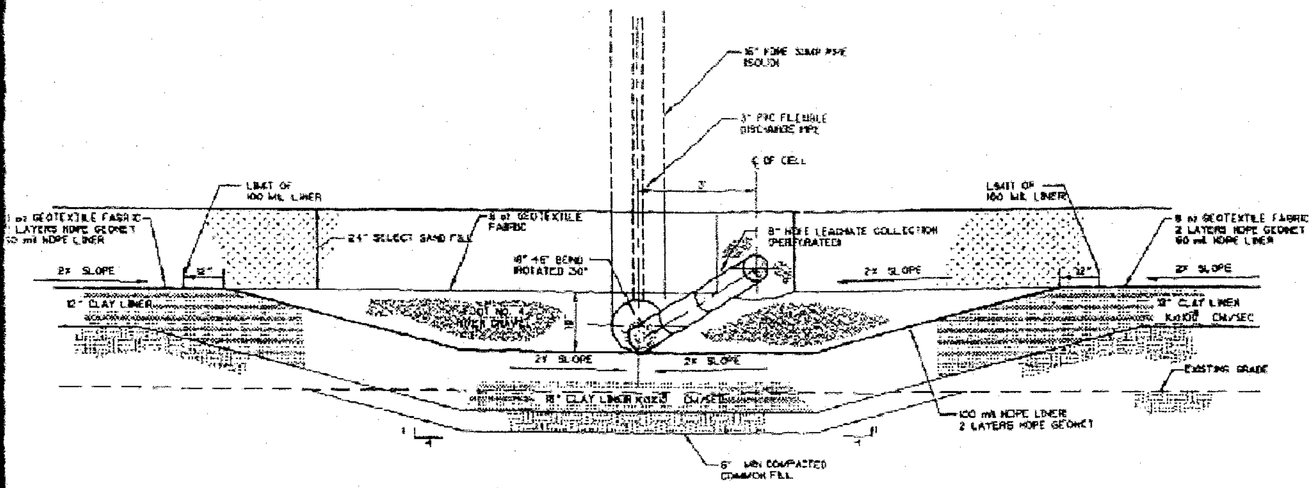

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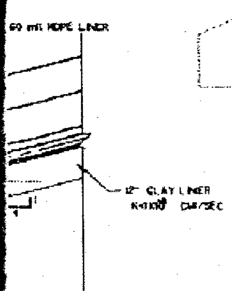
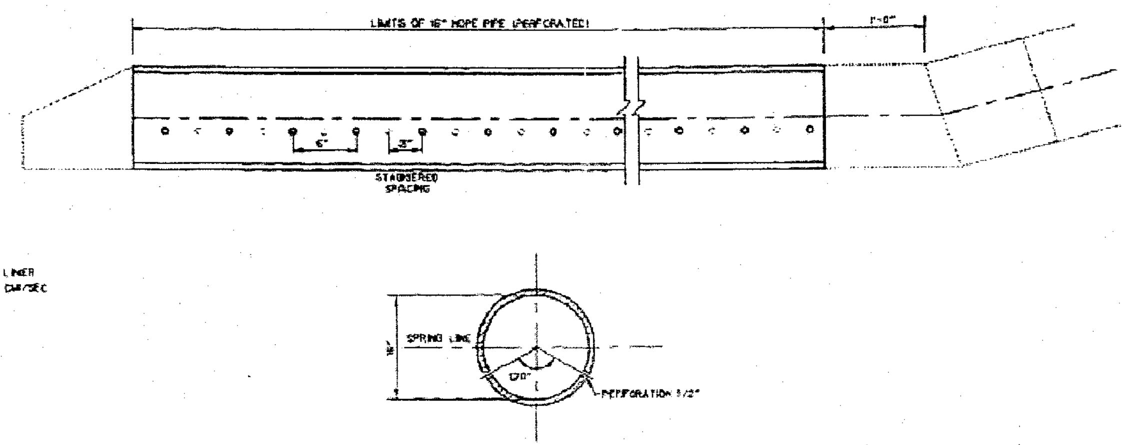




16" SUMP PIPE PERFORATIONS

DETAIL A

NOTE:

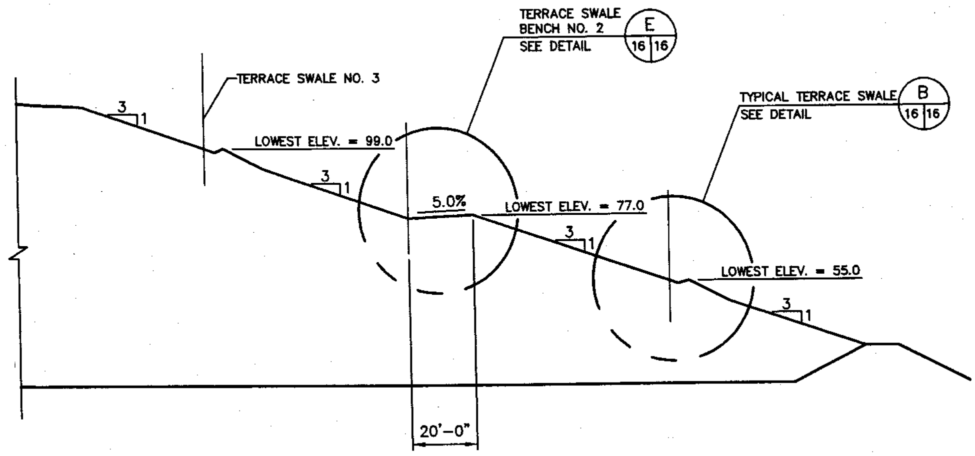
THIS MODIFIED DRAWING IS BASED ON AUGUST 1993 CONSTRUCTION, OPERTAION, AND CLOSURE PLANS, SHEET NO. LFCD–2 FROM ORIGINAL CDM DRAWINGS DATE: 2/97.

Approved By:	RBG
Checked By:	JAB
Drawn By:	GRD III

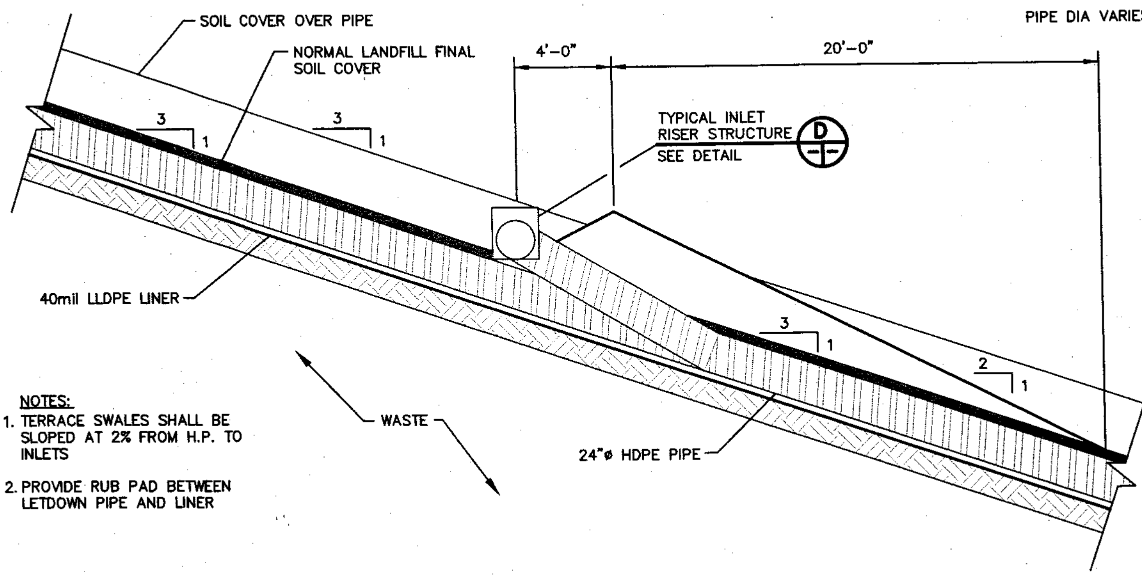
Project Location: CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA

SUMP DETAILS AND SECTIONS

Drawing No. 09201010.01\CDMDETAILS.dwg		
Scale:	As Shown	Sheet Number: 15
Date:	JULY 2002	

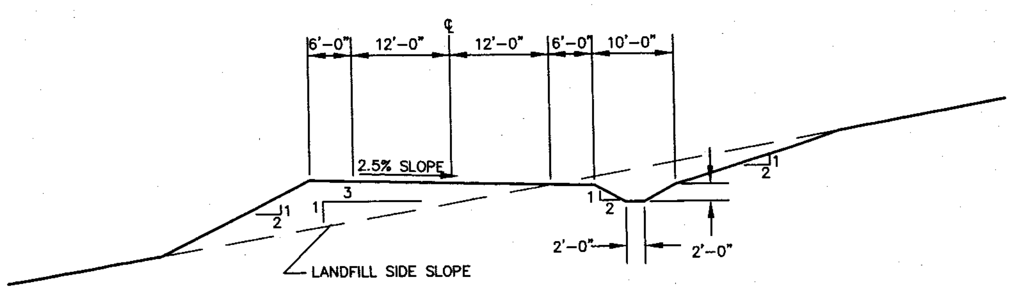


TYPICAL SIDESLOPE DETAIL (A)
NOT TO SCALE

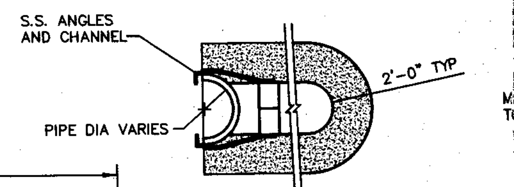


NOTES:
1. TERRACE SWALES SHALL BE SLOPED AT 2% FROM H.P. TO INLETS
2. PROVIDE RUB PAD BETWEEN LETDOWN PIPE AND LINER

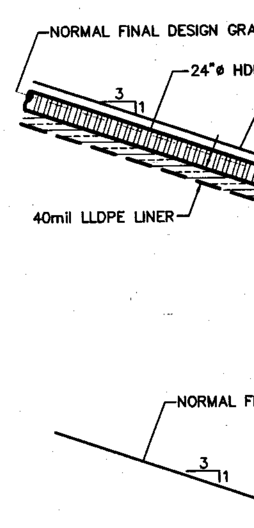
TYPICAL TERRACE SWALE DETAIL (B)
1"=4'



TYPICAL ACCESS RAMP DETAIL (C)
NOT TO SCALE



TYPICAL INLE[T] STRUCTURE
NOT TO SCALE



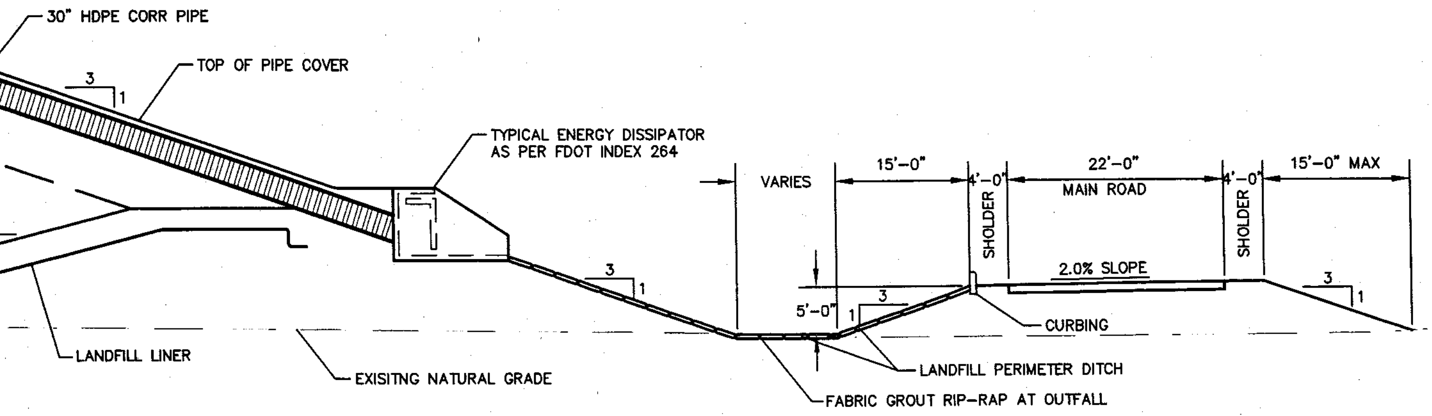
G:\PROJECT\Sara...\09201010.04\011004CDMDETAILS.dwg Mar 15, 2004 - 3:51pm Layout Name: Sheet 16 By: Guest

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
3012 U.S. HWY. 301 NORTH, SUITE 700, TAMPA, FL 33619
PH (813) 621-0080 FAX NO. (813) 623-6757

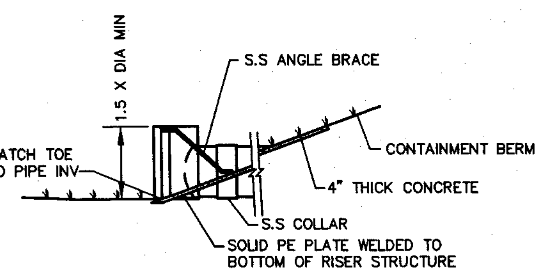
BASED ON CDM ORIGINAL DRAWINGS DATE: 2/97

Revisions						
No.	Description	Date	By	No.	Description	Da

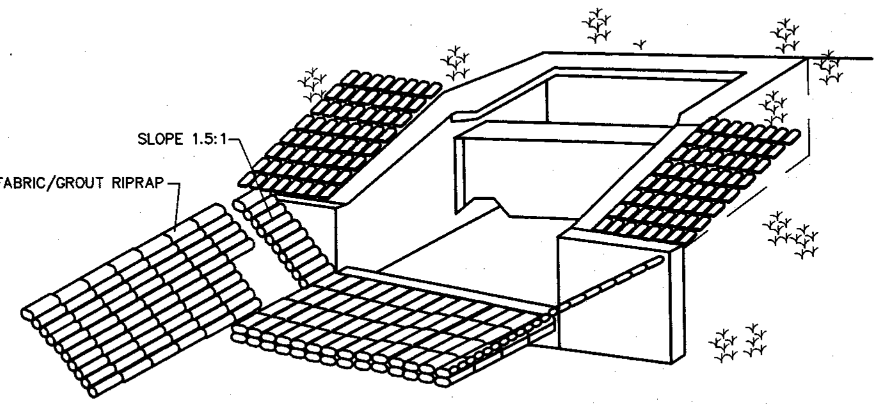
E F G H



TYPICAL DISCHARGE STRUCTURE DETAIL F
NOT TO SCALE

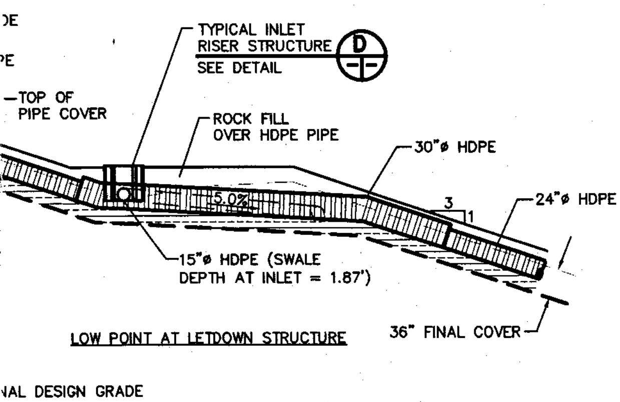


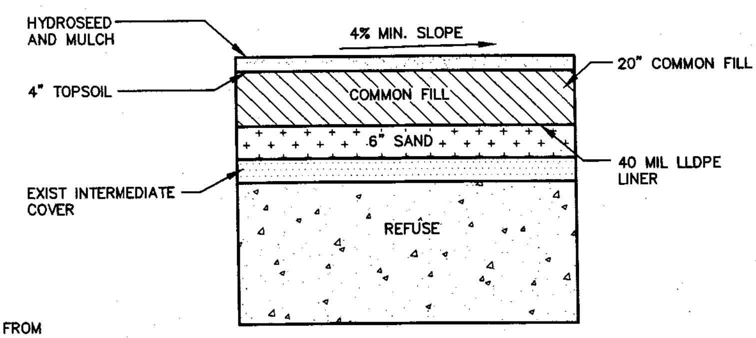
T RISER DETAIL D

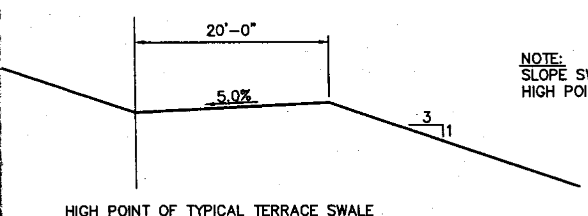


(FOOT INDEX NO. 264)

TYPICAL ENERGY DISSIPATOR DETAIL G
NOT TO SCALE







NOTE:
SLOPE SWALE AT 0.5% FROM HIGH POINT TO LOW POINT

FINAL CAP PROFILE DETAIL H
NOT TO SCALE

TYPICAL TERRACE BENCH DETAIL E
NOT TO SCALE

NOTE:
DRAINAGE STRUCTURES ARE FOR FINAL CLOSURE AND PERMANENT INSTALLATION. TEMPORARY DRAINAGE PIPES SHALL BE INSTALLED AT MINIMUM AT THE LOCATIONS SHOWN ON EACH FILL STAGE AND SHALL BE A MINIMUM SIZE OF 18 INCHES.

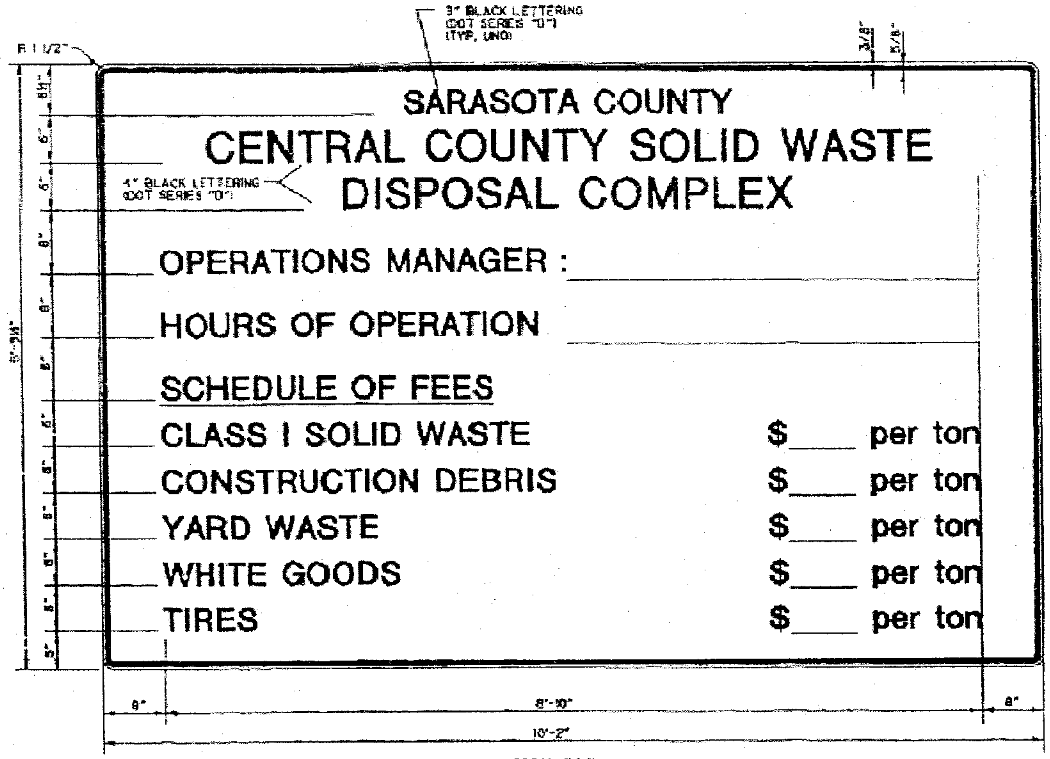
REVISED ON 03/15/04

By	Approved By:	RBG	
	Checked By:	JAB	
	Drawn By:	GRD III	

Project Location:
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA

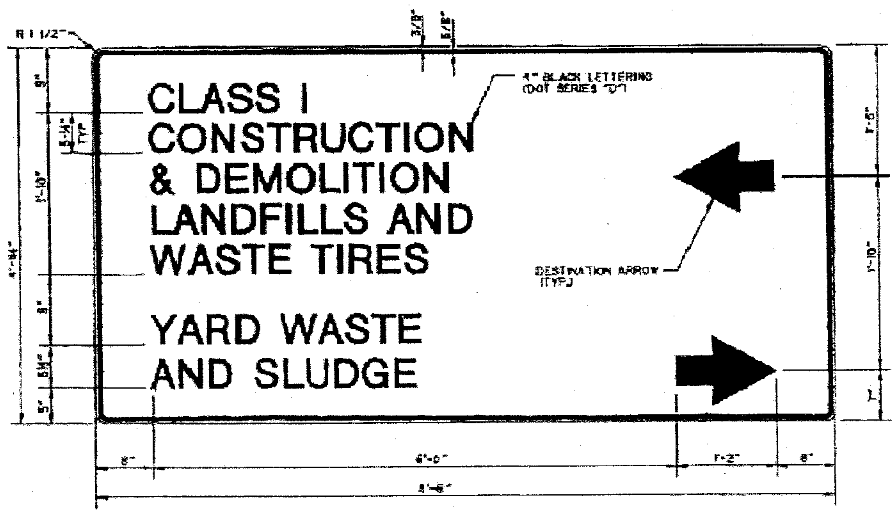
LANDFILL CLOSURE AND DRAINAGE DETAILS

Drawing No. 09201010.01\CDMDETAILS.dwg		
Scale:	As Shown	Sheet Number: 16
Date:	JULY 2002	



SIGN "A"

INFORMATION TO BE PROVIDED BY OWNER



PROJECT\Saraso 9201041.00\CDMDETAILS.dwg 08/30/2002 02:08:56 PM EDT

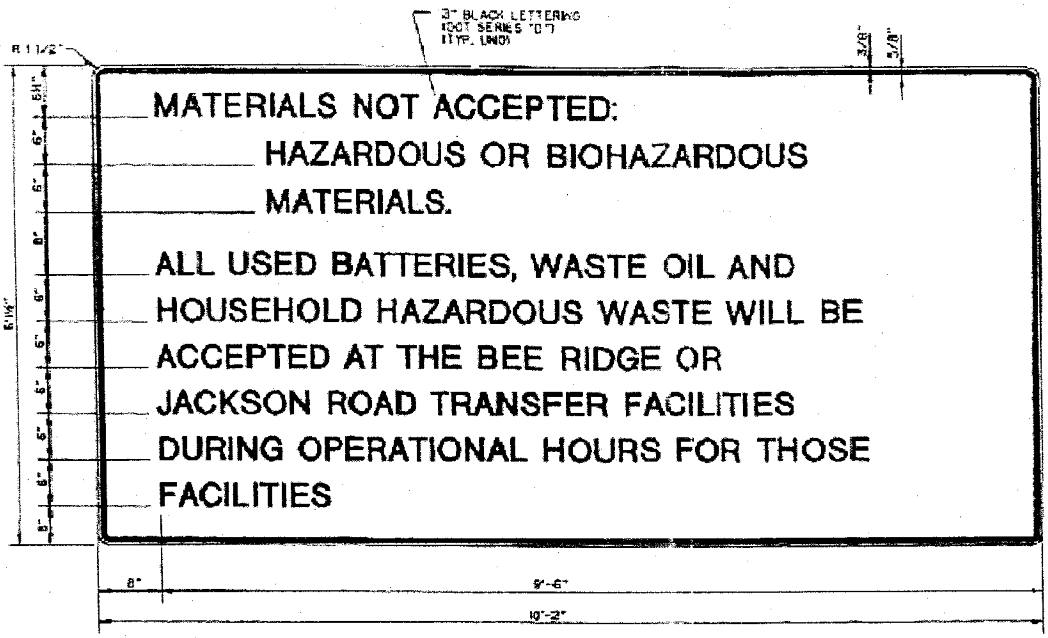
SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
3012 U.S. HWY. 301 NORTH, SUITE 700, TAMPA, FL 33619
PH (813) 621-0080 FAX NO. (813) 623-6757

Revisions					
No.	Description	Date	By	No.	Description

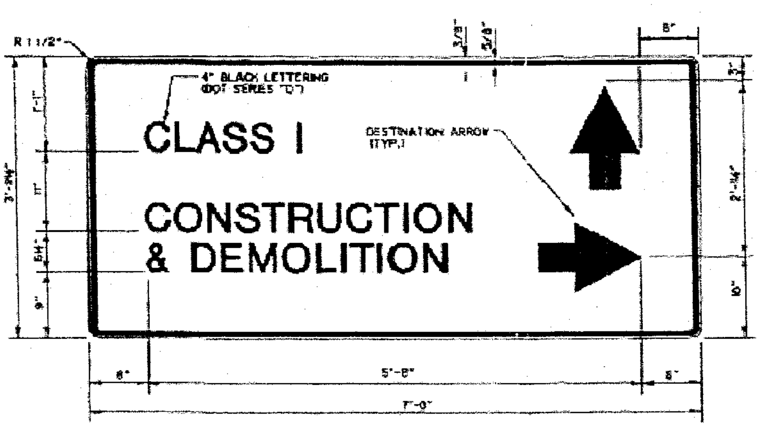
NOT TO SCALE

NOTE:

SIGN STRUCTURE BRACING AND COLUMN SUPPORTS SHALL BE PROVIDED IN ACCORDANCE WITH FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS. REMAINING INFORMATION TO BE PROVIDED BY OWNER AT TIME OF SHOP DRAWING REVIEW.



SIGN "B"



NOTE:

THIS MODIFIED DRAWING IS BASED ON NOVEMBER 1995 LANDFILL SITE WORK CONFORMED PLANS, SHEET NO. LFC–66 FROM ORIGINAL CDM DRAWINGS DATE: 2/97.

Approved By: RBG	Project Location: CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA	ROADWAY SIGNAGE DETAILS	Drawing No. 09201010.01\CDMDETAILS.dwg	
Checked By: JAB			Scale: As Shown	Sheet Number: 17
Drawn By: GRD III			Date: JULY 2002	

ATTACHMENT L-4

CONTAMINATED SOIL ACCEPTANCE CRITERIA

ATTACHMENT L-4

CONTAMINATED SOIL ACCEPTANCE CRITERIA

According to the Hazardous Waste Division of Sarasota County, there are no standard contaminated soil acceptance criteria for the CCSWDC. Acceptance of contaminated soil at CCSWDC is only conducted on a case-by-case basis whereby soils must be tested for the toxicity characteristic leaching procedure (TCLP) and the paint filter test. The Hazardous Waste Division evaluates results from these tests to determine whether the soil will be accepted at the landfill. In any case, contaminated soil accepted at CCSWDC would be placed directly into the lined active landfill cell within the bermed working area and not stockpiled at the site unless authorized in writing by the Department.

ATTACHMENT L-5

WASTE INSPECTION AND REPORTING FORMS

SARASOTA COUNTY SOLID WASTE DEPARTMENT
SOLID WASTE LOAD INSPECTION FORM

Florida Administrative Code 62-701 requires landfills to periodically inspect loads presented for disposal. If unauthorized wastes are found, the responsible party shall be required to cause removal of said waste and the Florida Department of Environmental Protection shall be notified. Inspection records shall be maintained for a period of three years.

Inspection Location	
Date	**Time**
Hauler	**Truck No.**
Vehicle License Plate No.	
Source of Waste	
Driver (print name)	
Driver (signature)	
Inspector/Title	
Waste Observed	
Unauthorized Waste	
FDEP Contacted	**Name of Contact**

What action was taken to properly dispose of the unauthorized waste:

____

(Use attachments if Necessary)

ATTACHMENT L-6

LEACHATE DISPOSAL COMMITMENT LETTER

COPY

SARASOTA COUNTY
"Dedicated to Quality Service"

December 3, 2001

Kim Ford, P.E.
Florida Department of Environmental Protection
3804 Coconut Drive
Tampa, Florida 33619

Subject: Central County Solid Waste Operations
Leachate Disposal
FDEP - Permit No. S058-299180

Dear Mr. Ford:

I have been requested to provide confirmation regarding the acceptance and disposal of leachate from the closed Bee Ridge Landfill Site, and the Central County Solid Waste Disposal Complex.

The leachate is normally accepted at our Bee Ridge Water Reclamation Facility, with a general maximum leachate input of 500,000 gallons per day.

An alternative disposal site is through our Central County Utilities Facility, with a general maximum leachate input of 250,000 gallons per day.

Please contact my office, should you require additional information.

Sincerely,

W Wagner

Warren Wagner
General Manager

c: Gary Bennett, Solid Waste Operations Manager, Solid Waste Operations
Paul Wingler, P.E. Solid Waste Operations
Robert J. Butera, P.E. III, FDEP – Tampa

I:\USER\shared\projects\Central County Solid Waste Disposal Complex\leachate\Correspondence\Kim Ford - leachate Disposal (Author Warren Wagner) - 11-21-01.doc

ENVIRONMENTAL SERVICES, Solid Waste Operations • 4000 Knights Trail Road, Nokomis, FL 34275
Tel 941-486-2600 • Fax 941-486-2620

ATTACHMENT L-7

LEACHATE TANK INSPECTION REPORT

FDEP CORR

SOLID WASTE OPERATIONS
2 0 2001
RECEIVED

THE CROM CORPORATION

Prestressed Composite Tanks

Stephen W. Pavlik, President
R. Bruce Simpson
H.E. Puder
James A. Neff, P.E.
Lars Balck, Jr., P.E.
Samuel O. Sawyer, P.E.
Richard L. Bice, P.E.
James D. Copley, P.E.
Gerald C. Bevis, P.E.
Jeffery D. Malpass, P.E.
Joseph C. Swann, P.E.

April 18, 2001

Mr. Paul Wingler
Sarasota County Solid Waste Facility
4000 Knights Trail Road
Nokomis, Florida 34275

SUBJECT: Warranty Inspection
1.8-MG Lechate. Storage Tank
Sarasota County Solid Waste Facility
Sarasota County, Florida
Crom Job No. 9736

Dear Mr. Wingler:

The subject tank was inspected on February 27, 2001 by Pete Smallwood of The Crom Corporation. A visual inspection was conducted on the walls and portions of the floors to assess the condition of the tank and determine if there is any situation which needs to be corrected.

History

The Crom Corporation built this tank in 1997. Crom's Job Number was 9736. This reservoir is a complete tank within a tank. The outer tank or secondary containment vessel is 130'-0" diameter with a 21' 2 ½" wall. The inner tank, which sits on a stone subgrade within the outer tank, is 100'-0" diameter with a 30' 8" wall. The inner and outer tank floors are cast concrete 5" and 4" thick, respectively. The walls of both tanks are shotcrete which contain a steel shell diaphragm the full height.

The Crom Corporation designed and constructed these tanks. The protective coatings inside these tanks were not in Crom's scope of work nor are they Crom's responsibility.

Inspection

The exterior wall surface of the outer tank has a few shrinkage cracks. These cracks are cosmetic in nature and do not pose a threat to the tanks integrity. The exterior wall was sounded and no hollows or delaminations were detected. The coating on the interior surface of the outer tank wall appears to be

250 S.W. 36TH TERRACE • GAINESVILLE, FLORIDA 32607-2889
PHONE (352) 372-3436 • FAX (352) 372-6209 • www.cromcorp.com

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SEP 2 0 2002

intact. Four small cracks were found in the outer tank floor. These appear to be due to shrinkage rather than settlement as the floor did not exhibit characteristics usually attributed to settlement of the subgrade.

The inner and outer surface of the inner tank wall did not exhibit any cracks and the coatings appear to be intact. The small portion of the inner tank floor, which had been cleaned, was inspected and no cracks were detected there.

It was noted that the coating on the vertical pipe on the inner tank is deteriorating. It was also noted that one pipe over the top of the inner tank wall was discharging a substance that leaves a significant stain on the coating. We could not determine whether this substance was deteriorating the coating.

Recommendations

There appears to be no problem that requires immediate attention. We would, however, like the opportunity to repair the small cracks in the outer tank floor at the counties earliest convenience. The shrinkage cracks in the exterior surface of the outer tank are cosmetic in nature. If the county will give us several weeks notice prior to the next repainting of the tank, we will fill these shrinkage cracks so they will not be seen.

The only other recommendation we have is to continue to inspect the integrity of the protective coatings in these tanks. Coatings have a finite life and at some point they will deteriorate and allow the aggressive lechate to attack the tank.

If you have any questions or if we may be of further assistance, please feel free to give us a call at 800.289.2766.

Sincerely,

THE CROM CORPORATION

Samuel O. Sawyer, III, P.E.
Vice President

/vmt

ATTACHMENT L-8

LEACHATE PUMP DATA FORM

Central County Solid Waste Disposal C[illegible]plex - Daily Leachate Meter Readings

		Cell No. 1			Cell No. 2			Cell No. 3			Cell No. 4			Cell No. 5		
Date	Time	Level	Flowmeter	Hours	Level	Flowmeter	Hours	Level	Flowmeter	Hours	Level	Flowmeter	Hours	Level	Flowmeter	Hours
1																
2																
3																
4																
5																
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ATTACHMENT L-9

LABORATORY CERTIFICATION

nelac ACCREDITED IN ACCORDANCE WITH

COPY

FLORIDA DEPARTMENT OF HEALTH

State of Florida, Department of Health
Bureau of Laboratories

This is to certify that

E83079

ELAB, Inc.
8 East Tower Circle
Ormond Beach, FL 32174

has complied with Florida Administrative Code 64E-1, for the examination of Environmental samples in the following categories:

SDWA - Microbiology, Primary Inorganic, Secondary Inorganic, Synthetic Organic Contaminants, Other Regulated Contaminants, Group I Unregulated Contaminants, Group II Unregulated Contaminants, Group III Unregulated Contaminants; CWA - Microbiology, Metals, General Chemistry, Volatile Organics, Extractable Organics, Pesticides-Herbicides-PCB's, Whole Effluent Toxicity; RCRA/CERCLA - Metals, General Chemistry, Volatile Organics, Extractable Organics, Pesticides-Herbicides-PCB's*************

Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are on file at the Bureau of Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

EFFECTIVE JULY 1, 2001 **THROUGH JUNE 30, 2002**

GREAT SEAL OF THE STATE OF FLORIDA IN GOD WE TRUST

Ming S. Chan, Ph.D.
Bureau Chief, Bureau of Laboratories
Florida Department of Health
DH Form 1697, 3/98

NON - TRANSFERABLE - N 16 079

COPY

FLORIDA DEPARTMENT OF HEALTH

State of Florida, Department of Health
Bureau of Laboratories

This is to certify that

E84167

Benchmark EnviroAnalytical, Inc.
653 Tenth Street East
Palmetto, FL 34221

has complied with Florida Administrative Code 64E-1, for the examination of Environmental samples in the following categories:

SDWA - Microbiology, Primary Inorganic; CWA - Microbiology, Metals, General Chemistry; RCRA/CERCLA- Metals**************

Continued certification is contingent upon successful on-going compliance with FAC Rule 64E-1 regulations. Specific methods and analytes certified are on file at the Bureau of Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

EFFECTIVE JULY 1, 2001 **THROUGH JUNE 30, 2002**

Ming S. Chan, Ph.D.
Bureau Chief, Bureau of Laboratories
Florida Department of Health
DH Form 1629, 3/98

NON - TRANSFERABLE - F 350 167

ATTACHMENT L-10

INITIAL COVER SPECIFICATIONS

ATTACHMENT L-10

INITIAL COVER SPECIFICATIONS

Materials approved for use as initial cover shall include soils as well as the following:

- Waste tires that have been cut into sufficiently small parts, which means that 70 percent of the waste tire material is cut into pieces of 4 square inches or less and 100 percent of the waste tire material is 32 square inches or less, and applied in a six (6) inch compacted layer, may be used as initial cover within the bermed working area.

- Composted yard trash, unscreened, and then mixed in the ratio of 50% unscreened compost to 50% soil, and applied in a six (6) inch compacted layer may be used as initial cover within the bermed working area. 90% of the unscreened compost shall pass through a ¾" screen prior to mixing with soil.

- Shredded asphalt roofing shingles, screened through a 1" mesh, and then mixed in the ratio of 50% shredded shingles to 50% soil, and applied in a six (6) inch compacted layer may be used as initial cover within the bermed working area.

- 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. 90% of the unscreened ground-up debris shall pass a 2" screen and 50% shall pass a ¼" screen.

- Composted yard trash, screened through ½" mesh, and then mixed in the ratio of 75% screened compost to 25% soil, and applied in a six (6) inch compacted layer may be used as initial cover, or applied in a one (1) foot compacted layer in addition to the six (6) inch initial cover may be used as intermediate cover.

- A mixture of yard trash mulch and soil such that the mixture will achieve the following: 100% passes 2" screen, 85% passes a ¾" screen, and 70% passes a ¼" screen. The mixture shall be applied in a 6-inch compacted layer.

ATTACHMENT L-11

LEACHATE REPORT FORM AND LCRS INSPECTION REPORT

SARASOTA COUNTY CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX

July 2002
DAILY PRECIPITATION DATA AND LEACHATE BALANCE

	LANDFILL	LANDFILL	RAINFALL IN	LEACHATE CELL 1	LEACHATE CELL 2	LEACHATE CELL 3	LEACHATE CELL 4	TOTAL	LEACHATE HAULED	LEACHATE PUMPED	LEACHATE REUSE[8]	LEACHATE	tank	CUMULATIVE
DATE	AREA	RAINFALL[1]	STORAGE TANK[2]	PUMPED[3]	PUMPED	PUMPED	PUMPED	LEACHATE[4]	REMOVED[5]	REMOVED[9]		BALANCE[6]	level	STORAGE[7]
	(acres)	(inches)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)		(gallons)	(feet)	(gallons)
1			0.00	0	0	0	0	0	0			0	0.00	0
2			0.00	0	0	0	0	0	0			0	0.00	0
3			0.00	0	0	0	0	0	0			0	0.00	0
4			0.00	0	0	0	0	0	0			0	0.00	0
5			0.00	0	0	0	0	0	0			0	0.00	0
6			0.00	0	0	0	0	0	0			0	0.00	0
7			0.00	0	0	0	0	0	0			0	0.00	0
8			0.00	0	0	0	0	0	0			0	0.00	0
9			0.00	0	0	0	0	0	0			0	0.00	0
10			0.00	0	0	0	0	0	0			0	0.00	0
11			0.00	0	0	0	0	0	0			0	0.00	0
12			0.00	0	0	0	0	0	0			0	0.00	0
13			0.00	0	0	0	0	0	0			0	0.00	0
14			0.00	0	0	0	0	0	0			0	0.00	0
15			0.00	0	0	0	0	0	0			0	0.00	0
16			0.00	0	0	0	0	0	0			0	0.00	0
17			0.00	0	0	0	0	0	0			0	0.00	0
18			0.00	0	0	0	0	0	0			0	0.00	0
19			0.00	0	0	0	0	0	0			0	0.00	0
20			0.00	0	0	0	0	0	0			0	0.00	0
21			0.00	0	0	0	0	0	0			0	0.00	0
22			0.00	0	0	0	0	0	0			0	0.00	0
23			0.00	0	0	0	0	0	0			0	0.00	0
24			0.00	0	0	0	0	0	0			0	0.00	0
25			0.00	0	0	0	0	0	0			0	0.00	0
26			0.00	0	0	0	0	0	0			0	0.00	0
27			0.00	0	0	0	0	0	0			0	0.00	0
28			0.00	0	0	0	0	0	0			0	0.00	0
29			0.00	0	0	0	0	0	0			0	0.00	0
30			0.00	0	0	0	0	0	0			0	0.00	0
31			0.00	0	0	0	0	0	0			0	0.00	0
TOTAL	-	**0.00**	**0.00**	**0**	**0**	**0**	**0**	**0**	**0**		**0**	**0**		
AVERAGE	*#DIV/0!*	*#DIV/0!*	-	*0*	*0*	*0*	*0*	*0*	*0*			*0*		*0*

Notes:
1. Precipitation recorded at the CCSWDC weather station.
2. Rainfall falling into the leachate storage tank (13,275 square feet area) which is classified as leachate.
3. Based on flowmeter data, the amount of leachate pumped from the Class I landfill area to the storage tank - Also see table titled Leachate Balance For Each Cell.
4. Sum of rainfall into the storage tank and the leachate pumped from the Class I landfill.
5. Quantity of leachate hauled away based on the number of truck loads.
6. Total leachate added to the storage tank minus the quantity hauled during a day (daily increase or decrease).
7. Quantity of leachate stored in the tank.
8. Leachate reused for dust control in landfill.
9. Leachate pumped from the leachate storage tank to the City of Venice for treatment based upon the flowmeter at the leachate pumping station.

FILE COPY

SOLID WASTE OPERATIONS
JUN 14 2001
RECEIVED

Facsimile

COLLIER COUNTY LANDFILLS
A WASTE MANAGEMENT COMPANY
P.O. Box 990400
Naples, Florida 34116
(941) 455-8062
(941) 455-0853 Fax

June 11, 2001

6/14/01 VHS Tape given TO Gary Bennett.

Mr. Gary Bennett
Solid Waste Operations Manager
Sarasota County Government
Environmental Services Business Center
Solid Waste Operations Division
4000 Knights Trail Road
Nokomis, Florida 34275

KA

SUBJECT: **SARASOTA LANDFILL MANAGEMENT – Leachate System Inspection**

Dear Gary:

Waste Management Inc. of Florida (WMIF) is pleased to provide a copy of the tape video for the leachate collection line inspection for Cells 1 and 2. The leachate collection lines were jet cleaned prior to the video camera recording. Records indicate that the leachate collection system is functioning as designed.

If you have any questions, please contact me at (941) 455-8062.

Sincerely,

John W. Wong
District Manager

Cc: Carolyn McCreedy, WMIF W/O Attachments
Don Groseclose, WMIF W/O Attachments

Enclosed: Florida Jet Clean - Cells 1 and 2 video

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SEP 20 2002
SOUTHWEST DISTRICT TAMPA

FLORIDA JETCLEAN INC.

PRESSURE WATER JETTING
PIPELINE INSPECTION
NO DIG POINT REPAIRS

37 WINDWARD ISLAND
CLEARWATER, FL 33767-2322
TEL: 800-226-8013 FAX: 727-442-2222

FILE COPY

SARASOTA COUNTY CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX PHASE I AREA LEACHATE COLLECTION SYSTEM

6/1/01

JETTING

Cell 1	cleanout 1	South end	800'
Cell 1	cleanout 2	North end	800'
Cell 2	cleanout 1	South end	800'
Cell 2	cleanout 2	North end	800'

VIDEO

Push Rod Video

Cell 1	cleanout 1	South end	441'	Submerged 135'-165', 166'-215', 230'-250', 360'- 380', 420'- 441'.

Tractor System Video

Cell 2	cleanout 1	South end	705'	445' partially submerged until 470'.
Cell 1	cleanout 1	South end	808'	Revideo with tractor system.
Cell 2	cleanout 2	North end	600'	Submerged 40'- 362'. Leachate on lens of camera obscures view. If system pumped down lower, this can be remedied.
Cell 1	cleanout 2	North end	504'	70' sump service.

General Comments:

1. All pipe 8" HDPE
2. Total footage in each Cell – approx. 1200'
3. Crossover jetting and video ensured total distance coverage
4. In areas where there is no visibility, the fact that a 6" x 6" camera tractor passed through the pipe, would tend to confirm that although there are "bellies" in the pipe, pipeline integrity exists.
5. Sand/debris evident in Cell1 cleanout 2 North End between 99' and 136', was allowed to remain rather than be jetted back into the sump to avoid fouling the pumps. This can be jet/vacuumed out if required.

ATTACHMENT L-12

FDEP APPROVAL LETTER FOR LEACHATE REUSE

FILE COPY

SOLID WASTE OPERATIONS

JAN 20 2000

RECEIVED

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

January 18, 2000

Mr. Gary Bennett
Sarasota County
Solid Waste Operations
4000 Knights Trail Road
Nokomis, FL 34275

Re: Leachate Reuse at SCSWDC
Permit #SO58-299180, Sarasota County

Dear Mr. Bennett:

The Department has no objection to the reuse of leachate for dust control (not re-circulation) on active areas as described in your January 12, 2000 letter and operations plan for leachate reuse via truck mounted spraying (attached), subject to the conditions in these referenced letters and attachments. The reuse of leachate for dust control at SCSWDC is considered experimental and over-application should be avoided.

If any inspections disclose problems with this leachate reuse, such as failure to maintain normal operation 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
Attachments

cc: Paul Wingler, P.E., Sarasota County
Robert Butera, P.E., FDEP Tampa
Steve Morgan, FDEP Tampa

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SEP 20 2002
SOUTHWEST DISTRICT TAMPA

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Printed on recycled paper.

SOLID WASTE OPERATIONS

JAN 2 0 2000

RECEIVED

D.E.P.

JAN 1 4 2000

Southwest District Tampa

SARASOTA COUNTY

"Dedicated to Quality Service"

January 12, 2000

Kim B. Ford, P. E.
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

Re: Central County Solid Waste Disposal Complex
Leachate Reuse

Dear Mr. Ford:

Our Contract Landfill Operator, Waste Management has requested leachate reuse as a dust control agent. They have submitted the attached "Operations Plan for Leachate Reuse via Truck Mounted Spraying" which outlines their proposed activity.

We would require the following additional conditions if the proposed activity is acceptable to the Department.

a) Leachate reuse is subject to the acceptance of the Sarasota County Solid Waste Operations Manager or his designee and will be suspended or terminated at his discretion.
b) The leachate reuse management system will operate to prevent the exposure of leachate to the stormwater control network.
c) The truck used for leachate hauling must be thoroughly cleaned before being used for any other watering purpose.
d) The truck tank must be free of leaks. If a leak is discovered the truck must be decommissioned for the purpose of repair.
e) Use of the leachate for dust control must not result in ponding within the authorized operation area of the landfill cell(s).

Sincerely,

Gerald L. Bennett

Gerald L. Bennett
Solid Waste Operations Manager

GLB:lh
Attachment
c: Anita Largent, General Manager, Solid Waste
Stephen Barton, WM/Englewood Disposal Company
Robert J. Butera, P.E., Florida Department of Environmental Protection, Tampa
Ed Norris, Sarasota Landfill Management

\\CCSWDF\VOL1\USER\shared\projects\Central County Solid Waste Disposal Complex\Landfill Operator\Correspondence\FDEP K. Ford - Leachate Reuse.doc

SOLID WASTE OPERATIONS

JAN 20 2000

RECEIVED

Sarasota County Central Solid Waste Disposal Complex
Procedures for Leachate Reuse
Operator: Sarasota Landfill Management

December 6, 1999

SOLID WASTE OPERATIONS

JAN - 4 2000

RECEIVED

Operations Plan for Leachate Reuse via Truck Mounted Spraying

Leachate reuse will be employed for dust control and as a supplemental method to manage leachate. The reuse of leachate involves spraying small quantities of leachate from a spray bar mounted on the rear of a tank-truck onto active fill areas of the landfill. This approach has been used successfully at numerous Class I landfills in Florida. The advantages of this method are the reduction of leachate by evaporation, the promotion of the decomposition of organic matter in the landfilled refuse and dust control.

The landfill operation crew will monitor the rate of leachate application, soil moisture conditions and the specific landfill areas used so that leachate application does not generate run-off. This form of leachate reuse should be acceptable as a supplementary means of leachate management. Leachate may be applied under the following conditions:

- Leachate may only be sprayed on active, bermed fill areas, including the working face, and areas with the required six (6) inches of initial cover.
- Leachate may not be sprayed on areas with intermediate or final cover.
- At all times areas receiving leachate must be controlled to prevent run-off from entering the stormwater system.
- Leachate may not be sprayed when the application area is in a saturated condition.
- The application rate of leachate should be such that leachate does not accumulate on the landfill surface, nor infiltrate quickly into the covered refuse.
- Leachate should not be sprayed at the end of the day on the initial cover of the working face or other areas. Spraying should be done early in the morning after any dew evaporates and continue until early afternoon or until all available areas have been utilized.

The Site Manager will record daily the gallons of leachate sprayed per this method and provide this information to the County on a weekly basis. Leachate reuse will be conducted in strict compliance with these procedures.

D.E.P.
APR 01 2004
Southwest District Tampa

ATTACHMENT L-13

LANDFILL RECYCLING PLAN

3-31-04

February 13, 2004

ATTACHMENT L-13

LANDFILL RECYCLING PLAN

Sarasota County Solid Waste Operations (SWO) segregates the following materials at the Central County Solid Waste Disposal Complex (CCSWDC) for the purpose of recycling these materials.

- Yard Wastes
- White Goods (i.e., household appliances)
- Waste Tires
- Construction and Demolition Wastes
- Batteries
- Waste Oil
- Lawn Mowers
- Electronic Devices

The procedures for managing each of these materials are presented below:

YARD WASTES

Yard wastes are brought to the CCSWDC as segregated loads, either from residential collection vehicles or commercial landscaping contractors. Yard waste loads are directed to the yard waste composting area located south of the Phase I Class I Landfill Area. New yard waste loads are deposited in a designated area of this site.

The incoming yard waste is stored in a pile until such time that enough material is accumulated to begin processing. Yard waste processing includes size reduction via a table grinder and screening of the size reduced materials.

Once processing is completed the resulting yard waste mulch is either placed into windrows for composting or is used by the landfill operations as erosion control and road stabilizing material. The composted material is used on site as a replacement for soil.

WHITE GOODS

White goods are separated from the waste stream at the point of collection or at the working face of the landfill. White goods are stored in the northeast corner of the yard waste composting area. White goods containing fluids are stored in an upright position until the fluids are removed or the item is picked up for removal from the site. Refrigerants are removed from the items on-site by a contractor licensed to perform this function.

The white goods are periodically collected by a steel recycler who transports the materials to a facility that recycles the materials into new steel products.

WASTE TIRES

Waste tires are delivered to the CCSWDC in segregated loads. In addition waste tires are pulled from the working face of the landfill. The waste tires are stored at the Waste Tire Processing Facility located east of the Yard Waste Composting Area. The Waste Tire Processing Facility is permitted by FDEP for storage and processing of waste tires.

Currently the contracted landfill operator is removing waste tires from the site for processing off-site. The tires are shredded and then processed for use in new products.

CONSTRUCTION AND DEMOLITION WASTE

Construction and Demolition (C&D) wastes are delivered to the CCSWDC in segregated loads. A specialized contractor operates a permitted C&D waste processing facility located at the CCSWDC, south of the Waste Tire Processing Facility. The contractor screens and sorts C&D waste and resells lumber, cardboard, concrete, and roofing shingles to various users or distributors of these materials.

BATTERIES

Waste lead-acid batteries are removed from the working face of the landfill and temporarily stored at the CCSWDC maintenance building on spill containment pallets. The storage area is under a roof and protected from rainfall.

Periodically the waste batteries are collected by a battery recycling company and the various components, mainly lead, are recovered for use in new products.

WASTE OIL

Waste oil is collected by the solid waste franchise hauler and delivered to the CCSWDC for temporary storage until collected by a waste oil recycler. The waste oil is stored at a secure container near the main entrance to the CCSWDC until collected by the recycler.

LAWNMOWERS

Lawn mowers are accepted at the CCSWDC provided that all fluids have been drained. Lawn mowers are managed as white goods. After inspection for fluids, mowers are stored in the white goods area until collected by the white goods recycling contractor.

ELECTRONIC DEVICES

Undamaged television sets, computers and monitors are collected for recycling and stored on a concrete pad until collected and removed from the site by a recycling contractor.

SECTION M

GROUNDWATER MONITORING PLAN ADDENDUM

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX SARASOTA COUNTY, FLORIDA

Prepared for:

Sarasota County Solid Waste Operations
4000 Knights Trail Road
Nokomis, Florida 34275

Prepared by:

SCS Engineers
3012 U.S. Highway 301 North, Suite 700
Tampa, Florida 33619
(813) 621-0080

File No. 09201010.05
June 28, 2002

Robert L. Westly

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SECTION 1

INTRODUCTION

On March 1, 2002, SCS Engineers (SCS) submitted the Operations Permit Renewal application for the Sarasota County Solid Waste Disposal Complex (facility) that included an evaluation of the facility's groundwater monitoring plan[1] (GWMP). The Florida Department of Environmental Protection (FDEP) reviewed SCS' evaluation of the GWMP and requested modifications to the plan based on the evaluation. This Groundwater Monitoring Plan Addendum (GWMPA) addresses the requested modifications.

Modifications to the GWMP which are included in this Addendum include:

- Modification of the leachate sampling method.
- Reduction of the number of surface water monitoring stations.
- Replacement of selected groundwater monitoring wells.
- Addition of monitoring wells for water levels measurements only.
- Addition of selected inorganic water quality parameters to sampling parameters.

The following sections of this GWMPA address each of the modifications listed above.

[1] "Operation Permit Application for the Sarasota County Central County Solid Waste Disposal Complex," prepared by Camp Dresser & McKee, December 1996 (Revised March 1997), Attachment 9.

SECTION 2

LEACHATE SAMPLING AND PARAMETERS

The current GWMP specifies that composite samples of leachate collected from landfill cell pump stations will be collected for analysis. The modified sampling method includes the following:

- Inorganic parameters will be analyzed in one composite sample of all active sumps.

- Field parameters and organic parameters will be analyzed in samples collected from each of the active sumps.

Field, laboratory, and additional cation and anions as listed below will be sampled semi-annually Sampling for parameters listed in 40 CFR part 258 Appendix II will be performed annually.

A composite leachate sample is collected once per year from the pump stations located at the landfill cells and analyzed for the following parameters. These remain unchanged from the current GWMP with the exception of the addition of selected cations and anions.

Field Parameters

- Specific conductivity
- pH
- Dissolved oxygen
- Color and sheen by observation

Laboratory Parameters

- Total ammonia – N
- Bicarbonate
- Chlorides
- Iron
- Mercury
- Nitrate
- Sodium
- TDS

Additional Cations and Anions (Unfiltered)

- Potassium
- Calcium
- Magnesium
- Sulfate
- Carbonate

Compositing of inorganics will be performed as follows:

Two liters of sample will be collected at each active leachate sump. These will be combined into a single container in the field. Three aliquots (sub-samples) will be collected from the container for analysis as indicated below:

Aliquot 1: 250 ml sample container, preserved with sulfuric acid, to be analyzed for:

- Total ammonia - nitrogen

Aliquot 2: 1,000 ml sample container, no preservatives, to be analyzed for:

- Bicarbonate
- Carbonate
- Chloride
- Nitrate
- Sulfate
- Total dissolved solids

Aliquot 3: 500 ml sample container, preserved with nitric acid, to be analyzed for:

- Calcium
- Iron
- Magnesium
- Mercury
- Potassium
- Sodium
- 40 CFR Part 258 Appendix II Metals (annually only)

SECTION 3

SURFACE WATER SAMPLING AND PARAMETERS

Surface water quality data has been collected from seven surface water-monitoring sites at the facility. Of these sample locations, only two sites along the Old Cow Pen Slough are immediately relevant to the landfill operations at the facility, B2 and B4R. Other sample locations along the Cow Pen Slough and Prairie System Wetlands do not directly receive runoff from areas of the landfill. Runoff from the landfill flows into stormwater ditches on the north and south sides of the landfill and into holding ponds west of the landfill prior to discharging into the Old Cow Pen Slough between monitoring locations B2 and B4R. Sampling surface water at B2 provides information about background surface water quality while sampling surface water at B4R provides information about surface water quality after runoff from the landfill has entered the Old Cow Pen Slough.

The surface water monitoring program is modified to include one hydraulically up gradient station, B2 and one hydraulically down gradient station, B4R. Frequency of sampling and sampling parameters remain unchanged from the GWMP.

These stations will continue to be sampled every six months for the following parameters which remain unchanged from the current GWMP with the exception of the addition of selected cations and anions.

Field Parameters

- Specific conductivity
- pH
- Dissolved oxygen
- Turbidity
- Temperature
- Color and sheen by observation

Laboratory Parameters

- Unionized ammonia
- Total hardness
- Biochemical oxygen demand (BOD)
- Copper
- Iron
- Mercury
- Nitrate
- Zinc
- TDS
- Total organic carbon (TOC)
- Fecal coliform

- Total phosphates
- Chlorophyll A
- Total nitrogen
- Chemical oxygen demand (COD)
- Total suspended solids (TSS)
- Those parameters listed in 40 CFR Part 258, Appendix I

Additional Cations and Anions (Unfiltered)

- Sodium
- Potassium
- Calcium
- Magnesium
- Sulfate
- Carbonate
- Bicarbonate

SECTION 4

GROUNDWATER SAMPLING AND PARAMETERS

The groundwater monitoring well program included three background wells (MW-1, MW-2 and MW-4), and five detection wells (MW-8, MW-9, MW-10R, MW-11 and MW-12). Six of these wells (MW-1, MW-2, MW-4, MW-8, MW-11 and MW-12) had screens that do not intercept the seasonal high groundwater level, and must be replaced.

REPLACEMENT OF SELECTED MONITORING WELLS

Monitoring wells MW-8A, MW-11R, and MW-12R will be installed immediately adjacent to the wells they are replacing. Background well MW-1R will replace MW-1, but will be located northeast of the landfill. Only one background well is needed, and locating this well northeast gives the 1,500 feet of coverage required by the regulations to adequately represent the background water quality upstream of the active landfill cells. Background wells MW-2 and MW-4 can be eliminated. Figure L-1 (Revised), included with this revised Section 4, shows the locations for the new ground water monitoring wells, existing groundwater monitoring wells to remain and existing groundwater monitoring wells abandoned. Figure L-1 also shows the locations for the piezometers (MW-3 and MW-5), staff gauges, surface water monitoring stations, soil monitoring gas probes and ambient gas monitoring locations. Figure GM-1 is a cross section through the landfill and background water monitoring well MW-1R. GM-2 is a well detail for the installation of the groundwater monitoring well.

Table 4-1 lists the proposed well construction characteristics for the replacement wells. The well screens were set based on the historical seasonal high and low water levels at each of the existing wells. Because of limitations of land surface elevation there are times when some of the replacement monitoring well screens will be submerged. However, the replacement of these wells decreases the frequency of submergence. Each replacement well is located near the existing well approximately 50-feet from the edge of the nearest hydraulically up gradient waste cell. Existing replaced wells will be abandoned in accordance with state regulations.

Table 4-1
Well Construction Characteristics for Replacement Wells

Monitoring Well	Length of Well Screen	Depth Below Ground Surface to Top of Screen	Depth Below Ground Surface to Bottom of Well Screen
MW-1R	10 ft.	2 ft.	12 ft.
MW-8A	10 ft.	3 ft.	13 ft.
MW-11R	10 ft	2 ft.	12 ft.
MW-12R	10 ft.	2 ft.	12 ft.

ACTIVATION OF WELLS FOR WATER LEVEL DATA

Monitoring wells MW-3 and MW-5 are inactive, but available for water level measurements. These wells are included in the groundwater monitoring program for water level data collection only. The water level measurement data will be used to draw potentiometric maps for the surficial aquifer water levels. The elevations and coordinates for MW-3 and MW-5 will be surveyed along with the other groundwater monitoring wells.

WATER QUALITY PARAMETERS AND SAMPLING FREQUENCY

Groundwater monitoring wells MW-1R, MW-8A, MW-9, MW-10, MW-11R and MW-12R will be sampled semi-annually for:

Field Parameters	Laboratory Parameters (Unfiltered)	Additional Cations and Anions (Unfiltered)
Specific conductivity	Total ammonia - nitrogen	Potassium
pH	Chlorides	Calcium
Dissolved oxygen	Iron	Magnesium
Turbidity	Mercury	Sulfate
Temperature	Nitrate	Carbonate
Color and sheen by observation	Sodium	Bicarbonate
-	Total Dissolved Solids (TDS)	-
Static Water Levels before pumping	Those parameters listed in 40 CFR Part 258, Appendix I	-

The major cations and anions will be used in Stiff diagram plots to assist in evaluating water quality characteristics.

Joseph L. Miller
P.E. # 39127

TABLE 4-1a. PROPOSED WELL REPLACEMENT CONSTRUCTION, ELEVATIONS AND PUMPING EQUIPMENT ADJUS
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX, SARASOTA COUNTY

ExistingWell ID Number [1]	Replacement Well ID Number [1]	Proposed MP Elevation [2]	Proposed Height of Top of Casing [2]	WELL ELEVATIONS (feet NGVD)					
				Land Surface Elevation	Top of Bentonite Seal [3]	Top of Sand Pack [4]	Top of Slotted Screen [5]	Top of Pump Equipment	Botto Pun Equipn
MW-1	MW-1R	24.50	3	21.50	21.0	20.0	19.50	13.50	10.5
MW-2	MW-2R	24.10	3	21.10	20.6	19.6	19.10	13.10	10.1
MW-4	MW-4R	23.53	3	20.53	20.0	19.0	18.53	12.53	9.5
MW-11	MW-11R	26.11	3	23.11	22.6	21.6	21.11	15.11	12.
MW-12	MW-12R	25.55	3	22.55	22.1	21.1	20.55	14.55	11.5

TABLE 4-1b. PROPOSED WELL REPLACEMENT CONSTRUCTION AND DEPTHS AND PUMPING EQUIPMENT ADJUS
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX, SARASOTA COUNTY

Well ID Number [1]	Replacement Well ID Number [1]	Land Surface Elevation	DEPTHS BELOW LAND SURFACE (feet)						
			Top of Bentonite Seal [3]	Top of Sand Pack [4]	Top of Slotted Screen [5]	Top of Pump Equipment	Bottom of Pump Equipment [6]	Bottom of Slotted Screen [7]	Botto PV Endc
MW-1	MW-1R	21.50	0.50	1.50	2.00	8.00	11.00	12.00	12.
MW-2	MW-2R	21.10	0.50	1.50	2.00	8.00	11.00	12.00	12.
MW-4	MW-4R	20.53	0.50	1.50	2.00	8.00	11.00	12.00	12.
MW-11	MW-11R	23.11	0.50	1.50	2.00	8.00	11.00	12.00	12.
MW-12	MW-12R	22.55	0.50	1.50	2.00	8.00	11.00	12.00	12.

NOTES:

[1] Replaced wells will be properly abandoned by a licensed drilling contractor. Proposed elevation or depth changes are shown in bold.

[2] MP Elevations will need to be resurveyed and top of casings will need to be remeasured upon completion of the well replacements. Pr

[3] Where possible, a 1-foot bentonite clay seal is used.

[4] Where possible, sand pack to be 0.5-feet above the top of screen.

[5] Top of screen to be 2-feet below land surface elevation.

[6] Bottom of dedicated pumping equipment is 1-foot above the bottom of screen elevation.

[7] Bottom of screen to be 10-feet below the top of screen.

[8] Bottom of well to be 0.5-feet below the bottom of screen.

feet NGVD = relative feet above the national geodedic vertical datum.

NA= Not Available.

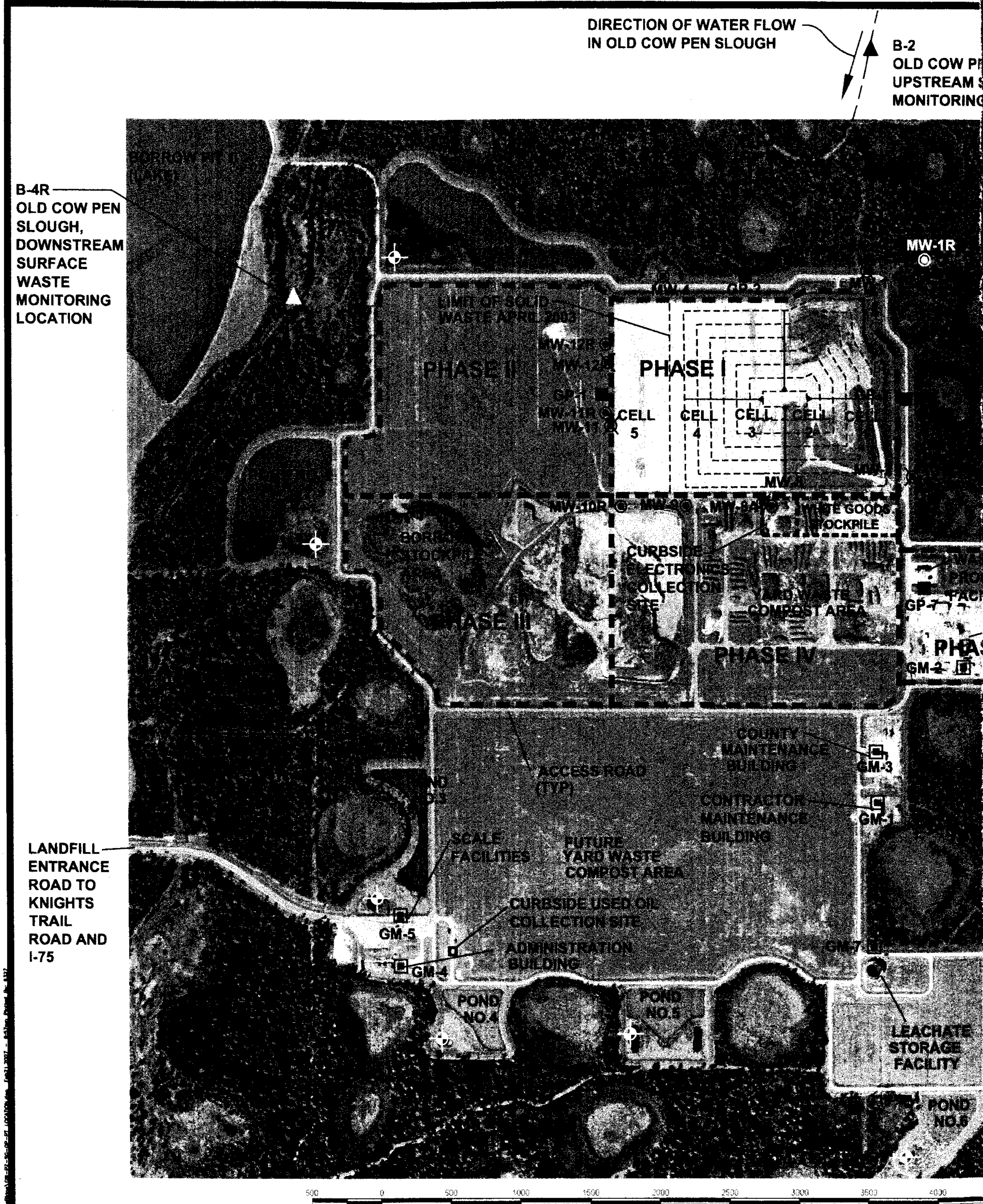
TMENTS,

n of p nent[6]	Bottom of Slotted Screen[7]	Bottom of PVC Endcap[8]	GROUNDWATER ELEVATIONS (feet NGVD) Maximum	Average	Minimum	Max - Min
0	**9.50**	**9.00**	20.57	18.82	16.45	4.12
0	**9.10**	**8.60**	21.04	19.09	17.13	3.91
3	**8.53**	**8.03**	20.36	18.74	16.32	4.04
1	**11.11**	**10.61**	20.29	18.40	17.13	3.16
5	**10.55**	**10.05**	20.24	18.24	16.97	3.27

TMENTS,

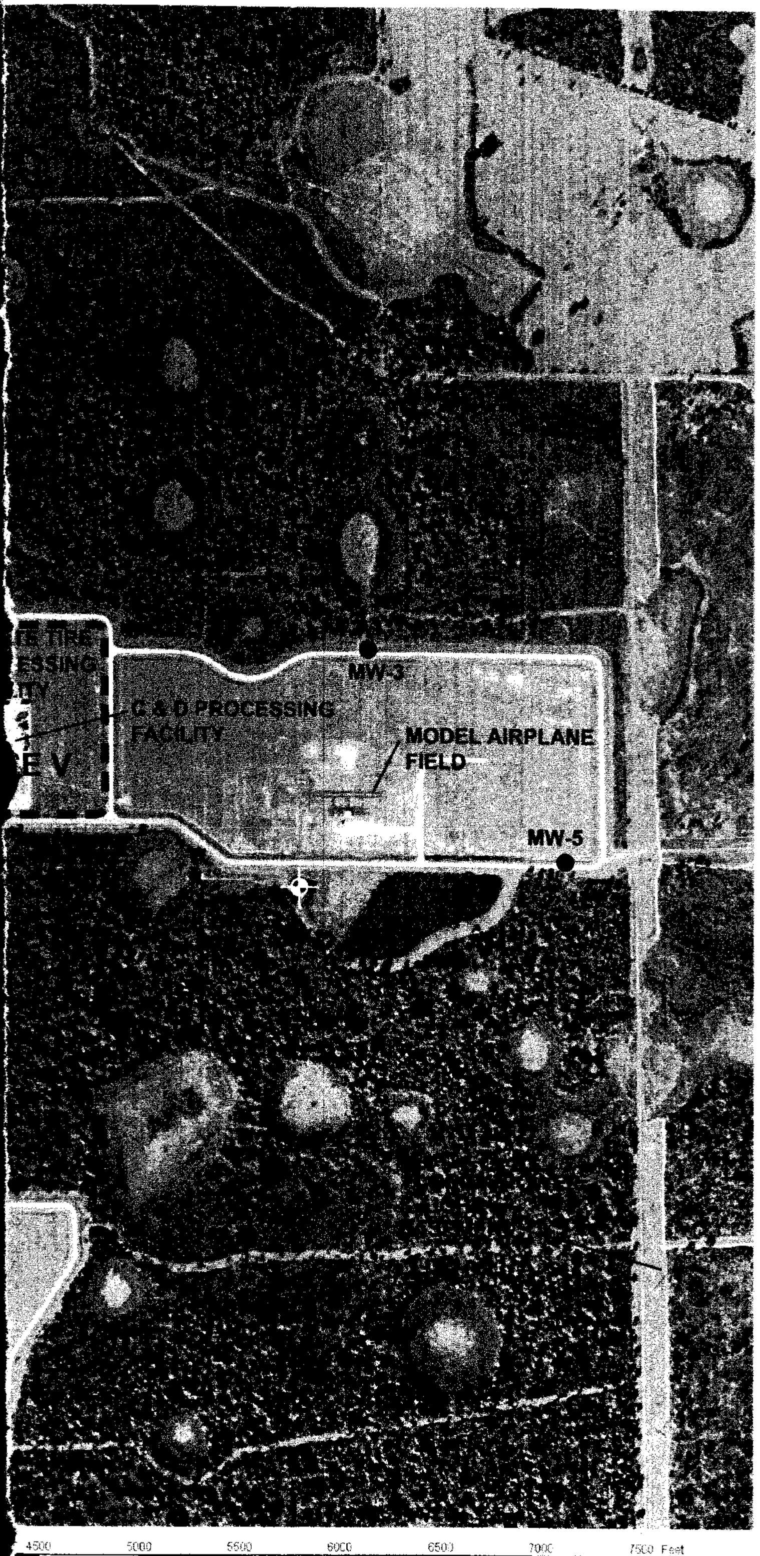
n of C ap[8]
50
50
50
50
50

posed conditions will assume a 3-foot stickup for each well.



SARASOTA C
CENTRAL COUNTY SOLID WAS
LOCATION OF GROUND WATER MONITORING WE
GAS MONITORING PROBES (GP) AND AMBIEN
FEBRUARY

EN SLOUGH,
SURFACE WATER
G LOCATION



SARASOTA COUNTY CENTRAL
SOLID WASTE DISPOSAL
COMPLEX

Natural Resources
Aerial Date: 03/01

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
FEB 26 2007
SOUTHWEST DISTRICT
TAMPA

N

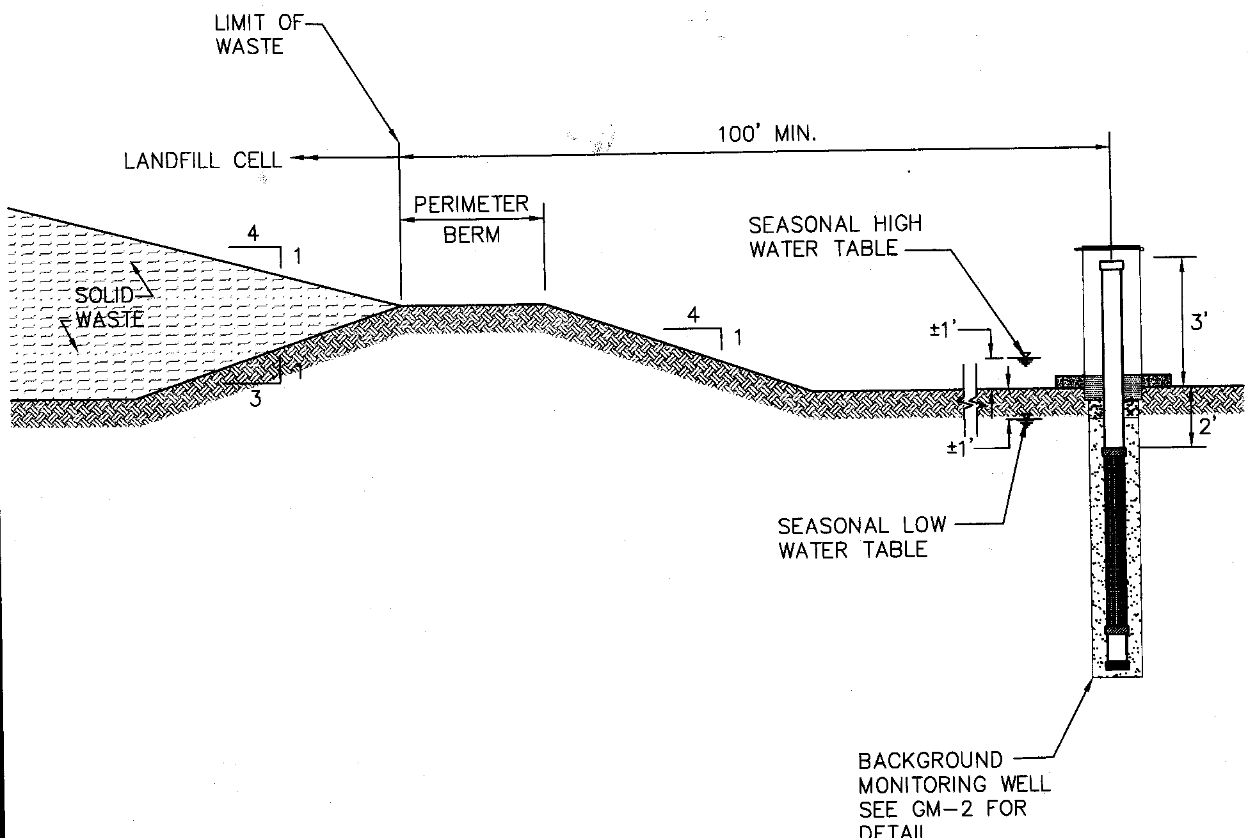
LEGEND:

- ● PIEZOMETERS (2) - MW-3 & MW-5
- ◉ GROUNDWATER MONITORING WELLS (6) - MW-1R, MW-8A, MW-9, MW-10R, MW-11R & MW-12R
- STAFF GAUGE LOCATIONS (7) - IN PONDS 1 THROUGH 7
- ▲ SURFACE WATER MONITORING STATIONS (2) - B-2 & B-4R
- ■ SOIL MONITORING GAS PROBES (4) - GP-1, GP-2, GP-3 & GP-7
- ▣ AMBIENT GAS MONITORING LOCATIONS (6) -
  - GM-1 CONTRACTOR'S MAINTENANCE BUILDING AND YARD
  - GM-2 C&D PROCESSING AREA
  - GM-3 COUNTY MAINTENANCE BUILDING
  - GM-4 ADMINISTRATION BUILDING
  - GM-5 SCALE HOUSE
  - GM-7 CONTROL PANEL AT LEACHATE STORAGE FACILITY
- ABANDONED GROUNDWATER MONITORING WELLS (6) MW-1, MW-2, MW-4, MW-8, MW-11 & MW-12
- ---- LIMITS OF SOLID WASTE

Map Version: 02/03/03

OUNTY
TE DISPOSAL COMPLEX
LS, PIEZOMETERS, STAFF GAUGES, SOIL
GAS MONITORING LOCATIONS (GM)
07

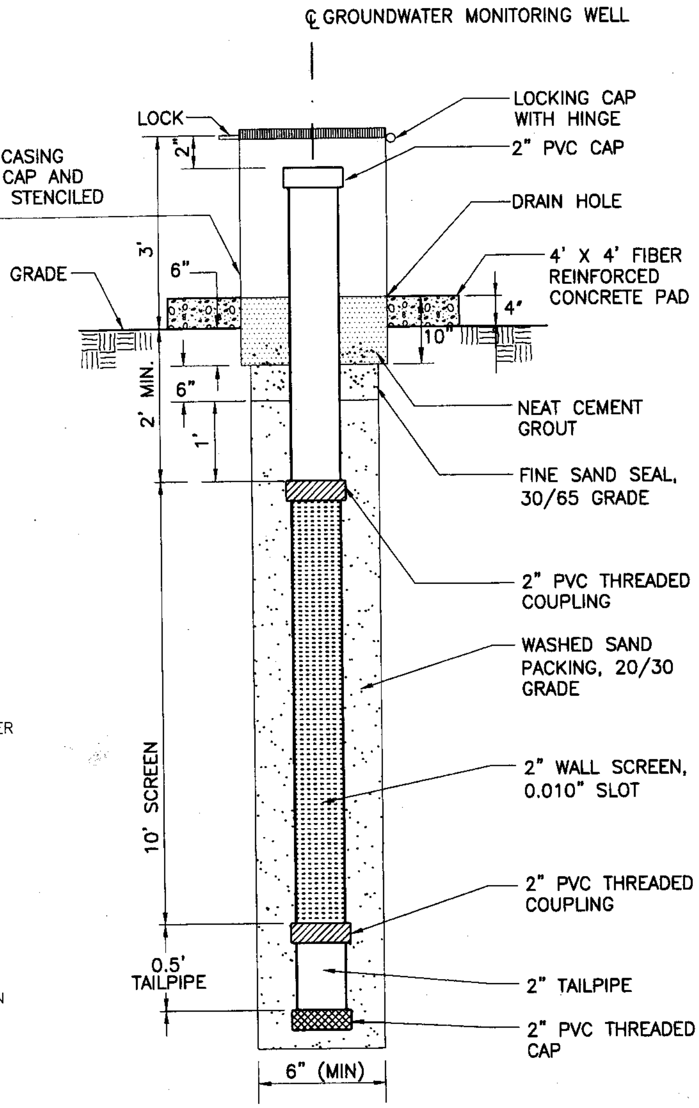
FIGURE L-1
REVISED



FEB. 19, 2007

U:\OldH_S\ENVCADD\WASTEMAN\Manatee\LenaRd\Permit-renewal-2004\SARASOTA CO_NEW WELL LOCATION.dwg Feb21,2007 - 6:03pm Plotted By: 9327

PBSJ	SARASOTA COUNTY CENTRAL LANDFILL BACKGROUND WELL MW-1R SECTION	GM-1



CONSTRUCTION NOTES:

1. ALL WORK RELATED TO ABANDONMENT OR INSTALLATION OF MONITORING WELLS, SHALL BE DONE BY A FLORIDA CERTIFIED WATER WELL DRILLER.

2. ALL MONITORING WELLS, INDICATED ON THE DRAWINGS SHALL BE ABANDONED IN ACCORDANCE WITH F.A.C. RULE 62-532.440, AND THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD). THE DRILLER SHALL SUBMIT A WRITTEN REPORT TO THE FLORIDA DEPARTMENT OF ENVIRONMNETAL PROTECTION, WITH COPIES TO THE OWNER AND ENGINEER, DOCUMENTING VERIFICATION OF THE WELL ABANDONMENT WITHIN 90 DAYS OF ABANDONMENT. DOCUMENTATION OF ABANDONMENT SHALL INCLUDE A MAP SHOWING LOCATIONS AND SWFWMD ABANDONMENT RECORDS.

3. 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.

   A. FDEP FORM 62-522.900(3) MONITORING WELL COMPLETION REPORT

   B. 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 ABONDONED) 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.

4. 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.

2" DIAMETER GROUNDWATER MONITORING WELL DETAIL

FEB. 19, 2007

PBSJ

SARASOTA COUNTY CENTRAL LANDFILL GROUND WATER MONITORING BACKGROUND WELL DETAIL

GM-2

SECTION M, APPENDIX A

P-1

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLETION		
			05/18/1993	08/24/1993	12/13/1993
Inorganic Parameters:					
Total Dissolved Solids (TDS) [2]	500.0	mg/l	---	340.0	420.0
Ammonia [3]	2.8	mg/l	---	0.20	---
Nitrate [1]	10.0	mg/l	<0.03	0.44	<.01
Chloride [2]	250.0	mg/l	16.50	20.00	19.00
Cobalt [3]	420.0	ug/l	---	---	---
Mercury [1]	2.0	ug/l	<0.2	<0.20	<0.014
Thallium [1]	2.0	ug/l	<1.0	---	---
Antimony [1]	6.0	ug/l	<3.0	---	---
Arsenic [1]	50.0	ug/l	<5.0	4.00	4.00
Barium [1]	2000.0	ug/l	46.00	---	---
Beryllium [1]	4.0	ug/l	<0.20	---	---
Cadmium [1]	5.0	ug/l	<0.40	15.00	<5.4
Chromium [1]	100.0	ug/l	<2.0	<20.0	<3.4
Copper [2]	1000.0	ug/l	<2.0	---	---
Iron [2]	0.3	mg/l	5.22	5.39	4.60
Lead [1]	15.0	ug/l	2.00	<20.0	<1.7
Nickel [1]	100.0	ug/l	<2.0	---	---
Selenium [1]	50.0	ug/l	<1.2	---	---
Silver [2]	100.0	ug/l	<4.0	---	---
Sodium [1]	160.0	mg/l	11.30	11.20	11.00
Vanadium [3]	49.0	ug/l	---	---	---
Zinc [2]	5000.0	ug/l	24.00	---	---
Field Parameters:					
Field pH [2]	6.5-8.5	units	7.00	---	6.88
Field Conductivity	NA	umhos	588.90	---	588.00
Field Turbidity	NA	ntus	---	---	---
Field Dissolved Oxygen	NA	mg/l	---	---	---
Field Temperature	NA	deg. C	21.80	---	---
Organic Parameters:					
1,2-dibromo-3-chloropropane:DBCP) [1]	0.2	ug/l	<1.0	---	---
1,2-dibromoethane:EDB [1]	0.02	ug/l	---	---	---
Acetone [3]	700	ug/l	---	---	---
Acrylonitrile [3]	1	ug/l	<10	---	---
Benzene [1]	1	ug/l	<1.0	<0.5	<1
Bromochloromethane [3]	91	ug/l	---	---	---
Bromodichloromethane [3]	0.6	ug/l	<1.0	<0.3	<1
Bromoform [3]	4.4	ug/l	<1.0	<1.0	<1
Methyl bromide: bromomethane [3]	9.8	ug/l	<1.0	<1.0	---
methyl ethyl ketone: (MEK):2-butenone [3]	4200	ug/l	---	---	---
Carbon Disulfide [3]	700	ug/l	---	---	---
Carbon Tetrachloride [1]	3	ug/l	<1.0	<0.3	<1
Chlorobenzene [1]	100	ug/l	<1.0	<2.0	<1
Chloroethane [3]	12	ug/l	<1.0	<1.0	<1.5
Chloroform: trichloromethane [3]	5.7	ug/l	<1.0	<1.0	---
methyl chloride:chloromethane [3]	2.7	ug/l	<1.0	<1.0	---
Dibromochloromethane [3]	0.4	ug/l	<1.0	<1.0	---
Methylene bromide:dibromomethane [3]	70	ug/l	---	---	---
o-dichlorobenzene: (1,2-) [1]	600	ug/l	---	<2.0	<1
p-dichlorobenzene: (1,4-) [1]	75	ug/l	---	<1.0	<1
trans-1,4-dichloro-2-butene	na	ug/l	---	---	---
1,1-dichloroethane [3]	70	ug/l	<1.0	<0.3	<1
1,2-dichloroethane [1]	3	ug/l	<1.0	<0.3	<1
1,1-dichloroethylene [1]	7	ug/l	<1.0	<0.3	---
cis-1,2-dichloroethylene [1]	70	ug/l	---	---	---
trans-1,2-dichloroethylene [1]	100	ug/l	---	<0.3	---
1,2-dichloropropane [1]	5	ug/l	<1.0	<0.6	<1
cis-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
trans-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
ethylbenzene [1]	700	ug/l	<1.0	<1.0	<1
2-hexanone:MBK [3]	280	ug/l	---	---	---
Methyl iodide: Iodomethane	NA	ug/l	---	---	---
methylene chloride:dichloromethane [1]	5	ug/l	<1.0	<0.3	---
4-methyl-2-pentanone:MIBK [3]	560	ug/l	---	---	---
Styrene [1]	100	ug/l	<1	---	---
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	---	---	---
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1.0	<0.3	<1
Tetrachloroethylene [1]	3	ug/l	<1.0	<0.3	<1
Toluene [1]	1000	ug/l	<1.0	<0.8	<1
1,1,1-trichloroethane [1]	200	ug/l	<1.0	<0.3	<1
1,1,2-trichloroethane [1]	5	ug/l	<1.0	<1.0	<1
Trichloroethylene: trichloroethene [1]	3	ug/l	<1.0	<0.3	---
Trichlorofluoromethane: CFC-11 [3]	2100	ug/l	<1.0	<0.3	<3.2
1,2,3-trichloropropane [3]	0.2	ug/l	---	---	---
Vinyl acetate [3]	88	ug/l	---	---	---
Vinyl chloride [1]	1	ug/l	<1.0	<0.6	<2.1
Xylenes [1]	10000	ug/l	<1.0	---	---

Notes:
MCL = Maximum Contamination Level.
NA = Not Available.
--- = Not Tested.
Gray shading = Sample result above the MCL.
[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).
[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).
[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

P-2

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLETION 05/18/1993	08/24/1993	12/13/1993
Inorganic Parameters:					
Total Dissolved Solids (TDS) [2]	500.0	mg/l	---	360.0	408.0
Ammonia [3]	2.8	mg/l	---	0.04	---
Nitrate [1]	10.0	mg/l	0.03	0.50	<0.1
Chloride [2]	250.0	mg/l	13.90	17.00	18.00
Cobalt [3]	420.0	ug/l	---	---	---
Mercury [1]	2.0	ug/l	<0.20	<0.20	<0.014
Thallium [1]	2.0	ug/l	<1.0	---	---
Antimony [1]	6.0	ug/l	<3.0	---	---
Arsenic [1]	50.0	ug/l	<5.0	3.00	2.00
Barium [1]	2000.0	ug/l	37.00	---	---
Beryllium [1]	4.0	ug/l	<0.20	---	---
Cadmium [1]	5.0	ug/l	<0.40	12.00	7.50
Chromium [1]	100.0	ug/l	3.00	<20	<3.4
Copper [2]	1000.0	ug/l	<2.0	---	---
Iron [2]	0.3	mg/l	4.03	5.94	3.99
Lead [1]	15.0	ug/l	1.00	<20	<1.7
Nickel [1]	100.0	ug/l	3.00	---	---
Selenium [1]	50.0	ug/l	<1.20	---	---
Silver [2]	100.0	ug/l	<4.0	---	---
Sodium [1]	160.0	mg/l	16.60	15.10	23.70
Vanadium [3]	49.0	ug/l	---	---	---
Zinc [2]	5000.0	ug/l	2.00	---	---
Field Parameters:					
Field pH [2]	6.5-8.5	units	6.90	---	6.57
Field Conductivity	NA	umhos	463.20	---	537.00
Field Turbidity	NA	ntus	---	---	---
Field Dissolved Oxygen	NA	mg/l	---	---	---
Field Temperature	NA	deg. C	22.50	---	---
Organic Parameters:					
1,2-dibromo-3-chloropropane:DBCP) [1]	0.2	ug/l	<1.0	---	---
1,2-dibromoethane:EDB [1]	0.02	ug/l	---	---	---
Acetone [3]	700	ug/l	---	---	---
Acrylonitrile [3]	1	ug/l	<10	---	---
Benzene [1]	1	ug/l	<1.0	<0.5	<1
Bromochloromethane [3]	91	ug/l	---	---	---
Bromodichloromethane [3]	0.6	ug/l	<1.0	<0.3	<1
Bromoform [3]	4.4	ug/l	<1.0	<1.0	<1
Methyl bromide: bromomethane [3]	9.8	ug/l	<1.0	<1.0	---
methyl ethyl ketone: (MEK);2-butenone [3]	4200	ug/l	---	---	---
Carbon Disulfide [3]	700	ug/l	---	---	---
Carbon Tetrachloride [1]	3	ug/l	<1.0	<0.3	<1
Chlorobenzene [1]	100	ug/l	<1.0	<2.0	<1
Chloroethane [3]	12	ug/l	<1.0	<1.0	<1.5
Chloroform: trichloromethane [3]	5.7	ug/l	<1.0	<1.0	---
methyl chloride:chloromethane [3]	2.7	ug/l	10.00	<1.0	---
Dibromochloromethane [3]	0.4	ug/l	<1.0	<1.0	---
Methylene bromide:dibromomethane [3]	70	ug/l	---	---	---
o-dichlorobenzene: (1,2-) [1]	600	ug/l	---	<2.0	<1
p-dichlorobenzene: (1,4-) [1]	75	ug/l	---	<1.0	<1
trans-1,4-dichloro-2-butene	na	ug/l	---	---	---
1,1-dichloroethane [3]	70	ug/l	<1.0	<0.3	<1
1,2-dichloroethane [1]	3	ug/l	<1.0	<0.3	<1
1,1-dichloroethylene [1]	7	ug/l	<1.0	<0.3	---
cis-1,2-dichloroethylene [1]	70	ug/l	---	---	---
trans-1,2-dichloroethylene [1]	100	ug/l	---	<0.3	---
1,2-dichloropropane [1]	5	ug/l	<1.0	<0.6	<1
cis-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
trans-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
ethylbenzene [1]	700	ug/l	<1.0	<1.0	<1
2-hexanone:MBK [3]	280	ug/l	---	---	---
Methyl iodide: Iodomethane	NA	ug/l	---	---	---
methylene chloride:dichloromethane [1]	5	ug/l	<1.0	<0.3	---
4-methyl-2-pentanone:MIBK [3]	560	ug/l	---	---	---
Styrene [1]	100	ug/l	<1	---	---
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	---	---	---
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1.0	<0.3	<1
Tetrachloroethylene [1]	3	ug/l	<1.0	<0.3	<1
Toluene [1]	1000	ug/l	<1.0	<0.8	<1
1,1,1-trichloroethane [1]	200	ug/l	<1.0	<0.3	<1
1,1,2-trichloroethane [1]	5	ug/l	<1.0	<1.0	<1
Trichloroethylene: trichloroethene [1]	3	ug/l	<1.0	<0.3	---
Trichlorofluoromethane: CFC-11 [3]	2100	ug/l	<1.0	<0.3	<3.2
1,2,3-trichloropropane [3]	0.2	ug/l	---	---	---
Vinyl acetate [3]	88	ug/l	---	---	---
Vinyl chloride [1]	1	ug/l	<1.0	<0.6	<2.1
Xylenes [1]	10000	ug/l	<1.0	---	---

Notes:
MCL = Maximum Contamination Level.
NA = Not Available.
--- = Not Tested.
Gray shading = Sample result above the MCL.
[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).
[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).
[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

CENTRAL COUNTY SOLID WAST DISPOSAL COMPLEX
BIENNIAL GROUNDWATER MONITORING REPORT
FEBRUARY 2002

P-2D

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLETION 05/18/1993	08/24/1993	12/13/1993
Inorganic Parameters:					
Total Dissolved Solids (TDS) [2]	500.0	mg/l	---	580.0	666.0
Ammonia [3]	2.8	mg/l	---	0.30	---
Nitrate [1]	10.0	mg/l	<0.030	0.11	<0.1
Chloride [2]	250.0	mg/l	118.00	134.00	137.00
Cobalt [3]	420.0	ug/l	---	---	---
Mercury [1]	2.0	ug/l	<0.20	<0.2	<0.014
Thallium [1]	2.0	ug/l	<1.0	---	---
Antimony [1]	6.0	ug/l	<3.0	---	---
Arsenic [1]	50.0	ug/l	<5.0	<1.0	<1.2
Barium [1]	2000.0	ug/l	32.00	---	---
Beryllium [1]	4.0	ug/l	<0.20	---	---
Cadmium [1]	5.0	ug/l	<0.40	15.00	<5.4
Chromium [1]	100.0	ug/l	7.00	<20	<3.4
Copper [2]	1000.0	ug/l	<2.0	---	---
Iron [2]	0.3	mg/l	0.60	0.61	0.403
Lead [1]	15.0	ug/l	4.00	<20	<1.7
Nickel [1]	100.0	ug/l	3.00	---	---
Selenium [1]	50.0	ug/l	<1.2	---	---
Silver [2]	100.0	ug/l	<4.0	---	---
Sodium [1]	160.0	mg/l	100.00	97.90	95.70
Vanadium [3]	49.0	ug/l	---	---	---
Zinc [2]	5000.0	ug/l	6.00	---	---
Field Parameters:					
Field pH [2]	6.5-8.5	units	7.67	---	7.30
Field Conductivity	NA	umhos	927.80	---	979.00
Field Turbidity	NA	ntus	---	---	---
Field Dissolved Oxygen	NA	mg/l	---	---	---
Field Temperature	NA	deg. C	23.50	---	---
Organic Parameters:					
1,2-dibromo-3-chloropropane:DBCP) [1]	0.2	ug/l	<1.0	---	---
1,2-dibromoethane;EDB [1]	0.02	ug/l	---	---	---
Acetone [3]	700	ug/l	---	---	---
Acrylonitrile [3]	1	ug/l	<10	---	---
Benzene [1]	1	ug/l	<1.0	<0.5	<1
Bromochloromethane [3]	91	ug/l	---	---	---
Bromodichloromethane [3]	0.6	ug/l	<1.0	<0.3	<1
Bromoform [3]	4.4	ug/l	<1.0	<1.0	<1
Methyl bromide; bromomethane [3]	9.8	ug/l	<1.0	<1.0	---
methyl ethyl ketone; (MEK):2-butenone [3]	4200	ug/l	---	---	---
Carbon Disulfide [3]	700	ug/l	---	---	---
Carbon Tetrachloride [1]	3	ug/l	<1.0	<0.3	<1
Chlorobenzene [1]	100	ug/l	<1.0	<2.0	<1
Chloroethane [3]	12	ug/l	<1.0	<1.0	<1.5
Chloroform; trichloromethane [3]	5.7	ug/l	<1.0	<1.0	---
methyl chloride;chloromethane [3]	2.7	ug/l	<1.0	<1.0	---
Dibromochloromethane [3]	0.4	ug/l	<1.0	<1.0	---
Methylene bromide;dibromomethane [3]	70	ug/l	---	---	---
o-dichlorobenzene: (1,2-) [1]	600	ug/l	---	<2.0	<1
p-dichlorobenzene: (1,4-) [1]	75	ug/l	---	<1.0	<1
trans-1,4-dichloro-2-butene	na	ug/l	---	---	---
1,1-dichloroethane [3]	70	ug/l	<1.0	<0.3	<1
1,2-dichloroethane [1]	3	ug/l	<1.0	<0.3	<1
1,1-dichloroethylene [1]	7	ug/l	<1.0	<0.3	---
cis-1,2-dichloroethylene [1]	70	ug/l	---	---	---
trans-1,2-dichloroethylene [1]	100	ug/l	---	<0.3	---
1,2-dichloropropane [1]	5	ug/l	<1.0	<0.6	<1
cis-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
trans-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
ethylbenzene [1]	700	ug/l	<1.0	<1.0	<1
2-hexanone:MBK [3]	280	ug/l	---	---	---
Methyl iodide; Iodomethane	NA	ug/l	---	---	---
methylene chloride:dichloromethane [1]	5	ug/l	<1.0	<0.3	---
4-methyl-2-pentanone:MIBK [3]	560	ug/l	---	---	---
Styrene [1]	100	ug/l	<1	---	---
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	---	---	---
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1.0	<0.3	<1
Tetrachloroethylene [1]	3	ug/l	<1.0	<0.3	<1
Toluene [1]	1000	ug/l	<1.0	<0.8	<1
1,1,1-trichloroethane [1]	200	ug/l	<1.0	<0.3	<1
1,1,2-trichloroethane [1]	5	ug/l	<1.0	<1.0	<1
Trichloroethylene; trichloroethene [1]	3	ug/l	<1.0	<0.3	---
Trichlorofluoromethane; CFC-11 [3]	2100	ug/l	<1.0	<0.3	<3.2
1,2,3-trichloropropane [3]	0.2	ug/l	---	---	---
Vinyl acetate [3]	88	ug/l	---	---	---
Vinyl chloride [1]	1	ug/l	<1.0	<0.6	<2.1
Xylenes [1]	10000	ug/l	<1.0	---	---

Notes:
MCL = Maximum Contamination Level.
NA = Not Available.
--- = Not Tested.
Gray shading = Sample result above the MCL.
[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).
[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).
[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

P-3

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLETION 05/18/1993	08/24/1993	12/13/1993
Inorganic Parameters:					
Total Dissolved Solids (TDS) [2]	500.0	mg/l	---	830.0	909.0
Ammonia [3]	2.8	mg/l	---	0.60	---
Nitrate [1]	10.0	mg/l	0.103	0.75	<0.1
Chloride [2]	250.0	mg/l	185.00	150.00	160.00
Cobalt [3]	420.0	ug/l	---	---	---
Mercury [1]	2.0	ug/l	<0.20	<0.2	<0.014
Thallium [1]	2.0	ug/l	<1.0	---	---
Antimony [1]	6.0	ug/l	<3.0	---	---
Arsenic [1]	50.0	ug/l	<5.0	<1.0	<1.2
Barium [1]	2000.0	ug/l	106.00	---	---
Beryllium [1]	4.0	ug/l	<0.20	---	---
Cadmium [1]	5.0	ug/l	<0.40	15.00	<5.4
Chromium [1]	100.0	ug/l	4.00	<20	<3.4
Copper [2]	1000.0	ug/l	<2.0	---	---
Iron [2]	0.3	mg/l	12.30	9.46	8.43
Lead [1]	15.0	ug/l	1.00	<20	<1.7
Nickel [1]	100.0	ug/l	3.00	---	---
Selenium [1]	50.0	ug/l	<1.20	---	---
Silver [2]	100.0	ug/l	<4.0	---	---
Sodium [1]	160.0	mg/l	126.00	106.00	114.00
Vanadium [3]	49.0	ug/l	---	---	---
Zinc [2]	5000.0	ug/l	9.00	---	---
Field Parameters:					
Field pH [2]	6.5-8.5	units	6.86	---	6.54
Field Conductivity	NA	umhos	1288.70	---	1256.00
Field Turbidity	NA	ntus	---	---	---
Field Dissolved Oxygen	NA	mg/l	---	---	---
Field Temperature	NA	deg. C	23.50	---	---
Organic Parameters:					
1,2-dibromo-3-chloropropane:DBCP) [1]	0.2	ug/l	<1.0	---	---
1,2-dibromoethane:EDB [1]	0.02	ug/l	---	---	---
Acetone [3]	700	ug/l	---	---	---
Acrylonitrile [3]	1	ug/l	<10	---	---
Benzene [1]	1	ug/l	<1.0	<0.5	<1
Bromochloromethane [3]	91	ug/l	---	---	---
Bromodichloromethane [3]	0.6	ug/l	<1.0	<0.3	<1
Bromoform [3]	4.4	ug/l	<1.0	<1.0	<1
Methyl bromide; bromomethane [3]	9.8	ug/l	<1.0	<1.0	---
methyl ethyl ketone; (MEK);2-butenone [3]	4200	ug/l	---	---	---
Carbon Disulfide [3]	700	ug/l	---	---	---
Carbon Tetrachloride [1]	3	ug/l	<1.0	<0.3	<1
Chlorobenzene [1]	100	ug/l	<1.0	<2.0	<1
Chloroethane [3]	12	ug/l	<1.0	<1.0	<1.5
Chloroform; trichloromethane [3]	5.7	ug/l	<1.0	<1.0	---
methyl chloride;chloromethane [3]	2.7	ug/l	<1.0	<1.0	---
Dibromochloromethane [3]	0.4	ug/l	<1.0	<1.0	---
Methylene bromide;dibromomethane [3]	70	ug/l	---	---	---
o-dichlorobenzene; (1,2-) [1]	600	ug/l	---	<2.0	<1
p-dichlorobenzene; (1,4-) [1]	75	ug/l	---	<1.0	<1
trans-1,4-dichloro-2-butene	na	ug/l	---	---	---
1,1-dichloroethane [3]	70	ug/l	<1.0	<0.3	<1
1,2-dichloroethane [1]	3	ug/l	<1.0	<0.3	<1
1,1-dichloroethylene [1]	7	ug/l	<1.0	<0.3	---
cis-1,2-dichloroethylene [1]	70	ug/l	---	---	---
trans-1,2-dichloroethylene [1]	100	ug/l	---	<0.3	---
1,2-dichloropropane [1]	5	ug/l	<1.0	<0.6	<1
cis-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
trans-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
ethylbenzene [1]	700	ug/l	<1.0	<1.0	<1
2-hexanone:MBK [3]	280	ug/l	---	---	---
Methyl iodide; Iodomethane	NA	ug/l	---	---	---
methylene chloride:dichloromethane [1]	5	ug/l	<1.0	<0.3	---
4-methyl-2-pentanone:MIBK [3]	560	ug/l	---	---	---
Styrene [1]	100	ug/l	<1	---	---
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	---	---	---
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1.0	<0.3	<1
Tetrachloroethylene [1]	3	ug/l	<1.0	<0.3	<1
Toluene [1]	1000	ug/l	<1.0	<0.8	<1
1,1,1-trichloroethane [1]	200	ug/l	<1.0	<0.3	<1
1,1,2-trichloroethane [1]	5	ug/l	<1.0	<1.0	<1
Trichloroethylene; trichloroethene [1]	3	ug/l	<1.0	<0.3	---
Trichlorofluoromethane; CFC-11 [3]	2100	ug/l	<1.0	<0.3	<3.2
1,2,3-trichloropropane [3]	0.2	ug/l	---	---	---
Vinyl acetate [3]	88	ug/l	---	---	---
Vinyl chloride [1]	1	ug/l	<1.0	<0.6	<2.1
Xylenes [1]	10000	ug/l	<1.0	---	---

Notes:
MCL = Maximum Contamination Level.
NA = Not Available.
--- = Not Tested.
Gray shading = Sample result above the MCL.
[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).
[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).
[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

P-4

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLETION 05/18/1993	08/24/1993	12/01/1993
Inorganic Parameters:					
Total Dissolved Solids (TDS) [2]	500.0	mg/l	---	340.0	353.0
Ammonia [3]	2.8	mg/l	---	0.20	---
Nitrate [1]	10.0	mg/l	<0.03	0.74	<0.1
Chloride [2]	250.0	mg/l	10.80	14.00	12.00
Cobalt [3]	420.0	ug/l	---	---	---
Mercury [1]	2.0	ug/l	<0.20	<0.2	<0.014
Thallium [1]	2.0	ug/l	<1.0	---	---
Antimony [1]	6.0	ug/l	<3.0	---	---
Arsenic [1]	50.0	ug/l	<5.0	4.00	3.30
Barium [1]	2000.0	ug/l	28.00	---	---
Beryllium [1]	4.0	ug/l	<0.20	---	---
Cadmium [1]	5.0	ug/l	<0.40	13.00	5.88
Chromium [1]	100.0	ug/l	6.00	<20	<3.4
Copper [2]	1000.0	ug/l	<2.0	<20	---
Iron [2]	0.3	mg/l	8.43	9.24	8.13
Lead [1]	15.0	ug/l	5.00	---	<1.7
Nickel [1]	100.0	ug/l	<2.0	---	---
Selenium [1]	50.0	ug/l	<1.20	---	---
Silver [2]	100.0	ug/l	<0.40	---	---
Sodium [1]	160.0	mg/l	14.20	12.30	12.30
Vanadium [3]	49.0	ug/l	---	---	---
Zinc [2]	5000.0	ug/l	9.00	---	---
Field Parameters:					
Field pH [2]	6.5-8.5	units	7.33	---	6.36
Field Conductivity	NA	umhos	385.40	---	421.00
Field Turbidity	NA	ntus	---	---	---
Field Dissolved Oxygen	NA	mg/l	---	---	---
Field Temperature	NA	deg. C	23.00	---	---
Organic Parameters:					
1,2-dibromo-3-chloropropane;DBCP) [1]	0.2	ug/l	<1.0	---	---
1,2-dibromoethane;EDB [1]	0.02	ug/l	---	---	---
Acetone [3]	700	ug/l	---	---	---
Acrylonitrile [3]	1	ug/l	<10	---	---
Benzene [1]	1	ug/l	<1.0	<0.5	<1
Bromochloromethane [3]	91	ug/l	---	---	---
Bromodichloromethane [3]	0.6	ug/l	<1.0	<0.3	<1
Bromoform [3]	4.4	ug/l	<1.0	<1.0	<1
Methyl bromide; bromomethane [3]	9.8	ug/l	<1.0	<1.0	---
methyl ethyl ketone; (MEK);2-butenone [3]	4200	ug/l	---	---	---
Carbon Disulfide [3]	700	ug/l	---	---	---
Carbon Tetrachloride [1]	3	ug/l	<1.0	<0.3	<1
Chlorobenzene [1]	100	ug/l	<1.0	<2.0	<1
Chloroethane [3]	12	ug/l	<1.0	<1.0	<1.5
Chloroform; trichloromethane [3]	5.7	ug/l	<1.0	<1.0	---
methyl chloride;chloromethane [3]	2.7	ug/l	<1.0	<1.0	---
Dibromochloromethane [3]	0.4	ug/l	<1.0	<1.0	---
Methylene bromide;dibromomethane [3]	70	ug/l	---	---	---
o-dichlorobenzene; (1,2-) [1]	600	ug/l	---	<2.0	<1
p-dichlorobenzene; (1,4-) [1]	75	ug/l	---	<1.0	<1
trans-1,4-dichloro-2-butene	na	ug/l	---	---	---
1,1-dichloroethane [3]	70	ug/l	<1.0	<0.3	<1
1,2-dichloroethane [1]	3	ug/l	<1.0	<0.3	<1
1,1-dichloroethylene [1]	7	ug/l	<1.0	<0.3	---
cis-1,2-dichloroethylene [1]	70	ug/l	---	---	---
trans-1,2-dichloroethylene [1]	100	ug/l	---	<0.3	---
1,2-dichloropropane [1]	5	ug/l	<1.0	<0.6	<1
cis-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
trans-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
ethylbenzene [1]	700	ug/l	<1.0	<1.0	<1
2-hexanone;MBK [3]	280	ug/l	---	---	---
Methyl iodide; iodomethane	NA	ug/l	---	---	---
methylene chloride;dichloromethane [1]	5	ug/l	<1.0	<0.3	---
4-methyl-2-pentanone;MIBK [3]	560	ug/l	---	---	---
Styrene [1]	100	ug/l	<1	---	---
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	---	---	---
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1.0	<0.3	<1
Tetrachloroethylene [1]	3	ug/l	<1.0	<0.3	<1
Toluene [1]	1000	ug/l	<1.0	<0.8	<1
1,1,1-trichloroethane [1]	200	ug/l	<1.0	<0.3	<1
1,1,2-trichloroethane [1]	5	ug/l	<1.0	<1.0	<1
Trichloroethylene; trichloroethene [1]	3	ug/l	<1.0	<0.3	---
Trichlorofluoromethane; CFC-11 [3]	2100	ug/l	<1.0	<0.3	<3.2
1,2,3-trichloropropane [3]	0.2	ug/l	---	---	---
Vinyl acetate [3]	88	ug/l	---	---	---
Vinyl chloride [1]	1	ug/l	<1.0	<0.6	<2.1
Xylenes [1]	10000	ug/l	<1.0	---	---

Notes:
MCL = Maximum Contamination Level.
NA = Not Available.
--- = Not Tested.
Gray shading = Sample result above the MCL.
[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).
[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).
[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

P-5

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLETION 05/18/1993	08/24/1993	12/01/1993
Inorganic Parameters:					
Total Dissolved Solids (TDS) [2]	500.0	mg/l	---	490.0	474.0
Ammonia [3]	2.8	mg/l	---	0.10	---
Nitrate [1]	10.0	mg/l	<0.03	0.73	<0.1
Chloride [2]	250.0	mg/l	92.90	91.00	94.00
Cobalt [3]	420.0	ug/l	---	---	---
Mercury [1]	2.0	ug/l	<0.20	<0.2	<0.014
Thallium [1]	2.0	ug/l	<1.0	---	---
Antimony [1]	6.0	ug/l	<3.0	---	---
Arsenic [1]	50.0	ug/l	<5.0	<1.0	<2.0
Barium [1]	2000.0	ug/l	37.00	---	---
Beryllium [1]	4.0	ug/l	<0.20	---	---
Cadmium [1]	5.0	ug/l	<0.40	9.00	<5.4
Chromium [1]	100.0	ug/l	4.00	<20	6.93
Copper [2]	1000.0	ug/l	<2.0	---	---
Iron [2]	0.3	mg/l	10.20	9.79	8.08
Lead [1]	15.0	ug/l	<1.0	<20	<1.7
Nickel [1]	100.0	ug/l	<2.0	---	---
Selenium [1]	50.0	ug/l	<1.20	---	---
Silver [2]	100.0	ug/l	<4.0	---	---
Sodium [1]	160.0	mg/l	55.90	45.50	47.20
Vanadium [3]	49.0	ug/l	---	---	---
Zinc [2]	5000.0	ug/l	17.00	---	---
Field Parameters:					
Field pH [2]	6.5-8.5	units	7.50	---	6.48
Field Conductivity	NA	umhos	736.80	---	705.00
Field Turbidity	NA	ntus	---	---	---
Field Dissolved Oxygen	NA	mg/l	---	---	---
Field Temperature	NA	deg. C	22.50	---	---
Organic Parameters:					
1,2-dibromo-3-chloropropane:DBCP) [1]	0.2	ug/l	<1.0	---	---
1,2-dibromoethane;EDB [1]	0.02	ug/l	---	---	---
Acetone [3]	700	ug/l	---	---	---
Acrylonitrile [3]	1	ug/l	<10	---	---
Benzene [1]	1	ug/l	<1.0	<0.5	<1
Bromochloromethane [3]	91	ug/l	---	---	---
Bromodichloromethane [3]	0.6	ug/l	<1.0	<0.3	<1
Bromoform [3]	4.4	ug/l	<1.0	<1.0	<1
Methyl bromide; bromomethane [3]	9.8	ug/l	<1.0	<1.0	---
methyl ethyl ketone: (MEK):2-butenone [3]	4200	ug/l	---	---	---
Carbon Disulfide [3]	700	ug/l	---	---	---
Carbon Tetrachloride [1]	3	ug/l	<1.0	<0.3	<1
Chlorobenzene [1]	100	ug/l	<1.0	<2.0	<1
Chloroethane [3]	12	ug/l	<1.0	<1.0	<1.5
Chloroform: trichloromethane [3]	5.7	ug/l	<1.0	<1.0	---
methyl chloride;chloromethane [3]	2.7	ug/l	<1.0	<1.0	---
Dibromochloromethane [3]	0.4	ug/l	<1.0	<1.0	---
Methylene bromide;dibromomethane [3]	70	ug/l	---	---	---
o-dichlorobenzene: (1,2-) [1]	600	ug/l	---	<2.0	<1
p-dichlorobenzene: (1,4-) [1]	75	ug/l	---	<1.0	<1
trans-1,4-dichloro-2-butene	na	ug/l	---	---	---
1,1-dichloroethane [3]	70	ug/l	<1.0	<0.3	<1
1,2-dichloroethane [1]	3	ug/l	<1.0	<0.3	<1
1,1-dichloroethylene [1]	7	ug/l	<1.0	<0.3	---
cis-1,2-dichloroethylene [1]	70	ug/l	---	---	---
trans-1,2-dichloroethylene [1]	100	ug/l	---	<0.3	---
1,2-dichloropropane [1]	5	ug/l	<1.0	<0.6	<1
cis-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
trans-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
ethylbenzene [1]	700	ug/l	<1.0	<1.0	<1
2-hexanone:MBK [3]	280	ug/l	---	---	---
Methyl iodide: Iodomethane	NA	ug/l	---	---	---
methylene chloride;dichloromethane [1]	5	ug/l	<1.0	<0.3	---
4-methyl-2-pentanone;MIBK [3]	560	ug/l	---	---	---
Styrene [1]	100	ug/l	<1	---	---
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	---	---	---
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1.0	<0.3	<1
Tetrachloroethylene [1]	3	ug/l	<1.0	<0.3	<1
Toluene [1]	1000	ug/l	<1.0	<0.8	<1
1,1,1-trichloroethane [1]	200	ug/l	<1.0	<0.3	<1
1,1,2-trichloroethane [1]	5	ug/l	<1.0	<1.0	<1
Trichloroethylene; trichloroethene [1]	3	ug/l	<1.0	<0.3	---
Trichlorofluoromethane; CFC-11 [3]	2100	ug/l	<1.0	<0.3	<3.2
1,2,3-trichloropropane [3]	0.2	ug/l	---	---	---
Vinyl acetate [3]	88	ug/l	---	---	---
Vinyl chloride [1]	1	ug/l	<1.0	<0.6	<2.1
Xylenes [1]	10000	ug/l	<1.0	---	---

Notes:

MCL = Maximum Contamination Level.

NA = Not Available.

--- = Not Tested.

Gray shading = Sample result above the MCL.

[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

P-6

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLETION 05/18/1993	08/24/1993	12/13/1993
Inorganic Parameters:					
Total Dissolved Solids (TDS) [2]	500.0	mg/l	---	630.0	464.0
Ammonia [3]	2.8	mg/l	---	<0.1	---
Nitrate [1]	10.0	mg/l	0.26	0.96	<0.1
Chloride [2]	250.0	mg/l	53.60	139.00	67.00
Cobalt [3]	420.0	ug/l	---	---	---
Mercury [1]	2.0	ug/l	<0.20	<0.2	<0.014
Thallium [1]	2.0	ug/l	<1.0	---	---
Antimony [1]	6.0	ug/l	<3.0	---	---
Arsenic [1]	50.0	ug/l	<5.0	11.00	9.20
Barium [1]	2000.0	ug/l	15.00	---	---
Beryllium [1]	4.0	ug/l	<0.20	---	---
Cadmium [1]	5.0	ug/l	<0.40	13.00	8.96
Chromium [1]	100.0	ug/l	5.00	<20	7.70
Copper [2]	1000.0	ug/l	<2.0	---	---
Iron [2]	0.3	mg/l	11.00	12.10	10.10
Lead [1]	15.0	ug/l	3.00	70.00	<1.7
Nickel [1]	100.0	ug/l	<2.0	---	---
Selenium [1]	50.0	ug/l	<1.20	---	---
Silver [2]	100.0	ug/l	<4.0	---	---
Sodium [1]	160.0	mg/l	49.40	---	45.40
Vanadium [3]	49.0	ug/l	---	---	---
Zinc [2]	5000.0	ug/l	<2.0	---	---
Field Parameters:					
Field pH [2]	6.5-8.5	units	7.72	---	6.37
Field Conductivity	NA	umhos	526.30	---	598.00
Field Turbidity	NA	ntus	---	---	---
Field Dissolved Oxygen	NA	mg/l	---	---	---
Field Temperature	NA	deg. C	22.50	---	---
Organic Parameters:					
1,2-dibromo-3-chloropropane;DBCP) [1]	0.2	ug/l	<1.0	---	---
1,2-dibromoethane;EDB [1]	0.02	ug/l	---	---	---
Acetone [3]	700	ug/l	---	---	---
Acrylonitrile [3]	1	ug/l	<10	---	---
Benzene [1]	1	ug/l	<1.0	<0.5	<1
Bromochloromethane [3]	91	ug/l	---	---	---
Bromodichloromethane [3]	0.6	ug/l	<1.0	<0.3	<1
Bromoform [3]	4.4	ug/l	<1.0	<1.0	<1
Methyl bromide: bromomethane [3]	9.8	ug/l	<1.0	<1.0	---
methyl ethyl ketone; (MEK);2-butenone [3]	4200	ug/l	---	---	---
Carbon Disulfide [3]	700	ug/l	---	---	---
Carbon Tetrachloride [1]	3	ug/l	<1.0	<0.3	<1
Chlorobenzene [1]	100	ug/l	<1.0	<2.0	<1
Chloroethane [3]	12	ug/l	<1.0	<1.0	<1.5
Chloroform; trichloromethane [3]	5.7	ug/l	<1.0	<1.0	---
methyl chloride;chloromethane [3]	2.7	ug/l	<1.0	<1.0	---
Dibromochloromethane [3]	0.4	ug/l	<1.0	<1.0	---
Methylene bromide;dibromomethane [3]	70	ug/l	---	---	---
o-dichlorobenzene; (1,2-) [1]	600	ug/l	---	<2.0	<1
p-dichlorobenzene; (1,4-) [1]	75	ug/l	---	<1.0	<1
trans-1,4-dichloro-2-butene	na	ug/l	---	---	---
1,1-dichloroethane [3]	70	ug/l	<1.0	<0.3	<1
1,2-dichloroethane [1]	3	ug/l	<1.0	<0.3	<1
1,1-dichloroethylene [1]	7	ug/l	<1.0	<0.3	---
cis-1,2-dichloroethylene [1]	70	ug/l	---	---	---
trans-1,2-dichloroethylene [1]	100	ug/l	---	<0.3	---
1,2-dichloropropane [1]	5	ug/l	<1.0	<0.6	<1
cis-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
trans-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
ethylbenzene [1]	700	ug/l	<1.0	<1.0	<1
2-hexanone;MBK [3]	280	ug/l	---	---	---
Methyl iodide; Iodomethane	NA	ug/l	---	---	---
methylene chloride;dichloromethane [1]	5	ug/l	<1.0	<0.3	---
4-methyl-2-pentanone;MIBK [3]	560	ug/l	---	---	---
Styrene [1]	100	ug/l	<1	---	---
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	---	---	---
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1.0	<0.3	<1
Tetrachloroethylene [1]	3	ug/l	<1.0	<0.3	<1
Toluene [1]	1000	ug/l	<1.0	<0.8	<1
1,1,1-trichloroethane [1]	200	ug/l	<1.0	<0.3	<1
1,1,2-trichloroethane [1]	5	ug/l	<1.0	<1.0	<1
Trichloroethylene; trichloroethene [1]	3	ug/l	<1.0	<0.3	---
Trichlorofluoromethane; CFC-11 [3]	2100	ug/l	<1.0	<0.3	<3.2
1,2,3-trichloropropane [3]	0.2	ug/l	---	---	---
Vinyl acetate [3]	88	ug/l	---	---	---
Vinyl chloride [1]	1	ug/l	<1.0	<0.6	<2.1
Xylenes [1]	10000	ug/l	<1.0	---	---

Notes:
MCL = Maximum Contamination Level.
NA = Not Available.
--- = Not Tested.
Gray shading = Sample result above the MCL.
[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).
[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).
[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

P-10

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLETION 05/18/1993	08/24/1993	12/13/1993
Inorganic Parameters:					
Total Dissolved Solids (TDS) [2]	500.0	mg/l	---	330.0	900.0
Ammonia [3]	2.8	mg/l	---	<0.1	---
Nitrate [1]	10.0	mg/l	0.033	0.61	<0.1
Chloride [2]	250.0	mg/l	225.00	55.00	211.00
Cobalt [3]	420.0	ug/l	---	---	---
Mercury [1]	2.0	ug/l	<0.20	<0.20	<0.014
Thallium [1]	2.0	ug/l	<1.0	---	---
Antimony [1]	6.0	ug/l	<3.0	---	---
Arsenic [1]	50.0	ug/l	<5.0	1.00	3.00
Barium [1]	2000.0	ug/l	25.00	---	---
Beryllium [1]	4.0	ug/l	<0.20	---	---
Cadmium [1]	5.0	ug/l	<0.40	<10	8.00
Chromium [1]	100.0	ug/l	3.00	50.00	<3.4
Copper [2]	1000.0	ug/l	<2.0	---	---
Iron [2]	0.3	mg/l	9.44	2.66	9.42
Lead [1]	15.0	ug/l	2.00	<20	<1.7
Nickel [1]	100.0	ug/l	<2.0	---	---
Selenium [1]	50.0	ug/l	<1.20	---	---
Silver [2]	100.0	ug/l	<4.0	---	---
Sodium [1]	160.0	mg/l	134.00	59.90	106.00
Vanadium [3]	49.0	ug/l	---	---	---
Zinc [2]	5000.0	ug/l	40.00	---	---
Field Parameters:					
Field pH [2]	6.5-8.5	units	7.98	---	6.42
Field Conductivity	NA	umhos	1197.90	---	1144.00
Field Turbidity	NA	ntus	---	---	---
Field Dissolved Oxygen	NA	mg/l	---	---	---
Field Temperature	NA	deg. C	23.00	---	---
Organic Parameters:					
1,2-dibromo-3-chloropropane;DBCP) [1]	0.2	ug/l	<1.0	---	---
1,2-dibromoethane;EDB [1]	0.02	ug/l	---	---	---
Acetone [3]	700	ug/l	---	---	---
Acrylonitrile [3]	1	ug/l	<10	---	---
Benzene [1]	1	ug/l	<1.0	<0.5	<1
Bromochloromethane [3]	91	ug/l	---	---	---
Bromodichloromethane [3]	0.6	ug/l	<1.0	<0.3	<1
Bromoform [3]	4.4	ug/l	<1.0	<1.0	<1
Methyl bromide; bromomethane [3]	9.8	ug/l	<1.0	<1.0	---
methyl ethyl ketone; (MEK);2-butenone [3]	4200	ug/l	---	---	---
Carbon Disulfide [3]	700	ug/l	---	---	---
Carbon Tetrachloride [1]	3	ug/l	<1.0	<0.3	<1
Chlorobenzene [1]	100	ug/l	<1.0	<2.0	<1
Chloroethane [3]	12	ug/l	<1.0	<1.0	<1.5
Chloroform; trichloromethane [3]	5.7	ug/l	<1.0	<1.0	---
methyl chloride;chloromethane [3]	2.7	ug/l	<1.0	<1.0	---
Dibromochloromethane [3]	0.4	ug/l	<1.0	<1.0	---
Methylene bromide;dibromomethane [3]	70	ug/l	---	---	---
o-dichlorobenzene; (1,2-) [1]	600	ug/l	---	<2.0	<1
p-dichlorobenzene; (1,4-) [1]	75	ug/l	---	<1.0	<1
trans-1,4-dichloro-2-butene	na	ug/l	---	---	---
1,1-dichloroethane [3]	70	ug/l	<1.0	<0.3	<1
1,2-dichloroethane [1]	3	ug/l	<1.0	<0.3	<1
1,1-dichloroethylene [1]	7	ug/l	<1.0	<0.3	---
cis-1,2-dichloroethylene [1]	70	ug/l	---	---	---
trans-1,2-dichloroethylene [1]	100	ug/l	---	<0.3	---
1,2-dichloropropane [1]	5	ug/l	<1.0	<0.6	<1
cis-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
trans-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
ethylbenzene [1]	700	ug/l	<1.0	<1.0	<1
2-hexanone;MBK [3]	280	ug/l	---	---	---
Methyl iodide; Iodomethane	NA	ug/l	---	---	---
methylene chloride;dichloromethane [1]	5	ug/l	<1.0	<0.3	---
4-methyl-2-pentanone;MIBK [3]	560	ug/l	---	---	---
Styrene [1]	100	ug/l	<1	---	---
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	---	---	---
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1.0	<0.3	<1
Tetrachloroethylene [1]	3	ug/l	<1.0	<0.3	<1
Toluene [1]	1000	ug/l	<1.0	<0.8	<1
1,1,1-trichloroethane [1]	200	ug/l	<1.0	<0.3	<1
1,1,2-trichloroethane [1]	5	ug/l	<1.0	<1.0	<1
Trichloroethylene; trichloroethene [1]	3	ug/l	<1.0	<0.3	---
Trichlorofluoromethane; CFC-11 [3]	2100	ug/l	<1.0	<0.3	<3.2
1,2,3-trichloropropane [3]	0.2	ug/l	---	---	---
Vinyl acetate [3]	88	ug/l	---	---	---
Vinyl chloride [1]	1	ug/l	<1.0	<0.6	<2.1
Xylenes [1]	10000	ug/l	<1.0	---	---

Notes:
MCL = Maximum Contamination Level.
NA = Not Available.
--- = Not Tested.
Gray shading = Sample result above the MCL.
[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).
[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).
[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SEP 2 0 2002
SOUTHWEST DISTRICT TAMPA

P-11

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLETION 05/18/1993	08/24/1993	12/01/1993
Inorganic Parameters:					
Total Dissolved Solids (TDS) [2]	500.0	mg/l	—	950.0	837.0
Ammonia [3]	2.8	mg/l	—	0.40	—
Nitrate [1]	10.0	mg/l	<0.03	1.08	<0.1
Chloride [2]	250.0	mg/l	176.00	199.00	—
Cobalt [3]	420.0	ug/l	—	—	—
Mercury [1]	2.0	ug/l	<0.20	<0.20	<0.014
Thallium [1]	2.0	ug/l	<1.0	—	—
Antimony [3]	6.0	ug/l	<3.0	—	—
Arsenic [1]	50.0	ug/l	<5.0	13.00	3.94
Barium [1]	2000.0	ug/l	39.00	—	—
Beryllium [1]	4.0	ug/l	<0.20	—	—
Cadmium [1]	5.0	ug/l	<0.40	13.00	7.52
Chromium [1]	100.0	ug/l	<2.0	<20	<3.4
Copper [2]	1000.0	ug/l	<2.0	—	—
Iron [2]	0.3	mg/l	8.03	12.50	10.20
Lead [1]	15.0	ug/l	2.00	30.00	<1.7
Nickel [1]	100.0	ug/l	<2.0	—	—
Selenium [1]	50.0	ug/l	<1.20	—	—
Silver [2]	100.0	ug/l	<4.0	—	—
Sodium [1]	160.0	mg/l	115.00	139.00	114.00
Vanadium [3]	49.0	ug/l	—	—	—
Zinc [2]	5000.0	ug/l	3.00	—	—
Field Parameters:					
Field pH [2]	6.5-8.5	units	7.83	—	6.60
Field Conductivity	NA	umhos	1217.00	—	1328.00
Field Turbidity	NA	ntus	—	—	—
Field Dissolved Oxygen	NA	mg/l	—	—	—
Field Temperature	NA	deg. C	24.30	—	—
Organic Parameters:					
1,2-dibromo-3-chloropropane:DBCP) [1]	0.2	ug/l	<1.0	—	—
1,2-dibromoethane:EDB [1]	0.02	ug/l	—	—	—
Acetone [3]	700	ug/l	—	—	—
Acrylonitrile [3]	1	ug/l	<10	—	—
Benzene [1]	1	ug/l	<1.0	<0.5	<1
Bromochloromethane [3]	91	ug/l	—	—	—
Bromodichloromethane [3]	0.6	ug/l	<1.0	<0.3	<1
Bromoform [3]	4.4	ug/l	<1.0	<1.0	<1
Methyl bromide: bromomethane [3]	9.8	ug/l	<1.0	<1.0	—
methyl ethyl ketone: (MEK):2-butenone [3]	4200	ug/l	—	—	—
Carbon Disulfide [3]	700	ug/l	—	—	—
Carbon Tetrachloride [1]	3	ug/l	<1.0	<0.3	<1
Chlorobenzene [1]	100	ug/l	<1.0	<2.0	<1
Chloroethane [3]	12	ug/l	<1.0	<1.0	<1.5
Chloroform: trichloromethane [3]	5.7	ug/l	<1.0	<1.0	—
methyl chloride:chloromethane [3]	2.7	ug/l	<1.0	<1.0	—
Dibromochloromethane [3]	0.4	ug/l	<1.0	<1.0	—
Methylene bromide:dibromomethane [3]	70	ug/l	—	—	—
o-dichlorobenzene: (1,2-) [1]	600	ug/l	—	<2.0	<1
p-dichlorobenzene: (1,4-) [1]	75	ug/l	—	<1.0	<1
trans-1,4-dichloro-2-butene	na	ug/l	—	—	—
1,1-dichloroethane [3]	70	ug/l	<1.0	<0.3	<1
1,2-dichloroethane [1]	3	ug/l	<1.0	<0.3	<1
1,1-dichloroethylene [1]	7	ug/l	<1.0	<0.3	—
cis-1,2-dichloroethylene [1]	70	ug/l	—	—	—
trans-1,2-dichloroethylene [1]	100	ug/l	—	<0.3	—
1,2-dichloropropane [1]	5	ug/l	<1.0	<0.6	<1
cis-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
trans-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
ethylbenzene [1]	700	ug/l	<1.0	<1.0	<1
2-hexanone:MBK [3]	280	ug/l	—	—	—
Methyl iodide: iodomethane	NA	ug/l	—	—	—
methylene chloride:dichloromethane [1]	5	ug/l	<1.0	<0.3	—
4-methyl-2-pentanone:MIBK [3]	560	ug/l	—	—	—
Styrene [1]	100	ug/l	<1	—	—
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	—	—	—
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1.0	<0.3	<1
Tetrachloroethylene [1]	3	ug/l	<1.0	<0.3	<1
Toluene [1]	1000	ug/l	<1.0	<0.8	<1
1,1,1-trichloroethane [1]	200	ug/l	<1.0	<0.3	<1
1,1,2-trichloroethane [1]	5	ug/l	<1.0	<1.0	<1
Trichloroethylene; trichloroethene [1]	3	ug/l	<1.0	<0.3	—
Trichlorofluoromethane: CFC-11 [3]	2100	ug/l	<1.0	<0.3	<3.2
1,2,3-trichloropropane [3]	0.2	ug/l	—	—	—
Vinyl acetate [3]	88	ug/l	—	—	—
Vinyl chloride [1]	1	ug/l	<1.0	<0.6	<2.1
Xylenes [1]	10000	ug/l	<1.0	—	—

Notes:
MCL = Maximum Contamination Level.
NA = Not Available.
— = Not Tested.
Gray shading = Sample result above the MCL.
[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).
[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).
[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

CENTRAL COUNTY SOLID WAST DISPOSAL COMPLEX
BIENNIAL GROUNDWATER MONITORING REPORT
FEBRUARY 2002

P-12

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLETION 05/18/1993	08/24/1993	12/14/1993
Inorganic Parameters:					
Total Dissolved Solids (TDS) [2]	500.0	mg/l	---	450.0	579.0
Ammonia [3]	2.8	mg/l	---	0.20	---
Nitrate [1]	10.0	mg/l	0.199	0.93	<0.1
Chloride [2]	250.0	mg/l	103.00	101.00	---
Cobalt [3]	420.0	ug/l	---	---	94.00
Mercury [1]	2.0	ug/l	<0.20	<0.20	<0.014
Thallium [1]	2.0	ug/l	<1.0	---	---
Antimony [1]	6.0	ug/l	<3.0	---	---
Arsenic [1]	50.0	ug/l	<5.0	18.00	8.03
Barium [1]	2000.0	ug/l	59.00	---	---
Beryllium [1]	4.0	ug/l	<0.20	---	---
Cadmium [1]	5.0	ug/l	<0.40	11.00	<5.4
Chromium [1]	100.0	ug/l	5.00	<20	5.94
Copper [2]	1000.0	ug/l	<2.0	---	---
Iron [2]	0.3	mg/l	9.76	10.30	8.27
Lead [1]	15.0	ug/l	2.00	<20	<1.7
Nickel [1]	100.0	ug/l	<2.0	---	---
Selenium [1]	50.0	ug/l	<1.20	---	---
Silver [2]	100.0	ug/l	<4.0	---	---
Sodium [1]	160.0	mg/l	73.50	71.50	68.00
Vanadium [3]	49.0	ug/l	---	---	---
Zinc [2]	5000.0	ug/l	4.00	---	---
Field Parameters:					
Field pH [2]	6.5-8.5	units	7.54	---	6.48
Field Conductivity	NA	umhos	736.80	---	751.00
Field Turbidity	NA	ntus	---	---	---
Field Dissolved Oxygen	NA	mg/l	---	---	---
Field Temperature	NA	deg. C	22.50	---	---
Organic Parameters:					
1,2-dibromo-3-chloropropane;DBCP) [1]	0.2	ug/l	<1.0	---	---
1,2-dibromoethane;EDB [1]	0.02	ug/l	---	---	---
Acetone [3]	700	ug/l	---	---	---
Acrylonitrile [3]	1	ug/l	<10	---	---
Benzene [1]	1	ug/l	<1.0	<0.5	<1
Bromochloromethane [3]	91	ug/l	---	---	---
Bromodichloromethane [3]	0.6	ug/l	<1.0	<0.3	<1
Bromoform [3]	4.4	ug/l	<1.0	<1.0	<1
Methyl bromide; bromomethane [3]	9.8	ug/l	<1.0	<1.0	---
methyl ethyl ketone; (MEK);2-butenone [3]	4200	ug/l	---	---	---
Carbon Disulfide [3]	700	ug/l	---	---	---
Carbon Tetrachloride [1]	3	ug/l	<1.0	<0.3	<1
Chlorobenzene [1]	100	ug/l	<1.0	<2.0	<1
Chloroethane [3]	12	ug/l	<1.0	<1.0	<1.5
Chloroform; trichloromethane [3]	5.7	ug/l	<1.0	<1.0	---
methyl chloride;chloromethane [3]	2.7	ug/l	<1.0	<1.0	---
Dibromochloromethane [3]	0.4	ug/l	<1.0	<1.0	---
Methylene bromide;dibromomethane [3]	70	ug/l	---	---	---
o-dichlorobenzene; (1,2-) [1]	600	ug/l	---	<2.0	<1
p-dichlorobenzene; (1,4-) [1]	75	ug/l	---	<1.0	<1
trans-1,4-dichloro-2-butene	na	ug/l	---	---	---
1,1-dichloroethane [3]	70	ug/l	<1.0	<0.3	<1
1,2-dichloroethane [1]	3	ug/l	<1.0	<0.3	<1
1,1-dichloroethylene [1]	7	ug/l	<1.0	<0.3	---
cis-1,2-dichloroethylene [1]	70	ug/l	---	---	---
trans-1,2-dichloroethylene [1]	100	ug/l	---	<0.3	---
1,2-dichloropropane [1]	5	ug/l	<1.0	<0.6	<1
cis-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
trans-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
ethylbenzene [1]	700	ug/l	<1.0	<1.0	<1
2-hexanone;MBK [3]	280	ug/l	---	---	---
Methyl iodide; Iodomethane	NA	ug/l	---	---	---
methylene chloride;dichloromethane [1]	5	ug/l	<1.0	<0.3	---
4-methyl-2-pentanone;MIBK [3]	560	ug/l	---	---	---
Styrene [1]	100	ug/l	<1	---	---
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	---	---	---
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1.0	<0.3	<1
Tetrachloroethylene [1]	3	ug/l	<1.0	<0.3	<1
Toluene [1]	1000	ug/l	<1.0	<0.8	<1
1,1,1-trichloroethane [1]	200	ug/l	<1.0	<0.3	<1
1,1,2-trichloroethane [1]	5	ug/l	<1.0	<1.0	<1
Trichloroethylene; trichloroethene [1]	3	ug/l	<1.0	<0.3	---
Trichlorofluoromethane; CFC-11 [3]	2100	ug/l	<1.0	<0.3	<3.2
1,2,3-trichloropropane [3]	0.2	ug/l	---	---	---
Vinyl acetate [3]	88	ug/l	---	---	---
Vinyl chloride [1]	1	ug/l	<1.0	<0.6	<2.1
Xylenes [1]	10000	ug/l	<1.0	---	---

Notes:
MCL = Maximum Contamination Level.
NA = Not Available.
--- = Not Tested.
Gray shading = Sample result above the MCL.
[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).
[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).
[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

P-13

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLETION 05/18/1993	08/24/1993	12/14/1993
Inorganic Parameters:					
Total Dissolved Solids (TDS) [2]	500.0	mg/l	---	440.0	398.0
Ammonia [3]	2.8	mg/l	---	0.30	---
Nitrate [1]	10.0	mg/l	0.033	0.51	<0.1
Chloride [2]	250.0	mg/l	29.50	34.00	31.00
Cobalt [3]	420.0	ug/l	---	---	---
Mercury [1]	2.0	ug/l	<0.20	<0.20	<0.014
Thallium [1]	2.0	ug/l	<1.0	---	---
Antimony [1]	6.0	ug/l	<3.0	---	---
Arsenic [1]	50.0	ug/l	<5.0	<1.0	<1.2
Barium [1]	2000.0	ug/l	30.00	---	---
Beryllium [1]	4.0	ug/l	<0.20	---	---
Cadmium [1]	5.0	ug/l	<0.40	15.00	<5.4
Chromium [1]	100.0	ug/l	3.00	<20	3.63
Copper [2]	1000.0	ug/l	<2.0	---	---
Iron [2]	0.3	mg/l	4.28	4.18	3.92
Lead [1]	15.0	ug/l	2.00	0.03	<1.7
Nickel [1]	100.0	ug/l	<2.0	---	---
Selenium [1]	50.0	ug/l	<1.20	---	---
Silver [2]	100.0	ug/l	<4.0	---	---
Sodium [1]	160.0	mg/l	23.50	25.60	24.60
Vanadium [3]	49.0	ug/l	---	---	---
Zinc [2]	5000.0	ug/l	<2.0	---	---
Field Parameters:					
Field pH [2]	6.5-8.5	units	7.79	---	6.90
Field Conductivity	NA	umhos	638.30	---	635.00
Field Turbidity	NA	ntus	---	---	---
Field Dissolved Oxygen	NA	mg/l	---	---	---
Field Temperature	NA	deg. C	22.00	---	---
Organic Parameters:					
1,2-dibromo-3-chloropropane;DBCP) [1]	0.2	ug/l	<1.0	---	---
1,2-dibromoethane;EDB [1]	0.02	ug/l	---	---	---
Acetone [3]	700	ug/l	---	---	---
Acrylonitrile [3]	1	ug/l	<10	---	---
Benzene [1]	1	ug/l	<1.0	<0.5	<1
Bromochloromethane [3]	91	ug/l	---	---	---
Bromodichloromethane [3]	0.6	ug/l	<1.0	<0.3	<1
Bromoform [3]	4.4	ug/l	<1.0	<1.0	<1
Methyl bromide: bromomethane [3]	9.8	ug/l	<1.0	<1.0	---
methyl ethyl ketone: (MEK):2-butenone [3]	4200	ug/l	---	---	---
Carbon Disulfide [3]	700	ug/l	---	---	---
Carbon Tetrachloride [1]	3	ug/l	<1.0	<0.3	<1
Chlorobenzene [1]	100	ug/l	<1.0	<2.0	<1
Chloroethane [3]	12	ug/l	<1.0	<1.0	<1.5
Chloroform: trichloromethane [3]	5.7	ug/l	<1.0	<1.0	---
methyl chloride:chloromethane [3]	2.7	ug/l	<1.0	<1.0	---
Dibromochloromethane [3]	0.4	ug/l	<1.0	<1.0	---
Methylene bromide:dibromomethane [3]	70	ug/l	---	---	---
o-dichlorobenzene: (1,2-) [1]	600	ug/l	---	<2.0	<1
p-dichlorobenzene: (1,4-) [1]	75	ug/l	---	<1.0	<1
trans-1,4-dichloro-2-butene	na	ug/l	---	---	---
1,1-dichloroethane [3]	70	ug/l	<1.0	<0.3	<1
1,2-dichloroethane [1]	3	ug/l	<1.0	<0.3	<1
1,1-dichloroethylene [1]	7	ug/l	<1.0	<0.3	---
cis-1,2-dichloroethylene [1]	70	ug/l	---	---	---
trans-1,2-dichloroethylene [1]	100	ug/l	---	<0.3	---
1,2-dichloropropane [1]	5	ug/l	<1.0	<0.6	<1
cis-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
trans-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
ethylbenzene [1]	700	ug/l	<1.0	<1.0	<1
2-hexanone:MBK [3]	280	ug/l	---	---	---
Methyl iodide: Iodomethane	NA	ug/l	---	---	---
methylene chloride:dichloromethane [1]	5	ug/l	<1.0	<0.3	---
4-methyl-2-pentanone:MIBK [3]	560	ug/l	---	---	---
Styrene [1]	100	ug/l	<1	---	---
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	---	---	---
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1.0	<0.3	<1
Tetrachloroethylene [1]	3	ug/l	<1.0	<0.3	<1
Toluene [1]	1000	ug/l	<1.0	<0.8	<1
1,1,1-trichloroethane [1]	200	ug/l	<1.0	<0.3	<1
1,1,2-trichloroethane [1]	5	ug/l	<1.0	<1.0	<1
Trichloroethylene; trichloroethene [1]	3	ug/l	<1.0	<0.3	---
Trichlorofluoromethane: CFC-11 [3]	2100	ug/l	<1.0	<0.3	<3.2
1,2,3-trichloropropane [3]	0.2	ug/l	---	---	---
Vinyl acetate [3]	88	ug/l	---	---	---
Vinyl chloride [1]	1	ug/l	<1.0	<0.6	<2.1
Xylenes [1]	10000	ug/l	<1.0	---	---

Notes:
MCL = Maximum Contamination Level.
NA = Not Available.
--- = Not Tested.
Gray shading = Sample result above the MCL.
[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).
[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).
[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SEP 20 2002
SOUTHWEST DISTRICT TAMPA

P-14

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLETION 05/18/1993	08/24/1993	12/14/1993
Inorganic Parameters:					
Total Dissolved Solids (TDS) [2]	500.0	mg/l	---	720.0	663.0
Ammonia [3]	2.8	mg/l	---	0.30	---
Nitrate [1]	10.0	mg/l	<0.03	0.40	<0.1
Chloride [2]	250.0	mg/l	99.80	117.00	106.00
Cobalt [3]	420.0	ug/l	---	---	---
Mercury [1]	2.0	ug/l	<0.20	<0.20	<0.014
Thallium [1]	2.0	ug/l	<1.0	---	---
Antimony [1]	6.0	ug/l	<3.0	---	---
Arsenic [1]	50.0	ug/l	<5.0	1.00	<1.2
Barium [1]	2000.0	ug/l	48.00	---	---
Beryllium [1]	4.0	ug/l	<0.20	---	---
Cadmium [1]	5.0	ug/l	<0.40	14.00	<5.4
Chromium [1]	100.0	ug/l	<2.0	<20	<3.4
Copper [2]	1000.0	ug/l	<2.0	---	---
Iron [2]	0.3	mg/l	3.66	3.30	2.43
Lead [1]	15.0	ug/l	1.00	<20	<1.7
Nickel [1]	100.0	ug/l	<2.0	---	---
Selenium [1]	50.0	ug/l	<1.20	---	---
Silver [2]	100.0	ug/l	<4.0	---	---
Sodium [1]	160.0	mg/l	43.90	45.40	40.60
Vanadium [3]	49.0	ug/l	---	---	---
Zinc [2]	5000.0	ug/l	3.00	---	---
Field Parameters:					
Field pH [2]	6.5-8.5	units	8.01	---	6.65
Field Conductivity	NA	umhos	1004.20	---	1078.00
Field Turbidity	NA	ntus	---	---	---
Field Dissolved Oxygen	NA	mg/l	---	---	---
Field Temperature	NA	deg. C	22.30	---	---
Organic Parameters:					
1,2-dibromo-3-chloropropane;DBCP) [1]	0.2	ug/l	<1.0	---	---
1,2-dibromoethane;EDB [1]	0.02	ug/l	---	---	---
Acetone [3]	700	ug/l	---	---	---
Acrylonitrile [3]	1	ug/l	<10	---	---
Benzene [1]	1	ug/l	<1.0	<0.5	<1
Bromochloromethane [3]	91	ug/l	---	---	---
Bromodichloromethane [3]	0.6	ug/l	<1.0	<0.3	<1
Bromoform [3]	4.4	ug/l	<1.0	<1.0	<1
Methyl bromide; bromomethane [3]	9.8	ug/l	<1.0	<1.0	---
methyl ethyl ketone; (MEK);2-butenone [3]	4200	ug/l	---	---	---
Carbon Disulfide [3]	700	ug/l	---	---	---
Carbon Tetrachloride [1]	3	ug/l	<1.0	<0.3	<1
Chlorobenzene [1]	100	ug/l	<1.0	<2.0	<1
Chloroethane [3]	12	ug/l	<1.0	<1.0	<1.5
Chloroform; trichloromethane [3]	5.7	ug/l	<1.0	<1.0	---
methyl chloride;chloromethane [3]	2.7	ug/l	<1.0	<1.0	---
Dibromochloromethane [3]	0.4	ug/l	<1.0	<1.0	---
Methylene bromide;dibromomethane [3]	70	ug/l	---	---	---
o-dichlorobenzene; (1,2-) [1]	600	ug/l	---	<2.0	<1
p-dichlorobenzene; (1,4-) [1]	75	ug/l	---	<1.0	<1
trans-1,4-dichloro-2-butene	na	ug/l	---	---	---
1,1-dichloroethane [3]	70	ug/l	<1.0	<0.3	<1
1,2-dichloroethane [1]	3	ug/l	<1.0	<0.3	<1
1,1-dichloroethylene [1]	7	ug/l	<1.0	<0.3	---
cis-1,2-dichloroethylene [1]	70	ug/l	---	---	---
trans-1,2-dichloroethylene [1]	100	ug/l	---	<0.3	---
1,2-dichloropropane [1]	5	ug/l	<1.0	<0.6	<1
cis-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
trans-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	<1
ethylbenzene [1]	700	ug/l	<1.0	<1.0	<1
2-hexanone;MBK [3]	280	ug/l	---	---	---
Methyl iodide; Iodomethane	NA	ug/l	---	---	---
methylene chloride;dichloromethane [1]	5	ug/l	<1.0	<0.3	---
4-methyl-2-pentanone;MIBK [3]	560	ug/l	---	---	---
Styrene [1]	100	ug/l	<1	---	---
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	---	---	---
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1.0	<0.3	<1
Tetrachloroethylene [1]	3	ug/l	<1.0	<0.3	<1
Toluene [1]	1000	ug/l	<1.0	<0.8	<1
1,1,1-trichloroethane [1]	200	ug/l	<1.0	<0.3	<1
1,1,2-trichloroethane [1]	5	ug/l	<1.0	<1.0	<1
Trichloroethylene; trichloroethene [1]	3	ug/l	<1.0	<0.3	---
Trichlorofluoromethane; CFC-11 [3]	2100	ug/l	<1.0	<0.3	<3.2
1,2,3-trichloropropane [3]	0.2	ug/l	---	---	---
Vinyl acetate [3]	88	ug/l	---	---	---
Vinyl chloride [1]	1	ug/l	<1.0	<0.6	<2.1
Xylenes [1]	10000	ug/l	<1.0	---	---

Notes:
MCL = Maximum Contamination Level.
NA = Not Available.
--- = Not Tested.
Gray shading = Sample result above the MCL.
[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).
[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).
[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

CENTRAL COUNTY SOLID WAST DISPOSAL COMPLEX
BIENNIAL GROUNDWATER MONITORING REPORT
FEBRUARY 2002

P-14D

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLETION 05/18/1993	08/24/1993	12/01/1993
Inorganic Parameters:					
Total Dissolved Solids (TDS) [2]	500.0	mg/l	---	540.0	539.0
Ammonia [3]	2.8	mg/l	---	0.30	---
Nitrate [1]	10.0	mg/l	<0.030	0.15	<0.1
Chloride [2]	250.0	mg/l	86.50	96.00	97.00
Cobalt [3]	420.0	ug/l	---	---	---
Mercury [1]	2.0	ug/l	<0.20	<0.20	<0.014
Thallium [1]	2.0	ug/l	<1.0	---	---
Antimony [1]	6.0	ug/l	<3.0	---	---
Arsenic [1]	50.0	ug/l	<5.0	8.00	1.30
Barium [1]	2000.0	ug/l	21.00	---	---
Beryllium [1]	4.0	ug/l	<0.20	---	---
Cadmium [1]	5.0	ug/l	<0.40	10.00	<5.4
Chromium [1]	100.0	ug/l	10.00	<20	20.50
Copper [2]	1000.0	ug/l	<2.0	---	---
Iron [2]	0.3	mg/l	1.27	2.31	1.95
Lead [1]	15.0	ug/l	4.00	30.00	2.30
Nickel [1]	100.0	ug/l	<2.0	---	---
Selenium [1]	50.0	ug/l	<1.20	---	---
Silver [2]	100.0	ug/l	<4.0	---	---
Sodium [1]	160.0	mg/l	52.10	54.50	47.40
Vanadium [3]	49.0	ug/l	---	---	---
Zinc [2]	5000.0	ug/l	13.00	---	---
Field Parameters:					
Field pH [2]	6.5-8.5	units	8.44	---	7.29
Field Conductivity	NA	umhos	694.40	---	---
Field Turbidity	NA	ntus	---	---	---
Field Dissolved Oxygen	NA	mg/l	---	---	---
Field Temperature	NA	deg. C	25.40	---	---
Organic Parameters:					
1,2-dibromo-3-chloropropane:DBCP) [1]	0.2	ug/l	<1.0	---	---
1,2-dibromoethane:EDB [1]	0.02	ug/l	---	---	---
Acetone [3]	700	ug/l	---	---	---
Acrylonitrile [3]	1	ug/l	<10	---	---
Benzene [1]	1	ug/l	<1.0	<0.5	---
Bromochloromethane [3]	91	ug/l	---	---	---
Bromodichloromethane [3]	0.6	ug/l	<1.0	<0.3	---
Bromoform [3]	4.4	ug/l	<1.0	<1.0	---
Methyl bromide; bromomethane [3]	9.8	ug/l	<1.0	<1.0	---
methyl ethyl ketone; (MEK);2-butenone [3]	4200	ug/l	---	---	---
Carbon Disulfide [3]	700	ug/l	---	---	---
Carbon Tetrachloride [1]	3	ug/l	<1.0	<0.3	---
Chlorobenzene [1]	100	ug/l	<1.0	<2.0	---
Chloroethane [3]	12	ug/l	<1.0	<1.0	---
Chloroform; trichloromethane [3]	5.7	ug/l	<1.0	<1.0	---
methyl chloride;chloromethane [3]	2.7	ug/l	<1.0	<1.0	---
Dibromochloromethane [3]	0.4	ug/l	<1.0	<1.0	---
Methylene bromide;dibromomethane [3]	70	ug/l	---	---	---
o-dichlorobenzene; (1,2-) [1]	600	ug/l	---	<2.0	---
p-dichlorobenzene; (1,4-) [1]	75	ug/l	---	<1.0	---
trans-1,4-dichloro-2-butene	na	ug/l	---	---	---
1,1-dichloroethane [3]	70	ug/l	<1.0	<0.3	---
1,2-dichloroethane [1]	3	ug/l	<1.0	<0.3	---
1,1-dichloroethylene [1]	7	ug/l	<1.0	<0.3	---
cis-1,2-dichloroethylene [1]	70	ug/l	---	---	---
trans-1,2-dichloroethylene [1]	100	ug/l	---	<0.3	---
1,2-dichloropropane [1]	5	ug/l	<1.0	<0.6	---
cis-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	---
trans-1,3-dichloropropene	NA	ug/l	<1.0	<1.0	---
ethylbenzene [1]	700	ug/l	<1.0	<1.0	---
2-hexanone;MBK [3]	280	ug/l	---	---	---
Methyl iodide; Iodomethane	NA	ug/l	---	---	---
methylene chloride;dichloromethane [1]	5	ug/l	<1.0	<0.3	---
4-methyl-2-pentanone;MIBK [3]	560	ug/l	---	---	---
Styrene [1]	100	ug/l	<1	---	---
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	---	---	---
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1.0	<0.3	---
Tetrachloroethylene [1]	3	ug/l	<1.0	<0.3	---
Toluene [1]	1000	ug/l	<1.0	<0.8	---
1,1,1-trichloroethane [1]	200	ug/l	<1.0	<0.3	---
1,1,2-trichloroethane [1]	5	ug/l	<1.0	<1.0	---
Trichloroethylene; trichloroethene [1]	3	ug/l	<1.0	<0.3	---
Trichlorofluoromethane; CFC-11 [3]	2100	ug/l	<1.0	<0.3	---
1,2,3-trichloropropane [3]	0.2	ug/l	---	---	---
Vinyl acetate [3]	88	ug/l	---	---	---
Vinyl chloride [1]	1	ug/l	<1.0	<0.6	---
Xylenes [1]	10000	ug/l	<1.0	---	---

Notes:
MCL = Maximum Contamination Level.
NA = Not Available.
--- = Not Tested.
Gray shading = Sample result above the MCL.
[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).
[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).
[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SEP 20 2002
SOUTHWEST DISTRICT TAMPA

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
BIENNIAL GROUNDWATER MONITORING REPORT
FEBRUARY 2002

MW-1 (BACKGROUND WELL)

PARAMETER	MCL	UNITS		DATE OF SAMPLE COLLETION						
			05/24/1994	10/14/1997	09/02/1998	04/28/1999	11/04/1999	03/21/2000	10/18/2000	04/02/2001
Inorganic Parameters:										
Total Dissolved Solids (TDS) [2]	500.0	mg/l	3200.00	---	1930.0	1600.0	1600.0	1700	2000	1700
Ammonia [3]	2.8	mg/l	0.12	---	0.098	0.41	0.18	0.3	0.29	0.19
Nitrate [1]	10.0	mg/l	<0.03	---	<0.002	<0.01	<0.01	0.01	0.02	<0.01
Chloride [2]	250.0	mg/l	1200.00	---	713.0	670.0	550.0	660	720	670
Cobalt [3]	420.0	ug/l	<30.0	---	1.5	<1	<50	16	<10	<10
Mercury [1]	2.0	ug/l	<0.2	---	0.11	<0.2	<0.2	<.2	<0.2	<0.2
Thallium [1]	2.0	ug/l	<1	---	<1	<5	<1	<1	<1.0	<1.0
Antimony [1]	6.0	ug/l	<1.0	---	<5	<5	<5	<5.0	<5.0	<5.0
Arsenic [1]	50.0	ug/l	3.00	---	8.86	2.7	5.3	7.2	<5.0	<5.0
Barium [1]	2000.0	ug/l	<1	---	67.7	33.0	55.0	61	66	54
Beryllium [1]	4.0	ug/l	14.00	---	<1	<1	<1	<1	<1	<1
Cadmium [1]	5.0	ug/l	<0.8	---	<1.50	<1	<1	1.5	<1	<1
Chromium [1]	100.0	ug/l	1.00	---	6.66	<10	6.2	<5.0	6.9	<5
Copper [2]	1000.0	ug/l	<10.0	---	<0.50	<10	<10	<10	<10	<10
Iron [2]	0.3	mg/l	2.70	---	4.33	<0.1	1.4	3.2	2.2	0.83
Lead [1]	15.0	ug/l	<1	---	<0.50	<5	<5	<5	<5.0	<5.0
Nickel [1]	100.0	ug/l	5.00	---	8.4	<10	<10	<10	<10	<10
Selenium [1]	50.0	ug/l	<2	---	<1	23.0	<5	<5.0	<5	<5.0
Silver [2]	100.0	ug/l	<.8	---	<0.5	<10	<10	<10	<10	---
Sodium [1]	160.0	mg/l	730.00	---	443.0	23.0	440.0	390	490	380
Vanadium [3]	49.0	ug/l	<10	---	32.2	<10	24.0	17	34	16
Zinc [2]	5000.0	ug/l	<10	---	11.5	<25	56.0	26	32	<20
Field Parameters:			---							
Field pH [2]	6.5-8.5	units	7.10	---	6.91	7.22	7.33	7.32	6.18	6.94
Field Conductivity	NA	umhos	4948.00	---	246.0	3510.0	4180.0	2830	1840	3035
Conductivity (Lab)	NA	umhos	---	---	1770.0	---	---	---	---	---
Field Turbidity	NA	ntus	57.90	---	NA	5.00	17.40	16	22.1	7.9
Field Dissolved Oxygen	NA	mg/l	3.40	---	2.60	2.80	3.24	8.99	2.23	2.95
Field Temperature	NA	deg. C	23	---	25.90	22.40	22.60	21	---	---
Organic Parameters:										
1,2-dibromo-3-chloropropane:DBCP) [1]	0.2	ug/l	<1	---	<0.5	<0.020	<0.02	<.02	<.02	<0.02
1,2-dibromoethane:EDB [1]	0.02	ug/l	<1	---	<0.5	<0.020	<0.02	<.02	<0.02	<0.02
Acetone [3]	700	ug/l	<50	---	<58	<10	<10	<10	<10	<10
Acrylonitrile [3]	1	ug/l	<200	---	<10	<100	<8	<8	<1	<1
Benzene [1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<.5	<1	<1
Bromochloromethane [3]	91	ug/l	<1	---	<0.5	<0.50	<0.5	<.5	<1	<1
Bromodichloromethane [3]	0.6	ug/l	<1	---	<0.5	<0.050	<0.5	<.5	<1	<0.60
Bromoform [3]	4.4	ug/l	<1	---	<0.5	<0.50	<0.5	<.5	<1	<1
Methyl bromide: bromomethane [3]	9.8	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
methyl ethyl ketone: (MEK):2-butenone [3]	4200	ug/l	<5	---	<8	<1.0	<1	<1	<10	<10
Carbon Disulfide [3]	700	ug/l	<5	---	<0.3	<0.50	<0.5	<0.5	<1	<1
Carbon Tetrachloride [1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chlorobenzene [1]	100	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroethane [3]	12	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroform: trichloromethane [3]	5.7	ug/l	---	---	<0.5	<0.50	<0.5	<0.5	<1	<1
methyl chloride:chloromethane [3]	2.7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Dibromochloromethane [3]	0.4	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<0.4
Methylene bromide:dibromomethane [3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
o-dichlorobenzene: (1,2-) [1]	600	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
p-dichlorobenzene: (1,4-) [1]	75	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
trans-1,4-dichloro-2-butene	na	ug/l	<50	---	<0.5	<10	<10	<10	<10	<10
1,1-dichloroethane [3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
1,2-dichloroethane [1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
1,1-dichloroethylene [1]	7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
cis-1,2-dichloroethylene [3]	70	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
trans-1,2-dichloroethylene [1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2-dichloropropane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
cis-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.20
trans-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.20
ethylbenzene [1]	700	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1.0
2-hexanone:MBK [3]	280	ug/l	---	---	<6	<1	<1	<1	<10	<10
Methyl iodide: Iodomethane	NA	ug/l	<5	---	<0.5	<2	<2	<2	<1	<1
methylene chloride:dichloromethane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<5	<5
4-methyl-2-pentanone:MIBK [3]	560	ug/l	<5	---	<0.5	<1	<1	<1	<10	<10
Styrene [1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
Tetrachloroethylene [1]	3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Toluene [1]	1000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1-trichloroethane [3]	200	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2-trichloroethane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichloroethylene: trichloroethene [1]	3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichlorofluoromethane: CFC-11 [3]	2100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2,3-trichloropropane [3]	0.2	ug/l	<10	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
Vinyl acetate [3]	88	ug/l	<50	---	<0.5	<2	<2	<0.5	<2	<2.0
Vinyl chloride [1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Xylenes [1]	10000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1

Notes:

MCL = Maximum Contamination Level.

NA = Not Available.

--- = Not Tested.

Gray shading = Sample result above the MCL.

[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
BIENNIAL GROUNDWATER MONITORING REPORT
FEBRUARY 2002

MW-2 (BACKGROUND WELL)

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION							
			05/24/1994	10/14/1997	09/02/1998	04/28/1999	11/04/1999	03/21/00	10/18/2000	04/02/2001 [4]
Inorganic Parameters:										
Total Dissolved Solids (TDS) [2]	500.0	mg/l	780.0	---	431.0	550.0	410.0	520	570	---
Ammonia [3]	2.8	mg/l	0.12	---	0.151	0.30	0.23	0.14	0.3	---
Nitrate [1]	10.0	mg/l	<0.03	---	<0.002	<0.01	<0.01	0.01	0.01	---
Chloride [2]	250.0	mg/l	96.0	---	74.3	70.0	51.0	58	65	---
Cobalt [3]	420.0	ug/l	<3.0	---	1.0	1.3	<50	<10	<10	---
Mercury [1]	2.0	ug/l	<0.2	---	0.12	<0.2	<0.2	<0.2	<0.2	---
Thallium [1]	2.0	ug/l	---	---	<1	<5	<1	<1	<1	---
Antimony [1]	6.0	ug/l	<1	---	<5	<5	<5	<5	<5	---
Arsenic [1]	50.0	ug/l	3.000	---	8.1	4.2	<5	6.1	6.8	---
Barium [1]	2000.0	ug/l	<1.0	---	30.5	44.0	37.0	31	38	---
Beryllium [1]	4.0	ug/l	<0.8	---	<1	<1	<1	<1	<1	---
Cadmium [1]	5.0	ug/l	<0.8	---	<1.5	<1	<1	1.5	<1	---
Chromium [1]	100.0	ug/l	8.0	---	1.11	11.0	<5	5.8	9.8	---
Copper [2]	1000.0	ug/l	<1.0	---	<0.5	<10	<10	<10	<10	---
Iron [2]	0.3	mg/l	0.38	---	1.79	4.7	7.9	8.4	14	---
Lead [1]	15.0	ug/l	12.0	---	<0.5	13.0	<5	<5.0	5.3	---
Nickel [1]	100.0	ug/l	6.0	---	5.87	<10	<10	<10	<10	---
Selenium [1]	50.0	ug/l	<2.0	---	<1	<2	<5	<5.0	<5	---
Silver [2]	100.0	ug/l	<0.8	---	<0.5	<10	<10	<10	<10	---
Sodium [1]	160.0	mg/l	110.0	---	54.5	53.0	46.0	59	59	---
Vanadium [3]	49.0	ug/l	<10.0	---	9.47	14.0	<10	<10	15	---
Zinc [2]	5000.0	ug/l	<10.0	---	7.0	<25	<20	<20	<20	---
Field Parameters:										
Field pH [2]	6.5-8.5	units	7.09	---	6.91	7.24	6.83	7.27	6.01	---
Field Conductivity	NA	umhos	998.0	---	579.0	760.0	712.0	783	850	---
Conductivity	NA	umhos	---	---	717.0	---	---	---	---	---
Field Turbidity	NA	ntus	270.0	---	NA	11.00	41.20	28.4	231	---
Field Dissolved Oxygen	NA	mg/l	3.52	---	3.90	2.50	6.42	8.91	1.19	---
Field Temperature	NA	deg. C	25.1	---	26.80	21.90	21.80	20.5	---	---
Organic Parameters:			---							
1,2-dibromo-3-chloropropane:DBCP) [1]	0.2	ug/l	<1	---	<0.5	<0.020	<0.02	<.02	<.02	---
1,2-dibromoethane:EDB [1]	0.02	ug/l	<1	---	<0.5	<0.020	<0.02	<.02	<0.02	---
Acetone [3]	700	ug/l	<50	---	<58	<10	<10	<10	<10	---
Acrylonitrile [3]	1	ug/l	<200	---	<10	<100	<8	<8	<1	---
Benzene [1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<.5	<1	---
Bromochloromethane [3]	91	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	---
Bromodichloromethane [3]	0.6	ug/l	<1	---	<0.5	<0.050	<0.5	<0.5	<1	---
Bromoform [3]	4.4	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	---
Methyl bromide: bromomethane [3]	9.8	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
methyl ethyl ketone: (MEK):2-butenone [3]	4200	ug/l	<5	---	<8	<1.0	<1	<1	<10	---
Carbon Disulfide [3]	700	ug/l	<5	---	<0.3	<0.50	<0.5	<0.5	<1	---
Carbon Tetrachloride [1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	---
Chlorobenzene [1]	100	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	---
Chloroethane [3]	12	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	---
Chloroform: trichloromethane [3]	5.7	ug/l	---	---	<0.5	<0.50	<0.5	<0.5	<1	---
methyl chloride:chloromethane [3]	2.7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	---
Dibromochloromethane [3]	0.4	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	---
Methylene bromide;dibromomethane [3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	---
o-dichlorobenzene: (1,2-) [1]	600	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	---
p-dichlorobenzene: (1,4-) [1]	75	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	---
trans-1,4-dichloro-2-butene	na	ug/l	<50	---	<0.5	<10	<10	<10	<10	---
1,1-dichloroethane [3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	---
1,2-dichloroethane [1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	---
1,1-dichloroethylene [1]	7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	---
cis-1,2-dichloroethylene [1]	70	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
trans-1,2-dichloroethylene [1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
1,2-dichloropropane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
cis-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
trans-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
ethylbenzene [1]	700	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
2-hexanone:MBK [3]	280	ug/l	---	---	<6	<1	<1	<1	<10	---
Methyl iodide; Iodomethane	NA	ug/l	<5	---	<0.5	<2	<2	<2	<1	---
methylene chloride:dichloromethane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<5	---
4-methyl-2-pentanone:MIBK [3]	560	ug/l	<5	---	<0.5	<1	<1	<1	<10	---
Styrene [1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
Tetrachloroethylene [1]	3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
Toluene [1]	1000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
1,1,1-trichloroethane [1]	200	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
1,1,2-trichloroethane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
Trichloroethylene: trichloroethene [1]	3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
Trichlorofluoromethane: CFC-11 [3]	2100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
1,2,3-trichloropropane [3]	0.2	ug/l	<10	---	<0.5	<0.5	<0.5	<0.5	<1	---
Vinyl acetate [3]	88	ug/l	<50	---	<0.5	<2	<2	<2	<2	---
Vinyl chloride [1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---
Xylenes [1]	10000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	---

Notes:

MCL = Maximum Contamination Level.

NA = Not Available.

--- = Not Tested.

Gray shading = Sample result above the MCL.

[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

[4] MW-2 was purged dry during the April 2001 sampling event and was not sampled.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

SEP 20 2002

SOUTHWEST DISTRICT TAMPA

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
BIENNIAL GROUNDWATER MONITORING REPORT
FEBRUARY 2002

MW-4 (BACKGROUND)

PARAMETER	MCL	UNITS		DATE OF SAMPLE COLLETION						
			05/24/1994	10/14/1997	09/02/1998	04/28/1999	11/04/1999	03/31/2000	10/18/00	04/02/2001
Inorganic Parameters:										
Total Dissolved Solids (TDS) [2]	500.0	mg/l	160.0	---	105.0	120.0	120.0	130	140	150
Ammonia [3]	2.8	mg/l	0.39	---	0.113	0.24	0.20	0.16	0.16	0.15
Nitrate [1]	10.0	mg/l	<0.03	---	<0.002	<0.01	<0.01	<0.01	0.11	<0.01
Chloride [2]	250.0	mg/l	18.0	---	21.1	21.0	17.0	17	16	19
Cobalt [3]	420.0	ug/l	<30.0	---	<1	<1	<50	<10	<10	<10
Mercury [1]	2.0	ug/l	<0.2	---	0.12	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium [1]	2.0	ug/l	<1.0	---	<1	<5	<1	<1	<1	<1
Antimony [1]	6.0	ug/l	<1.0	---	<5	<5	<5	<5	<5	<5
Arsenic [1]	50.0	ug/l	<2.0	---	2.6	1.0	<5	<5	<5	<5
Barium [1]	2000.0	ug/l	<1.0	---	14.2	20.0	16.0	11	16	13
Beryllium [1]	4.0	ug/l	<0.8	---	<1	<1	<1	<1.0	<1	<1
Cadmium [1]	5.0	ug/l	<0.8	---	1.69	<1	<1	<1	<1	<1
Chromium [1]	100.0	ug/l	27.0	---	6.57	14.0	8.3	9.8	12	9.8
Copper [2]	1000.0	ug/l	<10.0	---	<0.5	<10	<10	<10	<10	<10
Iron [2]	0.3	mg/l	2.0	---	2.63	1.8	1.8	2.1	2.1	2.1
Lead [1]	15.0	ug/l	1.0	---	<0.5	<5	<5	<5	<5	<5
Nickel [1]	100.0	ug/l	4.0	---	2.3	<10	<10	<10	<10	<10
Selenium [1]	50.0	ug/l	<2.0	---	<1	<2	<5	<5	<5	<5.0
Silver [2]	100.0	ug/l	<0.8	---	<0.5	<10	<10	<10	<10	missing
Sodium [1]	160.0	mg/l	9.2	---	10.8	10.0	8.4	9.8	10	9.9
Vanadium [3]	49.0	ug/l	<10.0	---		33.0	19.0	21	28	27
Zinc [2]	5000.0	ug/l	<10.0	---	11.4	<25	<20	<20	<20	<20
Field Parameters:										
Field pH [2]	6.5-8.5	units	5.53	---	6.93	5.86	6.45	6.67	5.55	5.41
Field Conductivity	NA	umhos	133.0	---	115.0	120.0	127.0	139	120	124
Conductivity (Lab)	NA	umhos	---	---	118.0	---	---	---	---	---
Field Turbidity	NA	ntus	34.3	---	NA	69.00	122.00	12.6	101.5	77.3
Field Dissolved Oxygen	NA	mg/l	2.50	---	3.75	5.30	5.40	9.17	---	2.45
Field Temperature	NA	deg. C	24.0	---	25.20	21.90	23.30	20	---	---
Organic Parameters:										
1,2-dibromo-3-chloropropane:DBCP) [1]	0.2	ug/l	<1	---	<0.5	<0.020	<0.02	<0.02	<.02	<0.02
1,2-dibromoethane:EDB [1]	0.02	ug/l	<1	---	<0.5	<0.020	<0.02	<0.02	<0.02	<0.02
Acetone [3]	700	ug/l	<50	---	<58	<10	<10	<10	<10	<10
Acrylonitrile [3]	1	ug/l	<200	---	<10	<100	<8	<8	<1	<1
Benzene [1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Bromochloromethane [3]	91	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Bromodichloromethane [3]	0.6	ug/l	<1	---	<0.5	<0.050	<0.5	<0.5	<1	<0.6
Bromoform [3]	4.4	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1.0
Methyl bromide; bromomethane [3]	9.8	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1.0
methyl ethyl ketone; (MEK):2-butenone [3]	4200	ug/l	<5	---	<8	<1.0	<1	<1	<10	<10
Carbon Disulfide [3]	700	ug/l	<5	---	<0.3	<0.50	<0.5	<0.5	<1	<1
Carbon Tetrachloride [1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chlorobenzene [1]	100	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroethane [3]	12	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroform: trichloromethane [3]	5.7	ug/l	---	---	<0.5	<0.50	<0.5	<0.5	<1	<1
methyl chloride:chloromethane [3]	2.7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Dibromochloromethane [3]	0.4	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<0.4
Methylene bromide:dibromomethane [3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
o-dichlorobenzene: (1,2-) [1]	600	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
p-dichlorobenzene: (1,4-) [1]	75	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
trans-1,4-dichloro-2-butene	na	ug/l	<50	---	<0.5	<10	<10	<10	<10	<10
1,1-dichloroethane [3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
1,2-dichloroethane [1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
1,1-dichloroethylene [1]	7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
cis-1,2-dichloroethylene [1]	70	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
trans-1,2-dichloroethylene [1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2-dichloropropane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1.0
cis-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
trans-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
ethylbenzene [1]	700	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
2-hexanone:MBK [3]	280	ug/l	---	---	<6	<1	<1	<1	<10	<10
Methyl iodide; Iodomethane	NA	ug/l	<5	---	<0.5	<2	<2	<2	<1	<1
methylene chloride:dichloromethane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<5	<5
4-methyl-2-pentanone:MIBK [3]	560	ug/l	<5	---	<0.5	<1	<1	<1	<10	<10
Styrene [1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
Tetrachloroethylene [1]	3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Toluene [1]	1000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1-trichloroethane [1]	200	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2-trichloroethane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichloroethylene; trichloroethene [1]	3	ug/l		---	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichlorofluoromethane; CFC-11 [3]	2100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2,3-trichloropropane [3]	0.2	ug/l	<10	---	<0.5	<0.5	<0.5	<0.5	<1	<0.20
Vinyl acetate [3]	88	ug/l	<50	---	<0.5	<2	<2	<2	<2	<2
Vinyl chloride [1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Xylenes [1]	10000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1.	<1

Notes:

MCL = Maximum Contamination Level.

NA = Not Available.

--- = Not Tested.

Gray shading = Sample result above the MCL.

[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
BIENNIAL GROUNDWATER MONITORING REPORT
FEBRUARY 2002

MW-8 (DETECTION)

PARAMETER	MCL	UNITS		DATE OF SAMPLE COLLECTION						
			05/25/1994	10/14/1997	09/02/1998	04/29/1999	11/02/1999	03/21/2000	10/17/00	04/11/2001
Inorganic Parameters:										
Total Dissolved Solids (TDS) [2]	500.0	mg/l	350.0	---	684.0	550.0	600.0	530	620	630
Ammonia [3]	2.8	mg/l	0.33	---	2.92	4.00	5.30	6.1	4.3	3.6
Nitrate [1]	10.0	mg/l	<0.03	---	<0.002	<0.01	<0.01	0.02	0.02	0.01
Chloride [2]	250.0	mg/l	37.0	---	33.5	29.0	31.0	29	32	40
Cobalt [3]	420.0	ug/l	<30.0	---	<2.47	1.2	<50	12	<10	<10
Mercury [1]	2.0	ug/l	<0.2	---	<0.3	<0.2	<0.2	<0.20	<0.2	0.2
Thallium [1]	2.0	ug/l	<1.0	---	<1	<2	<1	1.1	<1	<1
Antimony [1]	6.0	ug/l	<1.0	---	<5	8.3	<5	<5	<5	<5
Arsenic [1]	50.0	ug/l	13.0	---	16.1	12.0	9.9	26	14	29
Barium [1]	2000.0	ug/l	<1.0	---	396.0	60.0	92.0	110	83	150
Beryllium [1]	4.0	ug/l	<0.8	---	<1	<1	<1	<1	<1	1.1
Cadmium [1]	5.0	ug/l	<0.8	---	<1.5	6.5	1.0	3.3	<1	2.9
Chromium [1]	100.0	ug/l	13.0	---	23.8	<10	34.0	36	19	40
Copper [2]	1000.0	ug/l	<10.0	---	1.78	<10	<10	<10	<10	36
Iron [2]	0.3	mg/l	5.4	---	35.4	22.0	21.0	46	21	48
Lead [1]	15.0	ug/l	2.0	---	<0.5	7.9	7.1	12	6.9	18
Nickel [1]	100.0	ug/l	8.0	---	11.3	<10	<10	<10	<10	11
Selenium [1]	50.0	ug/l	<2.0	---	<1	<2	<5	<5	<5	<5
Silver [2]	100.0	ug/l	<0.8	---	<0.5	<10	<10	<10	<10	<10
Sodium [1]	160.0	mg/l	24.0	---	72.9	80.0	76.0	76	71	61
Vanadium [3]	49.0	ug/l	<10.0	---	38.2	<10	42.0	49	29	64
Zinc [2]	5000.0	ug/l	<10.0	---	26.3	<25	<20	24	<20	140
Field Parameters:										
Field pH [2]	6.5-8.5	units	6.14	---	6.91	6.63	6.25	6.39	6.54	5.92
Field Conductivity	NA	umhos	392.0	---	1143.0	1300.0	1252.0	1056	1350	1168
Conductivity (Lab)	NA	umhos	---	---	1070.0	---	---	---	---	---
Field Turbidity	NA	ntus	182.00	---		122.00	63.00	101.5	65.2	43
Field Dissolved Oxygen	NA	mg/l	2.75	---	2.00	2.30	1.99	9.17	---	2
Field Temperature	NA	deg. C	23.50	---	27.50	25.30	---	19.9	---	---
Organic Parameters:										
1,2-dibromo-3-chloropropane:DBCP) [1]	0.2	ug/l	<1	---	<0.5	<0.020	<0.02	<0.02	---	<0.02
1,2-dibromoethane;EDB [1]	0.02	ug/l	<1	---	<0.5	<0.020	<0.02	<0.02	<0.02	<0.02
Acetone [3]	700	ug/l	<50	---	<58	<10	<10	<10	<10	<10
Acrylonitrile [3]	1	ug/l	<200	---	<10	<100	<8	<8	<1	<1
Benzene [1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Bromochloromethane [3]	91	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Bromodichloromethane [3]	0.6	ug/l	<1	---	<0.5	<0.050	<0.5	<0.5	<1	<0.6
Bromoform [3]	4.4	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Methyl bromide: bromomethane [3]	9.8	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
methyl ethyl ketone: (MEK):2-butenone [3]	4200	ug/l	<5	---	<8	<1.0	<1	<1	<10	<10
Carbon Disulfide [3]	700	ug/l	<5	---	<0.3	<0.50	<0.5	<0.5	<1	<1
Carbon Tetrachloride [1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chlorobenzene [1]	100	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroethane [3]	12	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroform: trichloromethane [3]	5.7	ug/l	---	---	<0.5	<0.50	<0.5	<0.5	<1	<1
methyl chloride:chloromethane [3]	2.7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Dibromochloromethane [3]	0.4	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<0.4
Methylene bromide:dibromomethane [3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
o-dichlorobenzene: (1,2-) [1]	600	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
p-dichlorobenzene: (1,4-) [1]	75	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
trans-1,4-dichloro-2-butene	na	ug/l	<50	---	<0.5	<10	<10	<10	<10	<10
1,1-dichloroethane [3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
1,2-dichloroethane [1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
1,1-dichloroethylene [1]	7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
cis-1,2-dichloroethylene [1]	70	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
trans-1,2-dichloroethylene [1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2-dichloropropane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
cis-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
trans-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
ethylbenzene [1]	700	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
2-hexanone:MBK [3]	280	ug/l	---	---	<6	<1	<1	<1	<10	<10
Methyl iodide: Iodomethane	NA	ug/l	<5	---	<0.5	<2	<2	<2	<1	<1
methylene chloride:dichloromethane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<5	<5
4-methyl-2-pentanone:MIBK [3]	560	ug/l	<5	---	<0.5	<1	<1	<1	<10	<10
Styrene [1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
Tetrachloroethylene [1]	3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Toluene [1]	1000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1-trichloroethane [1]	200	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2-trichloroethane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichloroethylene: trichloroethene [1]	3	ug/l		---	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichlorofluoromethane: CFC-11 [3]	2100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2,3-trichloropropane [3]	0.2	ug/l	<10	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
Vinyl acetate [3]	88	ug/l	<50	---	<0.5	<2	<2	<2	<2	<2
Vinyl chloride [1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Xylenes [1]	10000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1

Notes:

MCL = Maximum Contamination Level.

NA = Not Available.

--- = Not Tested.

Gray shading = Sample result above the MCL.

[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

SEP 20 2002

SOUTHWEST DISTRICT
TAMPA

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
BIENNIAL GROUNDWATER MONITORING REPORT
FEBRUARY 2002

MW-9 (DETECTION)

PARAMETER	MCL	UNITS	05/26/1994	DATE OF SAMPLE COLLECTION 10/14/1997	09/02/1998	04/29/1999	11/02/1999	03/21/2000	10/17/2000	04/09/2001
Inorganic Parameters:										
Total Dissolved Solids (TDS) [2]	500.0	mg/l	1400.0	---	1250.0	1200.0	1000.0	800	1200	990
Ammonia [3]	2.8	mg/l	19.00	---	9.73	10.00	9.30	9.3	14	12
Nitrate [1]	10.0	mg/l	<0.03	---	<0.002	0.01	<0.01	<0.010	<0.01	0.06
Chloride [2]	250.0	mg/l	340.0	---	33.6	38.0	22.0	15	21	28
Cobalt [3]	420.0	ug/l	<30.0	---	2.04	1.7	<50	18	<10	<10
Mercury [1]	2.0	ug/l	<0.2	---	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium [1]	2.0	ug/l	<1.0	---	<1	<2	1.2	1.1	<1	<1
Antimony [1]	6.0	ug/l	<1.0	---	<5	<5	<5	<5	<5	<5
Arsenic [1]	50.0	ug/l	2.0	---	63.00	56.0	66.0	62	51	44
Barium [1]	2000.0	ug/l	<1.0	---	126.0	100.0	100.0	96	100	72
Beryllium [1]	4.0	ug/l	7.1	---	<1	<1	<1	<1	<1	<1
Cadmium [1]	5.0	ug/l	<0.8	---	1.5	<1	<1	1.7	<1	<1
Chromium [1]	100.0	ug/l	6.0	---	<1	<10	<5	<5.	<5	<5
Copper [2]	1000.0	ug/l	<10.0	---	<0.5	<10	<10	<10	<10	<10
Iron [2]	0.3	mg/l	0.1	---	50.5	46.0	44.0	45	37	43
Lead [1]	15.0	ug/l	7.0	---	<0.5	18.0	<5	<5.0	<5	<5
Nickel [1]	100.0	ug/l	112.0	---	18.9	<10	<10	<10	<10	<10
Selenium [1]	50.0	ug/l	<2.0	---	<1	<2	<5	<5	<5	<5
Silver [2]	100.0	ug/l	<0.8	---	<0.5	<10	<10	<10	<10	<10
Sodium [1]	160.0	mg/l	160.0	---	75.0	80.0	52.0	46	39	45
Vanadium [3]	49.0	ug/l	<10.0	---	3.12	<10	<10	<10	<10	<10
Zinc [2]	5000.0	ug/l	<10.0	---	7.52	<25	<20	<20	<20	<20
Field Parameters:										
Field pH [2]	6.5-8.5	units	7.17	---	6.62	6.86	6.40	6.6	6.49	6.42
Field Conductivity	NA	umhos	2211.0	---	1567.0	2230.0	2140.00	1890	1060	1943
Conductivity (Lab)	NA	umhos	---	---	2030.0	---	---	---	---	---
Field Turbidity	NA	ntus	58.20	---	NA	4.00	7.50	2.3	7.2	3
Field Dissolved Oxygen	NA	mg/l	2.02	---	2.25	2.00	2.49	9.17	---	2.15
Field Temperature	NA	deg. C	22.50	---	22.90	25.50	---	19.9	---	---
Organic Parameters:										
1,2-dibromo-3-chloropropane;DBCP) [1]	0.2	ug/l	<1	---	<0.5	<0.020	<0.02	<0.02	---	<0.02
1,2-dibromoethane:EDB [1]	0.02	ug/l	<1	---	<0.5	<0.020	<0.02	<0.02	<0.02	<0.02
Acetone [3]	700	ug/l	<50	---	<58	<10	<10	<10	<10	<10
Acrylonitrile [3]	1	ug/l	<200	---	<10	<100	<8	<8	<1	<1
Benzene [1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Bromochloromethane [3]	91	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Bromodichloromethane [3]	0.6	ug/l	<1	---	<0.5	<0.050	<0.5	<0.5	<1	<0.6
Bromoform [3]	4.4	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Methyl bromide: bromomethane [3]	9.8	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
methyl ethyl ketone: (MEK):2-butenone [3]	4200	ug/l	<5	---	<8	<1.0	<1	<1	<10	<10
Carbon Disulfide [3]	700	ug/l	<5	---	<0.3	<0.50	<0.5	<0.5	<1	<1
Carbon Tetrachloride [1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chlorobenzene [1]	100	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroethane [3]	12	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroform: trichloromethane [3]	5.7	ug/l	---	---	<0.5	<0.50	<0.5	<0.5	<1	<1
methyl chloride:chloromethane [3]	2.7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Dibromochloromethane [3]	0.4	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<0.4
Methylene bromide:dibromomethane [3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
o-dichlorobenzene: (1,2-) [1]	600	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
p-dichlorobenzene: (1,4-) [1]	75	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
trans-1,4-dichloro-2-butene	na	ug/l	<50	---	<0.5	<10	<10	<10	<10	<10
1,1-dichloroethane [3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
1,2-dichloroethane [1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
1,1-dichloroethylene [1]	7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
cis-1,2-dichloroethylene [1]	70	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
trans-1,2-dichloroethylene [1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2-dichloropropane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
cis-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
trans-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
ethylbenzene [1]	700	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1.	<1
2-hexanone:MBK [3]	280	ug/l	---	---	<6	<1	<1	<1	<10	<10
Methyl iodide: Iodomethane	NA	ug/l	<5	---	<0.5	<2	<2	<2	<1	<1
methylene chloride:dichloromethane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<5	<5
4-methyl-2-pentanone:MIBK [3]	560	ug/l	<5	---	<0.5	<1	<1	<1	<10	<10
Styrene [1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
Tetrachloroethylene [1]	3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Toluene [1]	1000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1-trichloroethane [1]	200	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2-trichloroethane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichloroethylene: trichloroethene [1]	3	ug/l		---	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichlorofluoromethane: CFC-11 [3]	2100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2,3-trichloropropane [3]	0.2	ug/l	<10	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
Vinyl acetate [3]	88	ug/l	<50	---	<0.5	<2	<2	<2	<2	<2
Vinyl chloride [1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Xylenes [1]	10000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1

Notes:

MCL = Maximum Contamination Level.

NA = Not Available.

--- = Not Tested.

Gray shading = Sample result above the MCL.

[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
BIENNIAL GROUNDWATER MONITORING REPORT
FEBRUARY 2002

MW-10 (DETECTION)

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION 05/26/1994	10/14/1997	09/02/1998	04/29/1999	11/03/1999	03/21/2000	10/17/2000	04/09/2001
Inorganic Parameters:										
Total Dissolved Solids (TDS) [2]	500.0	mg/l	680.0	621.0	678.0	610.0	660.0	580	660	780
Ammonia [3]	2.8	mg/l	0.18	0.302	3.21	5.30	5.80	5.5	5	2.7
Nitrate [1]	10.0	mg/l	<0.03	<0.001	<0.002	<0.01	0.02	0.01	0.01	0.17
Chloride [2]	250.0	mg/l	120.0	123.0	107.0	94.0	89.0	76	79	94
Cobalt [3]	420.0	ug/l	<30.0	1.3	1.38	1.7	<50	12	<10	<10
Mercury [1]	2.0	ug/l	<0.2	<0.001	0.12	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium [1]	2.0	ug/l	<1.0	0.59	<1	<2	<1	<1.0	<1	<1
Antimony [1]	6.0	ug/l	<1.0	5.0	<5	<5	<5	<5.0	<5	<5
Arsenic [1]	50.0	ug/l	5.0	<0.5	8.01	3.0	5.6	9.2	<5	9.9
Barium [1]	2000.0	ug/l	<1.0	40.8	66.3	48.0	57.0	57	52	66
Beryllium [1]	4.0	ug/l	2.1	<4	<1	<1	<1	<1.0	<1	<1
Cadmium [1]	5.0	ug/l	<0.8	<0.5	<1.5	<1	<1	1.6	<1	<1
Chromium [1]	100.0	ug/l	15.0	2.45	2.05	<10	<5	<5	<5	<5
Copper [2]	1000.0	ug/l	<10.0	3.4	<0.5	<10	<10	<10	<10	<10
Iron [2]	0.3	mg/l	14.0	0.0202	26.6	17.0	35.0	39	28	35
Lead [1]	15.0	ug/l	6.0	1.48	<0.5	7.7	<5	<5	<5	<5
Nickel [1]	100.0	ug/l	75.0	6.9	7.5	<10	<10	<10	<10	<10
Selenium [1]	50.0	ug/l	<2.0	<6.5	<1	<2	<5	<5	<5	<5
Silver [2]	100.0	ug/l	<0.8	<0.25	<0.5	<10	<10	<10	<10	<10
Sodium [1]	160.0	mg/l	68.0	78.2	80.9	89.0	77.0	82	74	93
Vanadium [3]	49.0	ug/l	<10.0	3.79	14.9	<10	12.0	11	<10	13
Zinc [2]	5000.0	ug/l	<10.0	25.3	7.17	<25	<20	<20	<20	<20
Field Parameters:										
Field pH [2]	6.5-8.5	units	6.65	6.61	6.34	6.68	6.88	6.7	6.42	6.36
Field Conductivity	NA	umhos	924.0	855.0	1148.0	1300.0	1311.0	1330	1400	1254
Conductiivity (Lab)	NA	umhos	---	---	1070.0	---	---	---	---	---
Field Turbidity	NA	ntus	3.29	4.01	18.90	4.00	8.80	2.1	18.9	2
Field Dissolved Oxygen	NA	mg/l	1.75	2.75	2.30	1.90	2.44	9.3	---	2.3
Field Temperature	NA	deg. C	23.70	26.20	22.90	23.90	---	18.8	---	---
Organic Parameters:										
1,2-dibromo-3-chloropropane;DBCP) [1]	0.2	ug/l	<1	<0.5	<0.5	<0.020	<0.02	<0.02	---	<0.02
1,2-dibromoethane;EDB [1]	0.02	ug/l	<1	<0.5	<0.5	<0.020	<0.02	<0.02	<0.02	<0.02
Acetone [3]	700	ug/l	<50	<65	<58	<10	<10	<10	<10	<10
Acrylonitrile [3]	1	ug/l	<200	<10	<10	<100	<8	<8	<1	<1.0
Benzene [1]	1	ug/l	<1	1	<0.5	<0.5	<0.5	<0.5	<1	<1.0
Bromochloromethane [3]	91	ug/l	<1	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<1
Bromodichloromethane [3]	0.6	ug/l	<1	<0.5	<0.5	<0.050	<0.5	<0.5	<1	<0.6
Bromoform [3]	4.4	ug/l	<1	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<1
Methyl bromide: bromomethane [3]	9.8	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
methyl ethyl ketone: (MEK);2-butenone [3]	4200	ug/l	<5	<8	<8	<1.0	<1	<1	<10	<10
Carbon Disulfide [3]	700	ug/l	<5	<3	<0.3	<0.50	<0.5	<0.5	<1	<1
Carbon Tetrachloride [1]	3	ug/l	<1	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<1
Chlorobenzene [1]	100	ug/l	<1	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroethane [3]	12	ug/l	<1	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroform: trichloromethane [3]	5.7	ug/l	---	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<1
methyl chloride:chloromethane [3]	2.7	ug/l	<1	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<1
Dibromochloromethane [3]	0.4	ug/l	<1	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<0.4
Methylene bromide:dibromomethane [3]	70	ug/l	<1	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<1
o-dichlorobenzene: (1,2-) [1]	600	ug/l	<1	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<1
p-dichlorobenzene: (1,4-) [1]	75	ug/l	<1	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<1
trans-1,4-dichloro-2-butene	na	ug/l	<50	<4	<0.5	<10	<10	<10	<10	<10
1,1-dichloroethane [3]	70	ug/l	<1	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<1
1,2-dichloroethane [1]	3	ug/l	<1	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<1
1,1-dichloroethylene [1]	7	ug/l	<1	<0.5	<0.5	<0.50	<0.5	<0.5	<1	<1
cis-1,2-dichloroethylene [1]	70	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
trans-1,2-dichloroethylene [1]	100	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2-dichloropropane [1]	5	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
cis-1,3-dichloropropene	NA	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2
trans-1,3-dichloropropene	NA	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2
ethylbenzene [1]	700	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
2-hexanone:MBK [3]	280	ug/l	---	<4	<6	<1	<1	<1	<10	<10
Methyl iodide: Iodomethane	NA	ug/l	<5	<1	<0.5	<2	<2	<2	<1	<1
methylene chloride:dichloromethane [1]	5	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5
4-methyl-2-pentanone;MIBK [3]	560	ug/l	<5	<7	<0.5	<1	<1	<1	<10	<10
Styrene [1]	100	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2
Tetrachloroethylene [1]	3	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
Toluene [1]	1000	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1-trichloroethane [1]	200	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2-trichloroethane [1]	5	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichloroethylene: trichloroethene [1]	3	ug/l		<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichlorofluoromethane: CFC-11 [3]	2100	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2,3-trichloropropane [3]	0.2	ug/l	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.2
Vinyl acetate [3]	88	ug/l	<50	<1	<0.5	<2	<2	<2	<2	<2
Vinyl chloride [1]	1	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
Xylenes [1]	10000	ug/l	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1

Notes:

MCL = Maximum Contamination Level.

NA = Not Available.

--- = Not Tested.

Gray shading = Sample result above the MCL.

[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

SEP 20 2002

SOUTHWEST DISTRICT TAMPA

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
BIENNIAL GROUNDWATER MONITORING REPORT
FEBRUARY 2002

MW-11 (DETECTION)

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION							
			05/26/1994	10/14/1997	09/02/1998	04/29/1999	11/02/1999	03/21/2000	10/17/2000	04/09/2001
Inorganic Parameters:										
Total Dissolved Solids (TDS) [2]	500.0	mg/l	520.0	---	392.0	270.0	310.0	280	350	200
Ammonia [3]	2.8	mg/l	0.17	---	2.91	2.60	1.40	1.4	1.1	0.21
Nitrate [1]	10.0	mg/l	<0.03	---	<0.002	<0.01	<0.01	0.03	0.03	0.08
Chloride [2]	250.0	mg/l	42.0	---	5.84	4.0	4.6	4.2	4	4.4
Cobalt [3]	420.0	ug/l	<30.0	---	1.14	<1	<50	<10	<10	<10
Mercury [1]	2.0	ug/l	<0.2	---	0.15	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium [1]	2.0	ug/l	<1.0	---	<1	<2	<1	<1	<1	<1
Antimony [1]	6.0	ug/l	<1.0	---	<5	<5	<5	<5	<5	<5
Arsenic [1]	50.0	ug/l	8.0	---	13.9	5.0	24.0	17	23	<5
Barium [1]	2000.0	ug/l	<1.0	---	28.5	18.0	15.0	14	22	<10
Beryllium [1]	4.0	ug/l	<0.8	---	<1	<1	<1	<1	<1	<1
Cadmium [1]	5.0	ug/l	<0.8	---	1.97	<1	<1	<1	<1	<1
Chromium [1]	100.0	ug/l	25.0	---	<1	<10	<5	<5	<5	<5
Copper [2]	1000.0	ug/l	<10.0	---	3.94	16.0	<10	<10	<10	<10
Iron [2]	0.3	mg/l	12.0	---	3.33	1.8	1.1	4.9	1.2	0.93
Lead [1]	15.0	ug/l	1.0	---	<0.5	5.6	<5	<5	<5	<5.0
Nickel [3]	100.0	ug/l	77.0	---	8.89	<10	<10	<10	<10	<10
Selenium [1]	50.0	ug/l	<2.0	---	<1	<2	<5	<5	<5	<5
Silver [2]	100.0	ug/l	<0.8	---	0.53	<10	<10	<10	<10	<10
Sodium [1]	160.0	mg/l	49.0	---	10.4	8.0	3.7	3.9	3.8	3.1
Vanadium [3]	49.0	ug/l	<10.0	---	9.23	<10	<10	<10	<10	<10
Zinc [2]	5000.0	ug/l	<10.0	---	25.2	26.0	<20	<20	<20	<20
Field Parameters:										
Field pH [2]	6.5-8.5	units	6.73	---	6.26	6.88	6.60	6.59	6.52	6.76
Field Conductivity	NA	umhos	557.0	---	783.0	550.0	573.0	485	730	276
Conductivity (Lab)	NA	umhos	---	---	683.0	---	---	---	---	---
Field Turbidity	NA	ntus	15.90	---	NA	5.00	6.40	3.2	7.7	7
Field Dissolved Oxygen	NA	mg/l	2.25	---	3.00	3.30	2.70	8.99	---	2.5
Field Temperature	NA	deg. C	24.40	---	22.90	23.90	---	21	---	---
Organic Parameters:				---						
1,2-dibromo-3-chloropropane:DBCP) [1]	0.2	ug/l	<1	---	<0.5	<0.020	<0.02	<0.02	---	<0.02
1,2-dibromoethane:EDB [1]	0.02	ug/l	<1	---	<0.5	<0.020	<0.02	<0.02	<0.02	<0.02
Acetone [3]	700	ug/l	<50	---	<58	<10	<10	<10	<10	<10
Acrylonitrile [3]	1	ug/l	<200	---	<10	<100	<8	<8	<1	<1
Benzene [1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Bromochloromethane [3]	91	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Bromodichloromethane [3]	0.6	ug/l	<1	---	<0.5	<0.050	<0.5	<0.5	<1	<0.6
Bromoform [3]	4.4	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Methyl bromide: bromomethane [3]	9.8	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
methyl ethyl ketone: (MEK):2-butenone [3]	4200	ug/l	<5	---	<8	<1.0	<1	<1	<10	<10
Carbon Disulfide [3]	700	ug/l	<5	---	<0.3	<0.50	<0.5	<0.5	<1	<1
Carbon Tetrachloride [1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chlorobenzene [1]	100	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroethane [3]	12	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroform: trichloromethane [3]	5.7	ug/l	---	---	<0.5	<0.50	<0.5	<0.5	<1	<1
methyl chloride:chloromethane [3]	2.7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Dibromochloromethane [3]	0.4	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<0.4
Methylene bromide:dibromomethane [3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
o-dichlorobenzene: (1,2-) [1]	600	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
p-dichlorobenzene: (1,4-) [1]	75	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
trans-1,4-dichloro-2-butene	na	ug/l	<50	---	<0.5	<10	<10	<10	<10	<10
1,1-dichloroethane [3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
1,2-dichloroethane [1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
1,1-dichloroethylene [1]	7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
cis-1,2-dichloroethylene [1]	70	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
trans-1,2-dichloroethylene [1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2-dichloropropane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
cis-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
trans-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
ethylbenzene [1]	700	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
2-hexanone:MBK [3]	280	ug/l	---	---	<6	<1	<1	<1	<10	<10
Methyl iodide: Iodomethane	NA	ug/l	<5	---	<0.5	<2	<2	<2	<1	<1
methylene chloride:dichloromethane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<5	<1
4-methyl-2-pentanone:MIBK [3]	560	ug/l	<5	---	<0.5	<1	<1	<1	<10	<1
Styrene [1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1,2-tetrachloroethane [3]	1.3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2,2-tetrachloroethane [3]	0.2	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
Tetrachloroethylene [1]	3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Toluene [1]	1000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1-trichloroethane [2]	200	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2-trichloroethane [1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichloroethylene: trichloroethene [1]	3	ug/l		---	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichlorofluoromethane: CFC-11 [3]	2100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2,3-trichloropropane [3]	0.2	ug/l	<10	---	<0.5	<0.5	<0.5	<0.5	<1	<0.20
Vinyl acetate [3]	88	ug/l	<50	---	<0.5	<2	<2	<2	<2	<2
Vinyl chloride [1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Xylenes [1]	10000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1

Notes:

MCL = Maximum Contamination Level.

NA = Not Available.

--- = Not Tested.

Gray shading = Sample result above the MCL.

[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

SEP 20 2002

SOUTHWEST DISTRICT
TAMPA

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
BIENNIAL GROUNDWATER MONITORING REPORT
FEBRUARY 2002

MW-12 (DETECTION)

PARAMETER	MCL	UNITS	DATE OF SAMPLE COLLECTION 05/26/1994	10/14/1997	09/02/1998	04/29/1999	11/02/1999	03/21/2000	10/17/2000	04/03/2001
Inorganic Parameters:										
Total Dissolved Solids (TDS)[2]	500.0	mg/l	760.0	---	379.0	360.0	370.0	360	340	200
Ammonia[3]	2.8	mg/l	0.17	---	5.94	6.70	3.80	3.8	2.5	0.19
Nitrate[1]	10.0	mg/l	<0.03	---	<0.002	<0.01	<0.01	0.01	0.03	0.27
Chloride[2]	250.0	mg/l	88.0	---	4.13	7.3	3.2	3.7	3.5	3.3
Cobalt[3]	420.0	ug/l	<30.0	---	<1	<1	<50	<10	<10	<10
Mercury[1]	2.0	ug/l	<0.2	---	0.16	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium[1]	2.0	ug/l	<1.0	---	<1	<2	<1	<1	<1	<1
Antimony[1]	6.0	ug/l	<1.0	---	<5	<5	<5	<5	<5	<5
Arsenic[1]	50.0	ug/l	8.0	---	5.83	9.3	<5	5.4	<5	5.2
Barium[1]	2000.0	ug/l	<1.0	---	23.3	22.0	22.0	20	23	11
Beryllium[1]	4.0	ug/l	<0.8	---	<1	<1	<1	<1	<1	<1
Cadmium[1]	5.0	ug/l	<0.8	---	1.5	<1	<1	<1	<1	<1
Chromium[1]	100.0	ug/l	24.0	---	<1	<10	<5	<5	<5	<5
Copper[2]	1000.0	ug/l	<10.0	---	<0.5	<10	<10	<10	<10	<10
Iron[2]	0.3	mg/l	18.0	---	4.67	2.5	4.9	5.4	4.2	0.18
Lead[1]	15.0	ug/l	6.0	---	<0.5	5.0	<5	<5.0	<5	<5
Nickel[1]	100.0	ug/l	23.0	---	5.5	<10	<10	<10	<10	<10
Selenium[1]	50.0	ug/l	<2.0	---	<1	<2	<5	<5	<5	<5
Silver[2]	100.0	ug/l	<0.8	---	<0.5	<10	<10	<10	<10	<10
Sodium[1]	160.0	mg/l	67.0	---	20.1	23.0	7.0	12	7	3.1
Vanadium[3]	49.0	ug/l	<10.0	---	2.14	<10	<10	<10	<10	<10
Zinc[2]	5000.0	ug/l	<10.0	---	6.010	<25	<20	<20	<20	<20
Field Parameters:										
Field pH[2]	6.5-8.5	units	6.19	---	6.02	6.70	6.34	7	6.85	6.71
Field Conductivity	NA	umhos	593.0	---	731.0	720.0	689.0	655	630	333
Conductivity (Lab)	NA	umhos	---	---	638.0	---	---	---	---	---
Field Turbidity	NA	ntus	131.00	---	NA	3.00	3.40	2.3	6	10.5
Field Dissolved Oxygen	NA	mg/l	4.25	---	4.00	5.60	3.87	9.32	---	4.25
Field Temperature	NA	deg. C	25.60	---	22.90	23.30	---	18.9	---	---
Organic Parameters:										
1,2-dibromo-3-chloropropane:DBCP)[1]	0.2	ug/l	<1	---	<0.5	<0.020	<0.02	<0.02	---	<0.02
1,2-dibromoethane:EDB[1]	0.02	ug/l	<1	---	<0.5	<0.020	<0.02	<0.02	<0.02	<0.02
Acetone[3]	700	ug/l	<50	---	<58	<10	<10	<10	<10	<10
Acrylonitrile[3]	1	ug/l	<200	---	<10	<100	<8	<8	<1	<1
Benzene[1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Bromochloromethane[3]	91	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Bromodichloromethane[3]	0.6	ug/l	<1	---	<0.5	<0.050	<0.5	<0.5	<1	<0.6
Bromoform[3]	4.4	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Methyl bromide: bromomethane[3]	9.8	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
methyl ethyl ketone: (MEK):2-butenone[3]	4200	ug/l	<5	---	<8	<1.0	<1	<1	<10	<10
Carbon Disulfide[3]	700	ug/l	<5	---	<0.3	<0.50	<0.5	<0.5	<1	<1
Carbon Tetrachloride[1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chlorobenzene[1]	100	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroethane[3]	12	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Chloroform: trichloromethane[3]	5.7	ug/l	---	---	<0.5	<0.50	<0.5	<0.5	<1	<1
methyl chloride:chloromethane[3]	2.7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
Dibromochloromethane[3]	0.4	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<0.4
Methylene bromide:dibromomethane[3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
o-dichlorobenzene: (1,2-)[1]	600	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
p-dichlorobenzene: (1,4-)[1]	75	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
trans-1,4-dichloro-2-butene	na	ug/l	<50	---	<0.5	<10	<10	<10	<10	<10
1,1-dichloroethane[3]	70	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
1,2-dichloroethane[1]	3	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
1,1-dichloroethylene[1]	7	ug/l	<1	---	<0.5	<0.50	<0.5	<0.5	<1	<1
cis-1,2-dichloroethylene[1]	70	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
trans-1,2-dichloroethylene[1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2-dichloropropane[1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
cis-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
trans-1,3-dichloropropene	NA	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
ethylbenzene[1]	700	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
2-hexanone:MBK[3]	280	ug/l	---	---	<6	<1	<1	<1	<10	<10
Methyl iodide: Iodomethane	NA	ug/l	<5	---	<0.5	<2	<2	<2	<1	<1
methylene chloride:dichloromethane[1]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<5	<5
4-methyl-2-pentanone:MIBK[3]	560	ug/l	<5	---	<0.5	<1	<1	<1	<10	<10
Styrene[1]	100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1,2-tetrachloroethane[3]	1.3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2,2-tetrachloroethane[3]	0.2	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
Tetrachloroethylene[1]	3	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Toluene[1]	1000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,1-trichloroethane[1]	200	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,1,2-trichloroethane[3]	5	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichloroethylene: trichloroethene[1]	3	ug/l	---	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Trichlorofluoromethane: CFC-11[3]	2100	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
1,2,3-trichloropropane[3]	0.2	ug/l	<10	---	<0.5	<0.5	<0.5	<0.5	<1	<0.2
Vinyl acetate[3]	88	ug/l	<50	---	<0.5	<2	<2	<2	<2	<2.0
Vinyl chloride[1]	1	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1
Xylenes[1]	10000	ug/l	<1	---	<0.5	<0.5	<0.5	<0.5	<1	<1

Notes:

MCL = Maximum Contamination Level.

NA = Not Available.

--- = Not Tested.

Gray shading = Sample result above the MCL.

[1] Parameter MCL is a Primary Drinking Water Standard (62-550 F.A.C.).

[2] Parameter MCL is a Secondary Drinking Water Standard (62-550 F.A.C.).

[3] Parameter MCL is a Groundwater Clean-up Standard (62-777 F.A.C.).

September 13, 2002

SECTION N

SPECIAL WASTE HANDLING REQUIREMENTS

N.1 MOTOR VEHICLES

Motor vehicles are not accepted at CCSWDC. ~~No substantial change to the acceptance procedures of motor vehicles at CCSWDC has occurred since the previous Operations Permit Application submittal.~~

N.2 SHREDDED WASTE

Shredded waste is not accepted at CCSWDC. ~~No substantial change to the acceptance procedures of shredded waste at CCSWDC has occurred since the previous Operations Permit Application submittal.~~

N.3 ASBESTOS WASTE DISPOSAL

Asbestos waste is accepted at CCSWDC. See Section L.2.c. for additional information. ~~No substantial change to the acceptance procedures of asbestos waste at CCSWDC has occurred since the previous Operations Permit Application submittal.~~

N.4 CONTAMINATED SOIL

The procedures for accepting contaminated soils at CCSWDC are described in Section L.2.c. of the Operations Plan. Contaminated soil acceptance criteria is included in Attachment L-4~~1~~.

N.5 BIOLOGICAL WASTES

Treated biomedical waste is accepted at CCSWDC. Untreated biological wastes are not accepted at CCSWDC. ~~No substantial change to the acceptance procedures of treated biomedical waste at CCSWDC has occurred since the previous Operations Permit Application submittal.~~

N.6 WASTE OIL

Waste oil is accepted at the CCSWDC and is collected for recycling purposes at the waste oil storage container located near the entrance to the facility.

N.7 LAWN MOWERS

Lawn mowers are accepted at the CCSWDC provided they have been drained of all fluids. Lawn mowers are store with and managed as white goods.

SECTION N

SPECIAL WASTE HANDLING REQUIREMENTS

N.1 MOTOR VEHICLES

Motor vehicles are not accepted at CCSWDC. No substantial change to the acceptance procedures of motor vehicles at CCSWDC has occurred since the previous Operations Permit Application submittal.

N.2 SHREDDED WASTE

Shredded waste is accepted at CCSWDC. No substantial change to the acceptance procedures of shredded waste at CCSWDC has occurred since the previous Operations Permit Application submittal.

N.3 ASBESTOS WASTE DISPOSAL

Asbestos waste is accepted at CCSWDC. No substantial change to the acceptance procedures of asbestos waste at CCSWDC has occurred since the previous Operations Permit Application submittal.

N.4 CONTAMINATED SOIL

The procedures for accepting contaminated soils at CCSWDC are described in Section L.2.c. of the Operations Plan. Contaminated soil acceptance criteria is included in Attachment L-1.

N.5 BIOLOGICAL WASTES

Treated biomedical waste is accepted at CCSWDC. No substantial change to the acceptance procedures of treated biomedical waste at CCSWDC has occurred since the previous Operations Permit Application submittal.

SECTION O

GAS MANAGEMENT SYSTEM REQUIREMENTS

O.1 LANDFILL GAS SYSTEM DESIGN

CCSWDC currently does not have a landfill gas system installed at the facility. Based on historical waste receipts at the facility, CCSWDC will not require the installation of a landfill gas system in the next five years. Therefore, this section does not apply to CCSWDC.

O.2 LANDFILL GAS MONITORING LOCATIONS

The landfill gas monitoring locations at CCSWDC are provided on Figure ~~E-2.~~L-1 of Attachment L-3. Each location is sampled for the presence of methane on a quarterly basis. The landfill gas monitoring program is described in Section L.9.

O.3 GAS AND ODOR REMEDIATION PLANS

CCSWDC currently does not have a landfill gas system installed at the facility. Based on historical waste receipts at the facility, CCSWDC will not require the installation of a landfill gas system in the next five years. Therefore, this section does not apply to CCSWDC.

O.4 LANDFILL GAS RECOVERY FACILITIES

CCSWDC currently does not have a landfill gas recovery facility installed. Based on historical waste receipts at the facility, CCSWDC will not require the installation of a landfill gas recovery facility in the next five years. Therefore, this section does not apply to CCSWDC.

SECTION O

GAS MANAGEMENT SYSTEM REQUIREMENTS

O.1 LANDFILL GAS SYSTEM DESIGN

CCSWDC currently does not have a landfill gas system installed at the facility. Based on historical waste receipts at the facility, CCSWDC will not require the installation of a landfill gas system in the next five years. Therefore, this section does not apply to CCSWDC.

O.2 LANDFILL GAS MONITORING LOCATIONS

The landfill gas monitoring locations at CCSWDC are provided on Figure E-2. Each location is sampled for the presence of methane on a quarterly basis.

O.3 GAS AND ODOR REMEDIATION PLANS

CCSWDC currently does not have a landfill gas system installed at the facility. Based on historical waste receipts at the facility, CCSWDC will not require the installation of a landfill gas system in the next five years. Therefore, this section does not apply to CCSWDC.

O.4 LANDFILL GAS RECOVERY FACILITIES

CCSWDC currently does not have a landfill gas recovery facility installed. Based on historical waste receipts at the facility, CCSWDC will not require the installation of a landfill gas recovery facility in the next five years. Therefore, this section does not apply to CCSWDC.

SECTION P

LANDFILL FINAL CLOSURE REQUIREMENTS

Sarasota County estimates that the CCSWDC has a projected remaining lifetime in excess of 40 years and that during the 5-year period that this permit would be in effect, there is no plan to close the facility or any sections of the facility.

P.1 CLOSURE SCHEDULE REQUIREMENTS

No substantial change to the closure schedule at CCSWDC has occurred since the previous Operations Permit Application submittal.

P.2 CLOSURE PERMIT GENERAL REQUIREMENTS

No substantial change to the closure permit general requirements for CCSWDC has occurred since the previous Operations Permit Application submittal.

P.3 CLOSURE REPORT REQUIREMENTS

CCSWDC does not plan to close the facility or any sections of the facility within the next five years. Therefore, this section does not apply to CCSWDC.

P.4 CLOSURE DESIGN REQUIREMENTS TO BE INCLUDED IN THE CLOSURE DESIGN PLAN

No substantial change to the closure design requirements for the closure plan design at CCSWDC has occurred since the previous Operations Permit Application submittal.

P.5 CLOSURE OPERATIONS PLAN

No substantial change to the closure operations plan for CCSWDC has occurred since the previous Operations Permit Application submittal.

P.6 TEMPORARY CLOSURE PROCEDURES

When applicable, justification for and detailed description of procedures to be followed for temporary closure of CCSWDC would be submitted to the Department at least 90 days before the date when wastes would no longer be accepted.

D.E.P.
MAR 0 1 2002
Southwest District Tampa

SECTION Q

CLOSURE PROCEDURES

Sarasota County estimates that the CCSWDC has a projected remaining lifetime in excess of 40 years and that during the 5-year period that this permit would be in effect, there is no plan to close the facility or any sections of the facility. In the event the facility or sections of the facility require closure, a closure plan would be submitted to the Department at least 90 days before the date when wastes would no longer be accepted.

Q.1 SURVEY MONUMENTS

CCSWDC does not plan to close the facility or any sections of the facility within the next five years. Therefore, this section does not apply to CCSWDC.

Q.2 FINAL SURVEY REPORT

CCSWDC does not plan to close the facility or any sections of the facility within the next five years. Therefore, this section does not apply to CCSWDC.

Q.3 CERTIFICATION OF CLOSURE CONSTRUCTION COMPLETION

CCSWDC does not plan to close the facility or any sections of the facility within the next five years. Therefore, this section does not apply to CCSWDC.

Q.4 DECLARATION TO THE PUBLIC

CCSWDC does not plan to close the facility or any sections of the facility within the next five years. Therefore, this section does not apply to CCSWDC.

Q.5 OFFICIAL DATE OF CLOSING

CCSWDC does not plan to close the facility or any sections of the facility within the next five years. Therefore, this section does not apply to CCSWDC.

Q.6 USE OF CLOSED LANDFILL AREAS

CCSWDC does not plan to close the facility or any sections of the facility within the next five years. Therefore, this section does not apply to CCSWDC.

Q.7 RELOCATION OF WASTES

CCSWDC does not plan to close the facility or any sections of the facility within the next five years. Therefore, this section does not apply to CCSWDC.

SECTION R

LONG TERM CARE REQUIREMENTS

Sarasota County estimates that the CCSWDC has a projected remaining lifetime in excess of 40 years and that during the 5-year period that this permit would be in effect, there is no plan to close the facility or any sections of the facility (refer to Section P). In the event the facility or sections of the facility require closure, a closure plan would be submitted to the Department at least 90 days before the date when wastes would no longer be accepted.

R.1 MAINTAINING GAS SYSTEM

CCSWDC does not plan to close the facility or any sections of the facility within the next five years. Therefore, this section does not apply to CCSWDC.

R.2 RIGHT OF ACCESS

CCSWDC does not plan to close the facility or any sections of the facility within the next five years. Therefore, this section does not apply to CCSWDC.

R.3 SUCCESSORS OF INTEREST

CCSWDC does not plan to close the facility or any sections of the facility within the next five years. Therefore, this section does not apply to CCSWDC.

R.4 REPLACEMENT OF MONITORING DEVICES

CCSWDC does not plan to close the facility or any sections of the facility within the next five years. Therefore, this section does not apply to CCSWDC.

R.5 COMPLETION OF LONG-TERM CARE

CCSWDC does not plan to close the facility or any sections of the facility within the next five years. Therefore, this section does not apply to CCSWDC.

SECTION S

FINANCIAL RESPONSIBILITY REQUIREMENTS

Financial cost estimates, descriptions for providing annual cost adjustments and funding mechanisms to assure financial responsibility are submitted to the FDEP annually.

S.1 CLOSURE AND LONG TERM CARE COST ESTIMATES

No substantial change to the closure and long term care cost estimates for CCSWDC has occurred since the most recent annual update.

S.2 ANNUAL COST ADJUSTMENTS

The Closure and Long Term Care Cost Estimates are updated on an annual basis and submitted to the Department for review and approval. The updates include adjustments in costs based on inflation and/or changes to the closing and/or long-term care plans.

S.3 FINANCIAL RESPONSIBILITY

No change in the financial responsibility funding mechanism for CCSWDC has occurred since the previous Operations Permit Application submittal.