SARASOTA COUNTY GOVERNMENT
SOLID WASTE DEPARTMENT
4000 Knights Trail Road
Nokomis, FL 34275
Phone : 941-861-1573
Fax : 941-486-2620

TO:	El Kromhout, P.G. Cory Dilmore, P.E. Solid Waste Section Division of Waste Management Florida Department of Environmental Protection 2600 Blairstone Road, MS 4565 Tallahassee, FL 32399	DATE: FROM: PROJECT:	September 16, 2013 Jason Timmons, Sarasota Co. Solid Waste Sarasota County Central County Solid Waste Disposal Complex Operations Permit Renewal Application Permit No. 130542-007/SO/01 WACS ID No. SWD/58/51614

WE ARE SENDING YOU ☒ Enclosed ☐ By Hand Delivery ☐ Under Separate Cover ☐ via e-mail

THE FOLLOWING ITEM(S):

☐ Shop Drawing ☐ Sepia/Mylar ☒ Plans ☐ Specifications
☐ Samples ☐ Change Order ☐ Product Literature ☐ Application for Payment
☒ Correspondence ☐ Contract ☐ Agreement ☐ Aerial
☒ Other – Permit Renewal Application

ITEM # (1,2,3)	ITEM DATE	ITEM DESCRIPTION	ACTION REQUESTED
1	9/16/2013	Sarasota County CCSWDC Solid Waste Operations Permit Renewal Application	A
2	9/16/2013	Full-Size Signed and Sealed Landfill Staging Plans	A
3	9/16/2013	CD with PDF Copy of the Application	A
4	9/16/2013	Permit Application Fee Check#01031282 in the amount of $10,000	A

ACTION CODES

A. Action indicated on item transmitted **B.** No action required. **C.** For signature and return to this office
D. For signature and forwarding as noted **E.** Copy originals and return to this office **F.** See REMARKS below

REMARKS: See Enclosed. Thank you.

Signature: Jason Timmons, P.E., Sarasota Co.

Copies to:
South District FDEP
Lois Rose, Sarasota County
File

SARASOTA COUNTY
"Dedicated to Quality Service"

September 16, 2013

El Kromhout, P.G.
Cory Dilmore, P.E.
Solid Waste Section
Division of Waste Management
Florida Department of Environmental Protection
2600 Blairstone Road, MS 4565
Tallahassee, FL 32399

Re: Central County Solid Waste Disposal Complex
Permit No. 130542-007-SO/01 (Modification #130542-019-SO/MM)
WACS No. 51614
Operations Permit Renewal Application

Dear Ms. Kromhout and Mr. Dilmore:

Sarasota County (County) is pleased to submit to the Florida Department Environmental Protection (FDEP) the attached Operations Permit Renewal Application for the Central County Solid Waste Disposal Complex (CCSWDC), WACS ID No. 51614 and Permit No. 130542-007-SO/01.

The permit renewal application is being submitted no later than September 18, 2013, as required by Specific Condition A.4 of the current permit and includes information as required by Rule 62-701, FAC. FDEP Application Form #62-701.900(1), FAC is provided with this cover letter and is accompanied by an Engineering Report which provides information and supporting documents as attachments for the permit application.

Also included with this permit application correspondence is a check in the amount of $10,000 payable to FDEP as the permit application for the permit renewal. As discussed in the Engineering Report, the County is requesting the permit duration of 20 years, in which case, if approved, the County will pay additional permit fees of $10,000 every 5 years from the issuance of the renewed permit for the CCSWDC.

Sarasota County Solid Waste Department • 4000 Knights Trail Road, Nokomis, FL 34275
Tel 941-861-1573 • Fax 941-486-2620

Please contact Jason Timmons anytime at 941-861-1572 if you have questions or require additional information regarding the attached permit application form and engineering report.

Sincerely,

Lois Rose
Solid Waste Operations Manager

Jason Timmons, PE
Solid Waste Engineer
FL PE#65869

Xc: FDEP South District Solid Waste Division
Gary Bennett, Sarasota County
Bradley Bayne, Atkins
Richard Siemering, HDR Engineering, Inc.

Enclosures (3)
Check No. 01031282 in the amount of $10,000
FDEP Application Form #62-701.900(1), FAC
Engineering Report and Attachments

BOARD OF COUNTY COMMISSIONERS
SARASOTA COUNTY
SARASOTA, FLORIDA

VENDOR ID	VENDOR NAME	CHECK DATE	CHECK NO.
004803	STATE OF FLORIDA DEPT OF ENVI	08/15/13	01031282

VOUCHER NO.	DESCRIPTION	ACCOUNT	AMOUNT
	PERMIT	52812400 500489	10,000.00

TOTAL $ 10,000.00

THIS CHECK IS VOID IF BLUE COLORED BACKGROUND IS ABSENT

BOARD OF COUNTY COMMISSIONERS
SARASOTA COUNTY
SARASOTA, FLORIDA

BB&T
Branch Banking and Trust Company

66-171
531

CHECK NO. 01031282

DATE 08/15/13

APPROVED IN OPEN SESSION

PAY TEN Thousand Dollars and ZERO Cents

A/P ACCOUNT

PAY EXACTLY
****10,000.00

NOT VALID AFTER 60 DAYS

CLEARING ACCOUNT

TO THE ORDER OF STATE OF FLORIDA DEPT OF ENVIRONMENTAL PROTECTION
13051 N TELECOM PKWY
ATTN: JEFF GREENWELL
TEMPLE TERRACE FL 33637-0926

ATTEST: KAREN E. RUSHING CLERK CIRCUIT COURT
EX-OFFICIO CLERK OF BOARD OF COUNTY COMMISSIONERS

Carolyn J. Mason
Karen E. Rushing

COPY
County Commissioners Seal
Sarasota County, Florida
1921

"01031282" :053101710:0000148427143"

FDEP PERMIT APPLICATION FORM #62-701.900(1), FAC

Florida Department of
Environmental Protection
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form #: 62-701.900(1), F.A.C.
Form Title: Application to Construct, Operate, Modify, or Close a Solid Waste Management Facility
Effective Date: August 12, 2012
Incorporated in Rule: 62-701.330(3), F.A.C.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

APPLICATION INSTRUCTIONS AND FORMS

Northwest District
160 Governmental Center
Suite 308
Pensacola, FL 32502-5794
850-595-8300

Northeast District
7777 Baymeadows Way West
Suite 100
Jacksonville, FL 32256-7590
904-256-1700

Central District
3319 Maguire Boulevard
Suite 232
Orlando, FL 32803-3767
407-897-4100

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

South District
2295 Victoria Ave, Suite 364
P.O. Box 2549
Fort Myers, FL 33901-3881
239-344-5600

Southeast District
400 North Congress Avenue
Suite 200
West Palm Beach, FL 33401
561-681-6600

INSTRUCTIONS TO APPLY FOR A SOLID WASTE MANAGEMENT FACILITY PERMIT

I. General

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

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

II. Application Parts Required for Construction and Operation Permits

A. Landfills and Ash Monofills - Submit Parts A through S
B. Asbestos Monofills - Submit Parts A, B, C, D, E, F, I, K, M, O through S
C. Industrial Solid Waste Disposal Facilities - Submit Parts A through S

NOTE: Portions of some Parts may not be applicable.

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

III. Application Parts Required for Closure Permits

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

NOTE: Portions of some Parts may not be applicable.

IV. Permit Renewals

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

V. Application Codes

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

VI. Listing of Application Parts

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

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

Please Type or Print

PART A. GENERAL INFORMATION

1. Type of disposal facility (check all that apply):
   - ☑ Class I Landfill
   - ☐ Class III Landfill
   - ☐ Industrial Solid Waste
   - ☐ Other (describe):
   - ☐ Ash Monofill
   - ☐ Asbestos Monofill

NOTE: Waste Processing Facilities should apply on Form 62-701.900(4), FAC;
Yard Trash Disposal Facilities should notify on Form 62-701.900(3), FAC;
Compost Facilities should apply on Form 62-709.901(1), FAC; and
C&D Disposal Facilities should apply on Form 62-701.900(6), FAC

2. Type of application:
   - ☐ Construction
   - ☑ Operation
   - ☐ Construction/Operation
   - ☐ Closure
   - ☐ Long-term Care Only

3. Classification of application:
   - ☐ New
   - ☑ Renewal
   - ☐ Substantial Modification
   - ☐ Intermediate Modification
   - ☐ Minor Modification

4. Facility name: Sarasota County Central County Solid Waste Disposal Complex

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

6. Facility location (main entrance):
   North end of Knights Trail Road, 2 miles east of I-75, northeast of Venice, FL
   4000 Knights Trail Road, Nokomis, FL 34275

7. Location coordinates:
   Section: 1-4, 9-16 Township: 38S Range: 19E
   Latitude: 27 ° 12 ' 11 N " Longitude: 82 ° 23 ' 16 W "
   Datum: NAD83 Coordinate method: GIS Mapping/Electronic
   Collected by: Sarasota County Company/Affiliation: Sarasota County

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

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

Contact person: Lois Rose Telephone: (941) 861-1589

Title: Solid Waste Operations Manager

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

9. Authorized agent/Consultant: _____

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

Contact person: _____ Telephone: (____) _____

Title: _____

_____
E-Mail address (if available)

10. Landowner (if different than applicant): Same as Applicant

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

Contact person: _____ Telephone: (____) _____

_____
E-Mail address (if available)

11. Cities, towns, and areas to be served:
Unincorporated Sarasota County, City of Sarasota, City of Venice, City of Northport

12. Population to be served:
Current: 383,664 Five-Year Projection: 411,872

13. Date site will be ready to be inspected for completion: N/A

14. Expected life of the facility: 12.7 years

15. Estimated costs:
Total Construction: $ N/A Closing Costs: $ See Att. J, FA Closure Cost Estimate

16. Anticipated construction starting and completion dates:
From: N/A To: N/A

17. Expected volume or weight of waste to be received:
_____ yds^3/day 1,000 tons/day _____ gallons/day

*Indicates operations permitted under a separate FDEP permit or registration
**Indicates operations are exempted from permitting

PART B. DISPOSAL FACILITY GENERAL INFORMATION

1. Provide brief description of disposal facility design and operations planned under this application:
The Central County Solid Waste Disposal Complex includes a Class I Landfill for MSW disposal a yard waste processing facility*, C&D processing facility*, HHW and CCC facility**, and waste tire processing facility*. The site also includes the closed Class I Phase I Landfill and gas collection and flare system, as well as a leachate storage tank, maintenance bldg., scalehouse, and admin bldg.

2. Facility site supervisor: Lois Rose
Title: Solid Waste Operations Manager Telephone: (941) 861-1589
lerose@scgov.net
E-Mail address (if available)

3. Disposal area: Total acres: 118 Used acres: 55 (Phase I) Available acres: 63 (Phase II)

4. Weighing scales used: ☑ Yes ☐ No

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

6. Charge for waste received: Varies (see note) $/yds^3 Varies (see note) $/ton

Note: See tipping fee schedule provide in Attachment A of the Engineering Report.

7. Surrounding land use, zoning:
- ☐ Residential
- ☐ Agricultural
- ☐ Commercial
- ☐ Industrial
- ☐ None
- ☑ Other (describe):

Governmental Use, Open Use Conservation, Rural

8. Types of waste received:
- ☑ Household
- ☑ Commercial
- ☐ Incinerator/WTE ash
- ☑ Treated biomedical
- ☑ Water treatment sludge
- ☐ Air treatment sludge
- ☑ Agricultural
- ☑ Asbestos
- ☑ C & D debris
- ☑ Shredded/cut tires
- ☑ Yard trash
- ☐ Septic tank
- ☑ Industrial
- ☑ Industrial sludge
- ☑ Domestic sludge
- ☑ Other (describe):

Other: Mobile homes and marine vessels when all engines, fuel tanks (either removed or punctured), appliances, air conditioners, other fluids, and batteries are removed from the mobile home or marine vessel.

9. Salvaging permitted: ☐ Yes ☑ No

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

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

12. Site located in: ☐ Floodplain ☐ Wetlands ☑ Other (describe):
Uplands

13. Days of operation: Monday through Saturday

14. Hours of operation: 8:00AM to 5:00PM

15. Days working face covered: Daily

16. Elevation of water table: 20.5 ft. Datum Used: NGVD 1929

17. Number of monitoring wells: 10

18. Number of surface monitoring points: 2

19. Gas controls used: ☑ Yes ☐ No Type controls: ☑ Active ☐ Passive

Gas flaring: ☑ Yes ☐ No Gas recovery: ☑ Yes ☐ No

20. Landfill unit liner type:

- ☐ Natural soils
- ☐ Single clay liner
- ☐ Single geomembrane
- ☑ Single composite
- ☐ Slurry wall
- ☐ Double geomembrane
- ☑ Geomembrane & composite
- ☐ Double composite
- ☐ None
- ☑ Other (describe):

Phase I is a single HDPE liner and clay layer. Phase II is a double HDPE geomembrane and drainage composite with a geosynthetic clay liner (GCL).

21. Leachate collection method:

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

See 20. above.

22. Leachate storage method:

☑ Tanks ☐ Surface impoundments

☐ Other (describe):

Prestressed concrete leachate storage tank and secondary containment tank.

23. Leachate treatment method:

☐ Oxidation ☐ Chemical treatment

☐ Secondary ☐ Settling

☐ Advanced ☐ None

☑ Other (describe):

Off-site treatment

24. Leachate disposal method:

☐ Recirculated ☑ Pumped to WWTP

☑ Transported to WWTP ☐ Discharged to surface water/wetland

☐ Injection well ☐ Percolation ponds

☐ Evaporation ☑ Spray irrigation

☐ Other (describe):

Spray irrigation to working face and initial cover areas of Class I Landfill only for dust control.

25. For leachate discharged to surface waters:

Name and Class of receiving water:

Not Applicable.

26. Storm Water:

Collected: ☑ Yes ☐ No

Type of treatment:

Wet detention ponds and retention ditches.

Name and Class of receiving water:

Cow Pen Slough, Class III water

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

SWFWMD Permit #407932.01

FDEP ERP Permit #58-0272622-001 (Phase II)

FDEP ERP Permit #58-0246654-003 (Roadway Widening/Swale)

PART C. PROHIBITIONS (62-701.300, FAC)

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

PART D. SOLID WASTE MANAGEMENT FACILITY PERMIT REQUIREMENTS, GENERAL (62-701.320, FAC)

LOCATION		
S ☑ Eng Rep. D.1	N/A ☐ N/C ☐	1. Four copies, at minimum, of the completed application form, all supporting data and reports; (62-701.320(5)(a), FAC)
S ☑ Eng Rep. D.2	N/A ☐ N/C ☐	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)
S ☑ Eng Rep. D.3	N/A ☐ N/C ☐	3. A letter of transmittal to the Department; (62-701.320(7)(a), FAC)

LOCATION		PART D CONTINUED
S ☑	Eng Rep. D.4 N/A ☐ N/C ☐	4. A completed application form dated and signed by the applicant; (62-701.320(7)(b), FAC)
S ☑	Eng Rep. D.5 N/A ☐ N/C ☐	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)
S ☑	Eng Rep. D.6 N/A ☐ N/C ☐	6. An engineering report addressing the requirements of this rule and with the following format: a cover sheet, text printed on 8 ½ 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)
S ☑	Eng Rep. D.7 N/A ☐ N/C ☐	7. Operation Plan and Closure Plan; (62-701.320(7)(e)1, FAC)
S ☑	Eng Rep. D.8 N/A ☐ N/C ☐	8. Contingency Plan; (62-701.320(7)(e)2, FAC)
S ☑	Eng Rep. D.9 N/A ☐ N/C ☐	9. Plans or drawings for the solid waste management facilities in appropriate format (including sheet size restrictions, cover sheet, legends, north arrow, horizontal and vertical scales, elevations referenced to NGVD 1929) showing: (62-701.320(7)(f), FAC)
S ☑	Eng Rep. D.9.a N/A ☐ N/C ☐	a. A regional map or plan with the project location in relation to major roadways and population centers;
S ☑	Eng Rep. D.9.b N/A ☐ N/C ☐	b. A vicinity map or aerial photograph no more than one year old showing the facility site and relevant surface features located within 1000 feet of the facility;
S ☐	Eng Rep. D.9.c N/A ☐ N/C ☑	c. A site plan showing all property boundaries certified by a Florida Licensed Professional Surveyor and Mapper;
S ☑	Eng Rep. D.9.d N/A ☐ N/C ☐	d. Other necessary details to support the engineering report, including referencing elevations to a consistent, nationally recognized datum, and identifying the method used for collecting latitude and longitude data;
S ☐	Eng Rep. D.10 N/A ☐ N/C ☑	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)
S ☑	Eng Rep. D.11 N/A ☐ N/C ☐	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)

LOCATION		PART D CONTINUED
S ☑ Eng Rep. D.12	N/A ☐ N/C ☐	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 the state; (62-701.320(7)(i), FAC)
S ☑ Eng Rep. D.13	N/A ☐ N/C ☐	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; (62-701.320(8), FAC)
S ☑ Eng Rep. D.14	N/A ☐ N/C ☐	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)
S ☑ Eng Rep. D.15	N/A ☐ N/C ☐	15. Explain how the operator and spotter training requirements and special criteria will be satisfied for the facility; (62-701.320(15), FAC)

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

LOCATION		
S ☑ Eng Rep. E.1	N/A ☐ N/C ☐	1. Regional map or aerial photograph no more than five years old showing all airports that are located within five miles of the proposed landfill; (62-701.330(3)(a), FAC)
S ☑ Eng Rep. E.2	N/A ☐ N/C ☐	2. Plot plan with a scale not greater than 200 feet to the inch showing: (62-701.330(3)(b), FAC)
S ☑ Eng Rep. E.2	N/A ☐ N/C ☐	a. Dimensions;
S ☑ Eng Rep. E.2	N/A ☐ N/C ☐	b. Locations of proposed and existing water quality monitoring wells;
S ☑ Eng Rep. E.2	N/A ☐ N/C ☐	c. Locations of soil borings;
S ☑ Eng Rep. E.2	N/A ☐ N/C ☐	d. Proposed plan of trenching or disposal areas;
S ☑ Eng Rep. E.2	N/A ☐ N/C ☐	e. Cross sections showing original elevations and proposed final contours which shall be included either on the plot plan or on separate sheets;
S ☑ Eng Rep. E.2	N/A ☐ N/C ☐	f. Any previously filled waste disposal areas;
S ☑ Eng Rep. E.2	N/A ☐ N/C ☐	g. Fencing or other measures to restrict access;

LOCATION		PART E CONTINUED
S ☑ Eng Rep. E.3	N/A ☐ N/C ☐	3. Topographic maps with a scale not greater than 200 feet to the inch with five foot contour intervals showing: (62-701.330(3)(c), FAC)
S ☑ Eng Rep. E.3	N/A ☐ N/C ☐	a. Proposed fill areas;
S ☑ Eng Rep. E.3	N/A ☐ N/C ☐	b. Borrow areas;
S ☑ Eng Rep. E.3	N/A ☐ N/C ☐	c. Access roads;
S ☑ Eng Rep. E.3	N/A ☐ N/C ☐	d. Grades required for proper drainage;
S ☑ Eng Rep. E.3	N/A ☐ N/C ☐	e. Cross sections of lifts;
S ☑ Eng Rep. E.3	N/A ☐ N/C ☐	f. Special drainage devices if necessary;
S ☑ Eng Rep. E.3	N/A ☐ N/C ☐	g. Fencing;
S ☑ Eng Rep. E.3	N/A ☐ N/C ☐	h. Equipment facilities;
S ☑ Eng Rep. E.4	N/A ☐ N/C ☐	4. A report on the landfill describing the following: (62-701.330(3)(d), FAC)
S ☑ Eng Rep. E.4.a	N/A ☐ N/C ☐	a. The current and projected population and area to be served by the proposed site;
S ☑ Eng Rep. E.4.b	N/A ☐ N/C ☐	b. The anticipated type, annual quantity, and source of solid waste expressed in tons;
S ☑ Eng Rep. E.4.c	N/A ☐ N/C ☐	c. Planned active life of the facility, the final design height of the facility, and the maximum height of the facility during its operation;
S ☑ Eng Rep. E.4.d	N/A ☐ N/C ☐	d. The source and type of cover material used for the landfill;
S ☑ Eng Rep. E.5	N/A ☐ N/C ☐	5. Provide evidence that an approved laboratory shall conduct water quality monitoring for the facility in accordance with Chapter 62-160, FAC; (62-701.330(3)(g), FAC
S ☑ Eng Rep. E.6	N/A ☐ N/C ☐	6. Provide a statement of how the applicant will demonstrate financial responsibility for the closing and long-term care of the landfill; (62-701.330(3)(h), FAC)

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

LOCATION

S ☑ Eng Rep. F.1 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(3)(b), FAC)

S ☑ Eng Rep. F.2 N/A ☐ N/C ☐ — 2. Describe how the minimum horizontal separation between waste deposits in the landfill and the landfill property boundary shall be 100 feet, measured from the toe of the proposed final cover slope; (62-701.340(3)(c), FAC)

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

LOCATION

S ☐ _____ N/A ☑ N/C ☐ — 1. Describe how the landfill shall be designed so the solid waste disposal units will be constructed and closed at planned intervals throughout the design period of the landfill, and shall be designed to achieve a minimum factor of safety of 1.5 using peak strength values to prevent failures of side slopes and deep-seated failures; (62-701.400(2), FAC)

S ☐ _____ N/A ☑ N/C ☐ — 2. Landfill liner requirements; (62-701.400(3), FAC)

S ☐ _____ N/A ☑ N/C ☐ — a. General construction requirements; (62-701.400(3)(a), FAC)

S ☐ _____ N/A ☑ N/C ☐ — (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;

S ☐ _____ N/A ☑ N/C ☐ — (2) Document foundation is adequate to prevent liner failure;

S ☐ _____ N/A ☑ N/C ☐ — (3) Constructed so bottom liner will not be adversely impacted by fluctuations of the ground water;

S ☐ _____ N/A ☑ N/C ☐ — (4) Designed to resist hydrostatic uplift if bottom liner located below seasonal high ground water table;

S ☐ _____ N/A ☑ N/C ☐ — (5) Installed to cover all surrounding earth which could come into contact with the waste or leachate;

LOCATION		PART G CONTINUED
S ☐ _____ N/A ☑ N/C ☐		b. Composite liners; (62-701.400(3)(b), FAC)
S ☐ _____ N/A ☑ N/C ☐	(1)	Upper geomembrane thickness and properties;
S ☐ _____ N/A ☑ N/C ☐	(2)	Design leachate head for primary leachate collection and removal system (LCRS) including leachate recirculation if appropriate;
S ☐ _____ N/A ☑ N/C ☐	(3)	Design thickness in accordance with Table A and number of lifts planned for lower soil component;
S ☐ _____ N/A ☑ N/C ☐		c. Double liners; (62-701.400(3)(c), FAC)
S ☐ _____ N/A ☑ N/C ☐	(1)	Upper and lower geomembrane thickness and properties;
S ☐ _____ N/A ☑ N/C ☐	(2)	Design leachate head for primary LCRS to limit the head to one foot above the liner;
S ☐ _____ N/A ☑ N/C ☐	(3)	Lower geomembrane sub-base design;
S ☐ _____ N/A ☑ N/C ☐	(4)	Leak detection and secondary leachate collection system minimum design criteria ($k \geq 10$ cm/sec, head on lower liner ≤ 1 inch, head not to exceed thickness of drainage layer);
S ☐ _____ N/A ☑ N/C ☐		d. Standards for geosynthetic components; (62-701.400(3)(d), FAC)
S ☐ _____ N/A ☑ N/C ☐	(1)	Factory and field seam test methods to ensure all geomembrane seams achieve the minimum specifications;
S ☐ _____ N/A ☑ N/C ☐	(2)	Geomembranes to be used shall pass a continuous spark test by the manufacturer;
S ☐ _____ N/A ☑ N/C ☐	(3)	Design of 24-inch-thick protective layer above upper geomembrane liner;
S ☐ _____ N/A ☑ N/C ☐	(4)	Describe operational plans to protect the liner and leachate collection system when placing the first layer of waste above a 24-inch-thick protective layer;
S ☐ _____ N/A ☑ N/C ☐	(5)	HDPE geomembranes, if used, meet the specifications in GRI GM13, and LLDPE geomembranes, if used, meet the specifications in GRI GM17;
S ☐ _____ N/A ☑ N/C ☐	(6)	PVC geomembranes, if used, meet the specifications in PGI 1104;

LOCATION		PART G CONTINUED
S ☐ _____ N/A ☑ N/C ☐	(7)	Interface shear strength testing results of the actual components which will be used in the liner system;
S ☐ _____ N/A ☑ N/C ☐	(8)	Transmissivity testing results of geonets if they are used in the liner system;
S ☐ _____ N/A ☑ N/C ☐	(9)	Hydraulic conductivity testing results of geosynthetic clay liners if they are used in the liner system;
S ☐ _____ N/A ☑ N/C ☐	e. Geosynthetic specification requirements; (62-701.400(3)(e), FAC)	
S ☐ _____ N/A ☑ N/C ☐	(1)	Definition and qualifications of the designer, manufacturer, installer, QA consultant and laboratory, and QA program;
S ☐ _____ N/A ☑ N/C ☐	(2)	Material specifications for geomembranes, geocomposites, geotextiles, geogrids, and geonets;
S ☐ _____ N/A ☑ N/C ☐	(3)	Manufacturing and fabrication specifications including geomembrane raw material and roll QA, fabrication personnel qualifications, seaming equipment and procedures, overlaps, trial seams, destructive and non-destructive seam testing, seam testing location, frequency, procedure, sample size, and geomembrane repairs;
S ☐ _____ N/A ☑ N/C ☐	(4)	Geomembrane installation specifications including earthwork, conformance testing, geomembrane placement, installation personnel qualifications, field seaming and testing, overlapping and repairs, materials in contact with geomembranes, and procedures for lining system acceptance;
S ☐ _____ N/A ☑ N/C ☐	(5)	Geotextile and geogrids specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials and any overlying materials;
S ☐ _____ N/A ☑ N/C ☐	(6)	Geonet and geocomposites specifications including handling and placement, conformance testing, stacking and joining, repair, and placement of soil materials and any overlying materials;
S ☐ _____ N/A ☑ N/C ☐	(7)	Geosynthetic clay liner specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials and any overlying materials;

LOCATION		PART G CONTINUED
S ☐ _____ N/A ☑ N/C ☐		f. Standards for soil liner components; (62-701.400(3)(f), FAC)
S ☐ _____ N/A ☑ N/C ☐	(1)	Description of construction procedures including over-excavation and backfilling to preclude structural inconsistencies and procedures for placing and compacting soil components in layers;
S ☐ _____ N/A ☑ N/C ☐	(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;
S ☐ _____ N/A ☑ N/C ☐	(3)	Procedures for testing in situ soils to demonstrate they meet the specifications for soil liners;
S ☐ _____ N/A ☑ N/C ☐	(4)	Specifications for soil component of liner including at a minimum:
S ☐ _____ N/A ☑ N/C ☐	(a)	Allowable particle size distribution, and Atterberg limits including shrinkage limit;
S ☐ _____ N/A ☑ N/C ☐	(b)	Placement moisture and dry density criteria;
S ☐ _____ N/A ☑ N/C ☐	(c)	Maximum laboratory-determined saturated hydraulic conductivity using simulated leachate;
S ☐ _____ N/A ☑ N/C ☐	(d)	Minimum thickness of soil liner;
S ☐ _____ N/A ☑ N/C ☐	(e)	Lift thickness;
S ☐ _____ N/A ☑ N/C ☐	(f)	Surface preparation (scarification);
S ☐ _____ N/A ☑ N/C ☐	(g)	Type and percentage of clay mineral within the soil component;
S ☐ _____ N/A ☑ N/C ☐	(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;
S ☐ _____ N/A ☑ N/C ☐		g. If a Class III landfill is to be constructed with a bottom liner system, provide a description of how the minimum requirements for the liner will be achieved;

LOCATION		PART G CONTINUED
S ☐ _____ N/A ☑ N/C ☐		3. Leachate collection and removal system (LCRS); (62-701.400(4), FAC)
S ☐ _____ N/A ☑ N/C ☐		a. The primary and secondary LCRS requirements; (62-701.400(4)(a), FAC)
S ☐ _____ N/A ☑ N/C ☐	(1)	Constructed of materials chemically resistant to the waste and leachate;
S ☐ _____ N/A ☑ N/C ☐	(2)	Have sufficient mechanical properties to prevent collapse under pressure;
S ☐ _____ N/A ☑ N/C ☐	(3)	Have granular material or synthetic geotextile to prevent clogging;
S ☐ _____ N/A ☑ N/C ☐	(4)	Have a method for testing and cleaning clogged pipes or contingent designs for reducing leachate around failed areas;
S ☐ _____ N/A ☑ N/C ☐		b. Other LCRS requirements; (62-701.400(4)(b) and (c), FAC
S ☐ _____ N/A ☑ N/C ☐	(1)	Bottom 12 inches having hydraulic conductivity ≥ 1×10^{-3} cm/sec;
S ☐ _____ N/A ☑ N/C ☐	(2)	Total thickness of 24 inches of material chemically resistant to the waste and leachate;
S ☐ _____ N/A ☑ N/C ☐	(3)	Bottom slope design to accommodate for predicted settlement and still meet minimum slope requirements;
S ☐ _____ N/A ☑ N/C ☐	(4)	Demonstration that synthetic drainage material, if used, is equivalent or better than granular material in chemical compatibility, flow under load, and protection of geomembranes liner;
S ☐ _____ N/A ☑ N/C ☐		4. Leachate recirculation; (62-701.400(5), FAC)
S ☐ _____ N/A ☑ N/C ☐		a. Describe general procedures for recirculating leachate;
S ☐ _____ N/A ☑ N/C ☐		b. Describe procedures for controlling leachate runoff and minimizing mixing of leachate runoff with storm water;
S ☐ _____ N/A ☑ N/C ☐		c. Describe procedures for preventing perched water conditions and gas buildup;

LOCATION		PART G CONTINUED
S ☐ _____	N/A ☑ N/C ☐	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;
S ☐ _____	N/A ☑ N/C ☐	e. Describe methods of gas management in accordance with Rule 62-701.530, FAC;
S ☐ _____	N/A ☑ N/C ☐	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 ☑ Eng Rep. G.5	N/A ☐ N/C ☐	5. Leachate storage tanks and leachate surface impoundments; (62-701.400(6), FAC)
S ☐ _____	N/A ☑ N/C ☐	a. Surface impoundment requirements; (62-701.400(6)(b), FAC)
S ☐ _____	N/A ☑ N/C ☐	(1) Documentation that the design of the bottom liner will not be adversely impacted by fluctuations of the ground water;
S ☐ _____	N/A ☑ N/C ☐	(2) Designed in segments to allow for inspection and repair, as needed, without interruption of service;
S ☐ _____	N/A ☑ N/C ☐	(3) General design requirements;
S ☐ _____	N/A ☑ N/C ☐	(a) Double liner system consisting of an upper and lower 60-mil minimum thickness geomembrane;
S ☐ _____	N/A ☑ N/C ☐	(b) Leak detection and collection system with hydraulic conductivity ≥ 1 cm/sec;
S ☐ _____	N/A ☑ N/C ☐	(c) Lower geomembrane place on subbase ≥ 6 inches thick with $k \leq 1 \times 10^{-5}$ cm/sec or on an approved geosynthetic clay liner with $k \leq 1 \times 10^{-7}$ cm/sec;
S ☐ _____	N/A ☑ N/C ☐	(d) Design calculation to predict potential leakage through the upper liner;
S ☐ _____	N/A ☑ N/C ☐	(e) Daily inspection requirements, and notification and corrective action requirements if leakage rates exceed that predicted by design calculations;
S ☐ _____	N/A ☑ N/C ☐	(4) Description of procedures to prevent uplift, if applicable;

LOCATION		PART G CONTINUED
S ☐ _____ N/A ☑ N/C ☐		(5) Design calculations to demonstrate minimum two feet of freeboard will be maintained;
S ☐ _____ N/A ☑ N/C ☐		(6) Procedures for controlling vectors and off-site odors;
S ☑ Eng Rep. G.5 N/A ☐ N/C ☐		b. Above-ground leachate storage tanks; (62-701.400(6)(c), FAC)
S ☐ _____ N/A ☑ N/C ☐		(1) Describe tank materials of construction and ensure foundation is sufficient to support tank;
S ☐ _____ N/A ☑ N/C ☐		(2) Describe procedures for cathodic protection for the tank, if needed;
S ☐ _____ N/A ☑ N/C ☐		(3) Describe exterior painting and interior lining of the tank to protect it from the weather and the leachate stored;
S ☐ _____ N/A ☑ N/C ☐		(4) Describe secondary containment design to ensure adequate capacity will be provided and compatibility of materials of construction;
S ☐ _____ N/A ☑ N/C ☐		(5) Describe design to remove and dispose of stormwater from the secondary containment system;
S ☐ _____ N/A ☑ N/C ☐		(6) Describe an overfill prevention system, such as level sensors, gauges, alarms, and shutoff controls to prevent overfilling;
S ☑ Eng Rep. G.5.a.(7) N/A ☐ N/C ☐		(7) Inspections, corrective action, and reporting requirements;
S ☑ Eng Rep. G.5.a.(7)(a) N/A ☐ N/C ☐		(a) Weekly inspection of overfill prevention system;
S ☑ Eng Rep. G.5.a.(7)(b) N/A ☐ N/C ☐		(b) Weekly inspection of exposed tank exteriors;
S ☑ Eng Rep. G.5.a.(7)(c) N/A ☐ N/C ☐		(c) Inspection of tank interiors when tank is drained, or at least every three years;
S ☑ Eng Rep. G.5.a.(7)(d) N/A ☐ N/C ☐		(d) Procedures for immediate corrective action if failures detected;
S ☑ Eng Rep. G.5.a.(7)(e) N/A ☐ N/C ☐		(e) Inspection reports available for Department review;
S ☐ _____ N/A ☑ N/C ☐		c. Underground leachate storage tanks; (62-701.400(6)(d), FAC)

LOCATION		PART G CONTINUED
S ☐ _____ N/A ☑ N/C ☐	(1)	Describe materials of construction;
S ☐ _____ N/A ☑ N/C ☐	(2)	A double-walled tank design system to be used with the following requirements:
S ☐ _____ N/A ☑ N/C ☐	(a)	Interstitial space monitoring at least weekly;
S ☐ _____ N/A ☑ N/C ☐	(b)	Corrosion protection provided for primary tank interior and external surface of outer shell;
S ☐ _____ N/A ☑ N/C ☐	(c)	Interior tank coatings compatible with stored leachate;
S ☐ _____ N/A ☑ N/C ☐	(d)	Cathodic protection inspected weekly and repaired as needed;
S ☐ _____ N/A ☑ N/C ☐	(3)	Describe an overfill prevention system, such as level sensors, gauges, alarms, and shutoff controls to prevent overfilling, and provide for weekly inspections;
S ☐ _____ N/A ☑ N/C ☐	(4)	Inspection reports available for Department review;
S ☑ Eng. Rep G.5.d N/A ☐ N/C ☐	d. Schedule provided for routine maintenance of LCRS; (62-701.400(6)(e), FAC)	
S ☐ _____ N/A ☑ N/C ☐	6. Liner systems construction quality assurance (CQA); (62-701.400(7), FAC)	
S ☐ _____ N/A ☑ N/C ☐	a. Provide CQA Plan including:	
S ☐ _____ N/A ☑ N/C ☐	(1)	Specifications and construction requirements for liner system;
S ☐ _____ N/A ☑ N/C ☐	(2)	Detailed description of quality control testing procedures and frequencies;
S ☐ _____ N/A ☑ N/C ☐	(3)	Identification of supervising professional engineer;
S ☐ _____ N/A ☑ N/C ☐	(4)	Identify responsibility and authority of all appropriate organizations and key personnel involved in the construction project;
S ☐ _____ N/A ☑ N/C ☐	(5)	State qualifications of CQA professional engineer and support personnel;

S ☐ _____ N/A ☑ N/C ☐ (6) Description of CQA reporting forms and documents;

S ☐ _____ N/A ☑ N/C ☐ b. An independent laboratory experienced in the testing of geosynthetics to perform required testing;

S ☐ _____ N/A ☑ N/C ☐ 7. Soil liner CQA; (62-701.400(8), FAC)

S ☐ _____ N/A ☑ N/C ☐ 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;

S ☐ _____ N/A ☑ N/C ☐ b. Description of field test section construction and test methods to be implemented prior to liner installation;

S ☐ _____ N/A ☑ N/C ☐ c. Description of field test methods, including rejection criteria and corrective measures to insure proper liner installation;

S ☐ _____ N/A ☑ N/C ☐ 8. For surface water management systems at aboveground disposal units, provide documentation showing the design of any features intended to convey stormwater to a permitted or exempted treatment system; (62-701.400(9), FAC)

S ☐ _____ N/A ☑ N/C ☐ 9. Gas control systems; (62-701.400(10), FAC)

S ☐ _____ N/A ☑ N/C ☐ 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;

S ☐ _____ N/A ☑ N/C ☐ 10. For landfills designed in ground water, provide documentation that the landfill will provide a degree of protection equivalent to landfills designed with bottom liners not in contact with ground water; (62-701.400(11), FAC)

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

LOCATION

S ☐ Eng. Rep. H.1 N/A ☐ N/C ☑ 1. Submit a hydrogeological investigation and site report including at least the following information:

S ☐ Eng. Rep. H.1 N/A ☐ N/C ☑ a. Regional and site specific geology and hydrology;

S ☐ Eng. Rep. H.1 N/A ☐ N/C ☑ b. Direction and rate of ground water and surface water flow including seasonal variations;

LOCATION		PART H CONTINUED
S ☐ Eng. Rep. H.1	N/A ☐ N/C ☑	c. Background quality of ground water and surface water;
S ☐ Eng. Rep. H.1	N/A ☐ N/C ☑	d. Any on-site hydraulic connections between aquifers;
S ☐ Eng. Rep. H.1	N/A ☐ N/C ☑	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;
S ☐ Eng. Rep. H.1	N/A ☐ N/C ☑	f. Description of topography, soil types, and surface water drainage systems;
S ☑ Eng. Rep. H.1.g	N/A ☐ N/C ☐	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;
S ☐ Eng. Rep. H.1	N/A ☐ N/C ☑	h. Identify and locate any existing contaminated areas on the site;
S ☐ Eng. Rep. H.1	N/A ☐ N/C ☑	i. Include a map showing the locations of all potable wells within 500 feet of the waste storage and disposal areas;
S ☐ Eng. Rep. H.1	N/A ☐ N/C ☑	2. Report signed, sealed, and dated by P.E. and/or P.G.;

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

LOCATION		
S ☐ Eng. Rep. I.1	N/A ☐ N/C ☑	1. Submit a geotechnical site investigation report defining the engineering properties of the site including at least the following:
S ☐ Eng. Rep. I.1	N/A ☐ N/C ☑	a. Description of subsurface conditions including soil stratigraphy and ground water table conditions;
S ☐ Eng. Rep. I.1	N/A ☐ N/C ☑	b. Investigate for the presence of muck, previously filled areas, soft ground, lineaments, and sink holes;
S ☐ Eng. Rep. I.1	N/A ☐ N/C ☑	c. Estimates of average and maximum high water table across the site;
S ☐ Eng. Rep. I.1	N/A ☐ N/C ☑	d. Foundation analysis including:
S ☐ Eng. Rep. I.1	N/A ☐ N/C ☑	(1) Foundation bearing capacity analysis;

LOCATION			
S ☐	Eng. Rep. I.1	N/A ☐ N/C ☑	(2) Total and differential subgrade settlement analysis;
S ☐	Eng. Rep. I.1.d.(3)	N/A ☐ N/C ☑	(3) Slope stability analysis;
S ☐	Eng. Rep. I.1	N/A ☐ N/C ☑	e. Description of methods used in the investigation, and includes soil boring logs, laboratory results, analytical calculations, cross sections, interpretations, and conclusions;
S ☐	Eng. Rep. I.1	N/A ☐ N/C ☑	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;
S ☐	Eng. Rep. I.1	N/A ☐ N/C ☑	2. Report signed, sealed, and dated by P.E. and/or P.G.;

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

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

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

	LOCATION		
S ☑	Ops. Plan K.1	N/A ☐ N/C ☐	1. Provide documentation that the 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)
S ☑	Ops. Plan K.2	N/A ☐ N/C ☐	2. Provide a landfill operation plan including procedures for: (62-701.500(2), FAC)
S ☑	Ops. Plan K.2.a	N/A ☐ N/C ☐	a. Designating responsible operating and maintenance personnel;
S ☑	Ops. Plan K.2.b	N/A ☐ N/C ☐	b. Emergency preparedness and response, as required in subsection 62-701.320(16), FAC;
S ☑	Ops. Plan K.2.c	N/A ☐ N/C ☐	c. Controlling types of waste received at the landfill;
S ☑	Ops. Plan K.2.d	N/A ☐ N/C ☐	d. Weighing incoming waste;
S ☑	Ops. Plan K.2.e	N/A ☐ N/C ☐	e. Vehicle traffic control and unloading;
S ☑	Ops. Plan K.2.f	N/A ☐ N/C ☐	f. Method and sequence of filling waste;
S ☑	Ops. Plan K.2.f.(3)	N/A ☐ N/C ☐	g. Waste compaction and application of cover;
S ☑	Ops. Plan K.8, K.9, K.10	N/A ☐ N/C ☐	h. Operations of gas, leachate, and stormwater controls;
S ☑	Ops. Plan K.2.g	N/A ☐ N/C ☐	i. Water quality monitoring;
S ☑	Ops. Plan K.2.h	N/A ☐ N/C ☐	j. Maintaining and cleaning the leachate collection system;
S ☑	Ops. Plan K.3	N/A ☐ N/C ☐	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. DEP permit, engineering drawings, water quality records, etc.); (62-701.500(3), FAC)
S ☑	Ops. Plan K.4	N/A ☐ N/C ☐	4. Describe the waste records that will be compiled monthly and provided to the Department annually; (62-701.500(4), FAC)
S ☑	Ops. Plan K.5	N/A ☐ N/C ☐	5. Describe methods of access control; (62-701.500(5), FAC)
S ☑	Ops. Plan K.6	N/A ☐ N/C ☐	6. Describe load checking program to be implemented at the landfill to discourage disposal of unauthorized waste at the landfill; (62-701.500(6), FAC)

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

LOCATION		PART K CONTINUED
S ☑ Ops. Plan K.8 N/A ☐ N/C ☐		8. Describe operational procedures for leachate management including: (62-701.500(8), FAC)
S ☑ Ops. Plan K.8.a N/A ☐ N/C ☐		a. Leachate level monitoring;
S ☑ Ops. Plan K.8.b N/A ☐ N/C ☐		b. Operation and maintenance of leachate collection and removal system, and treatment as required;
S ☑ Ops. Plan K.8.c N/A ☐ N/C ☐		c. Procedures for managing leachate if it becomes regulated as a hazardous waste;
S ☑ Ops. Plan K.8.d N/A ☐ N/C ☐		d. Identification of treatment or disposal facilities that may be used for off-site discharge and treatment of leachate;
S ☑ Ops. Plan K.8.e N/A ☐ N/C ☐		e. Contingency plan for managing leachate during emergencies or equipment problems;
S ☑ Ops. Plan K.8.f N/A ☐ N/C ☐		f. Procedures for recording quantities of leachate generated in gal/day and including this in the operating record;
S ☑ Ops. Plan K.8.g N/A ☐ N/C ☐		g. Procedures for comparing precipitation experienced at the landfill with leachate generation rates and including this information in the operating record;
S ☑ Ops. Plan K.8.h N/A ☐ N/C ☐		h. Procedures for water pressure cleaning or video inspecting leachate collection systems;
S ☑ Ops. Plan K.9 N/A ☐ N/C ☐		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)
S ☑ Ops. Plan K.10 N/A ☐ N/C ☐		10. Describe procedures for operating and maintaining the landfill stormwater management system to comply with the requirements of Rule 62-701.400(9), FAC; (62-701.500(10), FAC)
S ☑ Ops. Plan K.11 N/A ☐ N/C ☐		11. Equipment and operation feature requirements; (62-701.500(11), FAC)
S ☑ Ops. Plan K.11.a N/A ☐ N/C ☐		a. Sufficient equipment for excavating, spreading, compacting, and covering waste;
S ☑ Ops. Plan K.11.b N/A ☐ N/C ☐		b. Reserve equipment or arrangements to obtain additional equipment within 24 hours of breakdown;
S ☑ Ops. Plan K.11.c N/A ☐ N/C ☐		c. Communications equipment;

LOCATION		PART K CONTINUED
S ☑ Ops. Plan K.11.d	N/A ☐ N/C ☐	d. Dust control methods;
S ☑ Ops. Plan K.2.b	N/A ☐ N/C ☐	e. Fire protection capabilities and procedures for notifying local fire department authorities in emergencies;
S ☑ Ops. Plan K.11.e	N/A ☐ N/C ☐	f. Litter control devices;
S ☑ Ops. Plan K.11.f	N/A ☐ N/C ☐	g. Signs indicating operating authority, traffic flow, hours of operation, and disposal restrictions;
S ☑ Ops. Plan K.12	N/A ☐ N/C ☐	12. Provide a description of all-weather access road, inside perimeter road, and other on-site roads necessary for access at the landfill; (62-701.500(12), FAC)
S ☑ Ops. Plan K.13	N/A ☐ N/C ☐	13. Additional record keeping and reporting requirements; (62-701.500(13), FAC)
S ☑ Ops. Plan K.13	N/A ☐ N/C ☐	a. Records used for developing permit applications and supplemental information maintained for the design period of the landfill;
S ☑ Ops. Plan K.13	N/A ☐ N/C ☐	b. Monitoring information, calibration and maintenance records, and copies of reports required by permit maintained for at least 10 years;
S ☑ Ops. Plan K.13	N/A ☐ N/C ☐	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;
S ☑ Ops. Plan K.13	N/A ☐ N/C ☐	d. Procedures for archiving and retrieving records which are more than five years old;

PART L. WATER QUALITY MONITORING REQUIREMENTS (62-701.510, FAC)

LOCATION		
S ☑ Eng. Rep. L	N/A ☐ N/C ☐	1. A water quality monitoring plan shall be submitted describing the proposed ground water and surface water monitoring systems, and shall meet at least the following requirements:
S ☑ Eng. Rep. L	N/A ☐ N/C ☐	a. Based on the information obtained in the hydrogeological investigation and signed, dated, and sealed by the P.G. or P.E. who prepared it; (62-701.510(2)(a), FAC)

LOCATION		PART L CONTINUED
S ☑ Eng. Rep. L N/A ☐ N/C ☐		b. All sampling and analysis performed in accordance with Chapter 62-160, FAC; (62-701.510(2)(b), FAC)
S ☑ Eng. Rep. L N/A ☐ N/C ☐		c. Ground water monitoring requirements; (62-701.510(3), FAC)
S ☑ Eng. Rep. L N/A ☐ N/C ☐	(1)	Detection wells located downgradient from and within 50 feet of disposal units;
S ☑ Eng. Rep. L N/A ☐ N/C ☐	(2)	Downgradient compliance wells as required;
S ☑ Eng. Rep. L N/A ☐ N/C ☐	(3)	Background wells screened in all aquifers below the landfill that may be affected by the landfill;
S ☑ Eng. Rep. L N/A ☐ N/C ☐	(4)	Location information for each monitoring well;
S ☑ Eng. Rep. L N/A ☐ N/C ☐	(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;
S ☑ Eng. Rep. L N/A ☐ N/C ☐	(6)	Properly selected well screen locations;
S ☑ Eng. Rep. L N/A ☐ N/C ☐	(7)	Monitoring wells constructed to provide representative ground water samples;
S ☑ Eng. Rep. L N/A ☐ N/C ☐	(8)	Procedures for properly abandoning monitoring wells;
S ☑ Eng. Rep. L N/A ☐ N/C ☐	(9)	Detailed description of detection sensors, if proposed;
S ☑ Eng. Rep. L N/A ☐ N/C ☐		d. Surface water monitoring requirements; (62-701.510(4), FAC)
S ☑ Eng. Rep. L N/A ☐ N/C ☐	(1)	Location of and justification for all proposed surface water monitoring points;
S ☑ Eng. Rep. L N/A ☐ N/C ☐	(2)	Each monitoring location to be marked and its position determined by a registered Florida land surveyor;
S ☑ Eng. Rep. L N/A ☐ N/C ☐		e. Initial and routine sampling frequency and requirements; (62-701.510(5), FAC)
S ☑ Eng. Rep. L N/A ☐ N/C ☐	(1)	Initial background ground water and surface water sampling and analysis requirements;

LOCATION		PART L CONTINUED
S ☑ Eng. Rep. L	N/A ☐ N/C ☐	(2) Routine monitoring well sampling and analysis requirements;
S ☑ Eng. Rep. L	N/A ☐ N/C ☐	(3) Routine surface water sampling and analysis requirements;
S ☑ Eng. Rep. L	N/A ☐ N/C ☐	f. Describe procedures for implementing evaluation monitoring, prevention measures, and corrective action as required; (62-701.510(6), FAC)
S ☑ Eng. Rep. L	N/A ☐ N/C ☐	g. Water quality monitoring report requirements; (62-701.510(8), FAC)
S ☑ Eng. Rep. L	N/A ☐ N/C ☐	(1) Semi-annual report requirements; (see paragraphs 62-701.510(5)(c) and (d), FAC for sampling frequencies)
S ☑ Eng. Rep. L	N/A ☐ N/C ☐	(2) Documentation that the water quality data shall be provided to the Department in an electronic format consistent with requirements for importing into Department databases, unless an alternate form of submittal is specified in the permit;
S ☑ Eng. Rep. L	N/A ☐ N/C ☐	(3) Two and one-half year report requirements, or every five years if in long-term care, signed dated, and sealed by P.G. or P.E.;

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

LOCATION		
S ☑ Ops. Plan K.2.c.2.2	N/A ☐ N/C ☐	1. Describe procedures for managing motor vehicles; (62-701.520(1), FAC)
S ☑ Ops. Plan K.2.c.2.1	N/A ☐ N/C ☐	2. Describe procedures for landfilling shredded waste; (62-701.520(2), FAC)
S ☑ Ops. Plan K.2.c.2.5	N/A ☐ N/C ☐	3. Describe procedures for asbestos waste disposal; (62-701.520(3), FAC)
S ☑ Ops. Plan K.2.c.2.10	N/A ☐ N/C ☐	4. Describe procedures for disposal or management of contaminated soil; (62-701.520(4), FAC)
S ☑ Ops. Plan K.2.c.6	N/A ☐ N/C ☐	5. Describe procedures for disposal of biological wastes; (62-701.520(5), FAC)

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

LOCATION		
S ☐ Eng. Rep. N	N/A ☐ N/C ☑	1. Provide documentation for a gas management system that will: (62-701.530(1), FAC)
S ☐ Eng. Report N	N/A ☐ N/C ☑	a. Be designed to prevent concentrations of combustible gases from exceeding 25% the LEL in structures and 100% the LEL at the property boundary;
S ☐ Eng. Report N	N/A ☐ N/C ☑	b. Be designed for site specific conditions;
S ☐ Eng. Report N	N/A ☐ N/C ☑	c. Be designed to reduce gas pressure in the interior of the landfill;
S ☐ Eng. Report N	N/A ☐ N/C ☑	d. Be designed to not interfere with the liner, leachate control system, or final cover;
S ☑ Ops. Plan K.9.b	N/A ☐ N/C ☐	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)
S ☑ Ops. Plan K.9.c	N/A ☐ N/C ☐	3. Provide documentation describing how the gas remediation plan and odor remediation plan will be implemented; (62-701.530(3), FAC)
S ☐ Eng. Report N	N/A ☐ N/C ☑	4. Landfill gas recovery facilities; (62-701.530(5), FAC)
S ☐ Eng. Report N	N/A ☐ N/C ☑	a. Provide information required in Rules 62-701.320(7) and 62-701.330(3), FAC;
S ☐ Eng. Report N	N/A ☐ N/C ☑	b. Provide information required in Rule 62-701.600(4), FAC, where relevant and practical;
S ☐ Eng. Report N	N/A ☐ N/C ☑	c. Provide estimates of current and expected gas generation rates and description of condensate disposal methods;
S ☐ Eng. Report N	N/A ☐ N/C ☑	d. Provide description of procedures for condensate sampling, analyzing, and data reporting;
S ☐ Eng. Report N	N/A ☐ N/C ☑	e. Provide closure plan describing methods to control gas after recovery facility ceases operation, and any other requirements contained in Rule 62-701.400(10), FAC;

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

LOCATION		
S ☐ Eng. Rep. O	N/A ☐ N/C ☑	1. Closure permit requirements; (62-701.600(2), FAC)
S ☐ Eng. Rep. O	N/A ☐ N/C ☑	a. Application submitted to the Department at least 90 days prior to final receipt of wastes;
S ☐ Eng. Rep. O	N/A ☐ N/C ☑	b. Closure plan shall include the following:
S ☐ Eng. Rep. O	N/A ☐ N/C ☑	(1) Closure design plan;
S ☐ Eng. Rep. O	N/A ☐ N/C ☑	(2) Closure operation plan;
S ☑ Eng. Rep. O and Q	N/A ☐ N/C ☐	(3) Plan for long-term care;
S ☑ Eng. Rep. R	N/A ☐ N/C ☐	(4) A demonstration that proof of financial assurance for long-term care will be provided;
S ☐ _____	N/A ☑ N/C ☐	2. Closure design plan including the following requirements: (62-701.600(3), FAC)
S ☐ _____	N/A ☑ N/C ☐	a. Plan sheet showing phases of site closing;
S ☐ _____	N/A ☑ N/C ☐	b. Drawings showing existing topography and proposed final grades;
S ☐ _____	N/A ☑ N/C ☐	c. Provisions to close units when they reach approved design dimensions;
S ☐ _____	N/A ☑ N/C ☐	d. Final elevations before settlement;
S ☐ _____	N/A ☑ N/C ☐	e. Side slope design including benches, terraces, down slope drainage ways, energy dissipaters, and description of expected precipitation effects;
S ☐ _____	N/A ☑ N/C ☐	f. Final cover installation plans including:
S ☐ _____	N/A ☑ N/C ☐	(1) CQA plan for installing and testing final cover;
S ☐ _____	N/A ☑ N/C ☐	(2) Schedule for installing final cover after final receipt of waste;
S ☐ _____	N/A ☑ N/C ☐	(3) Description of drought resistant species to be used in the vegetative cover;

LOCATION		PART O CONTINUED
S ☐ _____ N/A ☑ N/C ☐	(4)	Top gradient design to maximize runoff and minimize erosion;
S ☐ _____ N/A ☑ N/C ☐	(5)	Provisions for cover material to be used for final cover maintenance;
S ☐ _____ N/A ☑ N/C ☐	g. Final cover design requirements;	
S ☐ _____ N/A ☑ N/C ☐	(1)	Protective soil layer design;
S ☐ _____ N/A ☑ N/C ☐	(2)	Barrier soil layer design;
S ☐ _____ N/A ☑ N/C ☐	(3)	Erosion control vegetation;
S ☐ _____ N/A ☑ N/C ☐	(4)	Geomembrane barrier layer design;
S ☐ _____ N/A ☑ N/C ☐	(5)	Geosynthetic clay liner design, if used;
S ☐ _____ N/A ☑ N/C ☐	(6)	Stability analysis of the cover system and the disposed waste;
S ☐ _____ N/A ☑ N/C ☐	h. Proposed method of stormwater control;	
S ☐ _____ N/A ☑ N/C ☐	i. Proposed method of access control;	
S ☐ _____ N/A ☑ N/C ☐	j. Description of the proposed or existing gas management system which complies with Rule 62-701.530, FAC;	
S ☐ _____ N/A ☑ N/C ☐	3. Closure operation plan shall include: (62-701.600(4), FAC)	
S ☐ _____ N/A ☑ N/C ☐	a. Detailed description of actions which will be taken to close the landfill;	
S ☐ _____ N/A ☑ N/C ☐	b. Time schedule for completion of closing and long-term care;	
S ☑ Eng. Rep. R N/A ☐ N/C ☐	c. Describe proposed method for demonstrating financial assurance for long-term care;	
S ☑ Eng. Rep. L N/A ☐ N/C ☐	d. Operation of the water quality monitoring plan required in Rule 62-701.510, FAC;	
S ☑ Eng. Rep. N N/A ☐ N/C ☐	e. Development and implementation of gas management system required in Rule 62-701.530, FAC;	

LOCATION			PART O CONTINUED
S ☐	_____	N/A ☑ N/C ☐	4. Certification of closure construction completion including: (62-701.600(6), FAC)
S ☐	_____	N/A ☑ N/C ☐	a. Survey monuments; (62-701.600(6)(a), FAC)
S ☐	_____	N/A ☑ N/C ☐	b. Final survey report; (62-701.600(6)(b), FAC)
S ☐	_____	N/A ☑ N/C ☐	5. Declaration to the public; (62-701.600(7), FAC)
S ☐	_____	N/A ☑ N/C ☐	6. Official date of closing; (62-701.600(8), FAC)
S ☐	_____	N/A ☑ N/C ☐	7. Justification for and detailed description of procedures to be followed for temporary closure of the landfill, if desired; (62-701.600(9), FAC)

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

LOCATION			
S ☐	_____	N/A ☑ N/C ☐	1. Describe how the requirements for use of closed solid waste disposal areas will be achieved; (62-701.610(1), FAC)
S ☐	_____	N/A ☑ N/C ☐	2. Describe how the requirements for relocation of wastes will be achieved; (62-701.610(2), FAC)

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

LOCATION			
S ☑	Eng. Rep. Q	N/A ☐ N/C ☐	1. Maintaining the gas collection and monitoring system; (62-701.620(5), FAC)
S ☑	Eng. Rep. Q	N/A ☐ N/C ☐	2. Stabilization report requirements; (62-701.620(6), FAC)
S ☑	Eng. Rep. Q	N/A ☐ N/C ☐	3. Right of access; (62-701.620(7), FAC)
S ☑	Eng. Rep. Q	N/A ☐ N/C ☐	4. Requirements for replacement of monitoring devices; (62-701.620(8), FAC)
S ☐	_____	N/A ☑ N/C ☐	5. Completion of long-term care signed and sealed by professional engineer; (62-701.620(9), FAC)

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

LOCATION		
S ☑ Eng. Rep. R N/A ☐ N/C ☐	1. Provide cost estimates for closing, long-term care, and corrective action costs estimated by a P.E. for a third party performing the work, on a per unit basis, with the source of estimates indicated; (62-701.630(3) & (7), FAC)
S ☑ Eng. Rep. R N/A ☐ N/C ☐	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)
S ☑ Eng. Rep. R N/A ☐ N/C ☐	3. Describe funding mechanisms for providing proof of financial assurance and include appropriate financial assurance forms. (62-701.630(5), (6), & (9), FAC)

PART S. CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

1. Applicant:

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

Signature of Applicant or Agent

Lois Rose, SW Ops Manager
Name and Title (please type)

lerose@scgov.net
E-Mail Address (if available)

4000 Knights Trail Road
Mailing Address

Nokomis, FL 34275
City, State, Zip Code

(941) 861-1589
Telephone Number

Date: 9/16/13

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

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

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

Signature

Jason Timmons, P.E., Technical Specialist III
Name and Title (please type)

FL PE # 65869
Florida Registration Number (please affix seal)

4000 Knights Trail Road
Mailing Address

Nokomis, FL 34275
City, State, Zip Code

jtimmons@scgov.net
E-Mail Address (if available)

(941) 861-1572
Telephone Number

Date: 9/16/13

JASON E. TIMMONS LICENSE No. 65869 STATE OF FLORIDA PROFESSIONAL ENGINEER

PE No. 65869

ENGINEERING REPORT AND SUPPORTING DOCUMENTS

ENGINEERING REPORT AND APPLICATION SUPPORT DOCUMENTS

The following sections, collectively referred to as the Engineering Report, provide the information and support documentation required by FDEP Rule 62-701, FAC, for the Sarasota County Central County Solid Waste Disposal Complex (CCSWDC) operations permit renewal application. The permit application form and sections below reference documents which provide information in support of this permit renewal application. Details regarding the referenced documents are provided in Attachment A for use in reviewing the permit application. The Engineering Report references the following attachments as support documents for the permit renewal application:

ATTACHMENT A - REFERENCED DOCUMENT LIST AND TIPPING FEE TABLE

ATTACHMENT B – FIGURES

ATTACHMENT C - OPERATIONS PLAN

ATTACHMENT D - WATER QUALITY MONITORING PLAN AND MONITORING PLAN EVALUATION REPORT

ATTACHMENT E - CCSWDC TOPOGRAPHIC SURVEY AND LANDFILL CAPACITY REPORT (APRIL 2013)

ATTACHMENT F - WATER QUALITY TESTING LABORATORY CERTIFICATION

ATTACHMENT G - SWFWMD WATER WELL INVENTORY

ATTACHMENT H - CCSWDC PHASE I AND PHASE II CLEANING AND VIDEO INSPECTION REPORT (APRIL 2013)

ATTACHMENT I - PHASE II TERRACE STORMWATER CALCULATIONS

ATTACHMENT J - FINANCIAL ASSURANCE COST ESTIMATES

ATTACHMENT K – LEACHATE DISPOSAL TREATMENT PLANT AGREEMENTS

Part C: Prohibitions

C.1 Provide documentation that each of the siting criteria will be satisfied for the facility; (62-701.300(2), FAC)

The CCSWDC is in compliance with the siting criteria as specified in Rule 62-701.300(2), FAC.

a. There are no proposed changes to geotechnical or hydrogeological information previously submitted for the CCSWDC. Please refer to the historical geotechnical and hydrogeological reports previously submitted in the initial permit application for the CCSWDC and subsequent application for the Phase II landfill area (Reference 1).

b. There are no off-site potable wells located within 500 feet of the Class I disposal areas within the CCSWDC, in addition, there are no community water supply wells located within 1,000 feet of the limits of the Class I disposal areas. There are three existing potable water wells within the limits of the CCSWDC which are located west of the administration building, at the contractor's maintenance building, and at the C&D debris processing facility. In addition, there is one non-potable water well located to the east of the leachate storage tank. The approximate locations of these wells are shown in Figure C.1.b provided in Attachment B.

c. The CCSWDC site is not located in a dewatered pit.

d. The CCSWDC is not located within any natural or artificial surface bodies of water. Limited portions of the Class I Landfill bottom liners near the low areas (sumps) on the north side are located under historical high groundwater table elevations. However, these areas were designed to ensure integrity of the liner system and no dewatering after construction has been or will be performed.

e. The CCSWDC is located within 200 feet of natural and artificial bodies of water which are all part of the ponds and conveyances which are part of the stormwater management systems permitted under SWFWMD Permit No. 407932.01 issued August 24, 1993 (CCSWDC facility Site Stormwater System), FDEP Permit No. 58-0246654-003 issued on December 24, 2007 (road swale), and FDEP ERP Permit No. 58-0272622-001 issued May 2, 2008 (Phase II Stormwater System). Since these bodies of water are part of the CCSWDC permitted stormwater management system, the set back requirements are not applicable. In addition, a wetland exists 200 feet from the western limits of the Class I Phase II Landfill as shown on Figure C.1.e. Compensation for wetlands impacts for the entire CCSWDC site was included as part of conditions of the above referenced SWFWMD ERP Permit issued in August 1993.

f. The CCSWDC is located on property owned by Sarasota County and there are no public right of ways of highways, roads or alleys located within the site.

C.2 If the facility qualifies for any of the exemptions contained in Rules 62-701.300(12) through (18), FAC, then document this qualification(s)

Sarasota County is not requesting any of the exemptions contained in Rule 62-701.300(12) through (18).

C.3 Provide documentation that the facility will be in compliance with the burning restrictions; (62-701.300(3), FAC.)

Solid waste burning is prohibited at the CCSWDC.

C.4 Provide documentation that the facility will be in compliance with the hazardous waste restrictions; (62-701.300(4), FAC.)

The CCSWDC does not accept or dispose of the hazardous waste at the Class I Landfill, yard waste processing facility, tire processing facility, or C&D processing facility. The waste stream is inspected for prohibited materials before disposal and, if found, managed in accordance with the Operations Plan. Household hazardous waste materials are accepted at the Household Hazardous Waste Collection and Citizens Convenience Center (HHWCCC) located to the east of the Main Administration Building and Scales at the CCSWDC. Additional information regarding management of hazardous waste and the HHWCCC is provided in the Section K.2.c of the Operations Plan provided in Attachment C.

C.5 Provide documentation that the facility will be in compliance with the PCB disposal restrictions; (62-701.300(5), FAC.)

Polychlorinated biphynels (PCB) materials or wastes containing PCBs are not accepted or disposed at the CCSWDC Class I Landfill, tire processing facility, yard waste processing facility or C&D processing facility. PCBs in quantities smaller than a 55-gallon drum are accepted at the HHWCCC.

C.6 Provide documentation that the facility will be in compliance with the biomedical waste restrictions; (62-701.300(6), FAC.)

The CCSWDC will accept and dispose of biomedical waste that is treated in accordance with Rule 62-701.520(5)(c). Untreated biomedical waste will not be accepted or disposed at the CCSWDC.

C.7 Provide documentation that the facility will be in compliance with the Class I surface water restrictions; (62-701.300(7), FAC.)

There are no Class I surface waters located within 3,000 feet of the Class I disposal areas of the CCSWDC.

C.8 Provide documentation that the facility will be in compliance with the special waste for landfills restrictions (62-701.300(8), FAC.)

The management of special wastes at the CCSWDC is described in Section K.2.c of the Operations Plan provided in Attachment C.

C.9 Provide documentation that the facility will be in compliance with the liquid restrictions (62-701.300(10), FAC.)

Management of non-containerized liquids or materials containing free liquids is described in Section K.2.c.(3) of the Operations Plan provided in Attachment C.

C.10 Provide documentation that the facility will be in compliance with the used oil and oily waste restrictions (62-701.300(11), FAC.)

The CCSWDC will be in compliance with all requirements of FAC. 62-701.300(11). Used (waste) oil or oily wastes accepted at the Household Hazardous Waste and Citizen's Convenience Center at the CCSWDC is described in Section K.2.c.2.6 of the Operations Plan provided in Attachment C.

Part D: Solid Waste Management facility Permit Requirements, General

D.1 Four copies, at minimum, of the completed application form, all supporting data and reports; (62-701.320(5)(a),FAC.)

Four copies of this permit renewal application, supporting information, and reports are included with the transmittal package.

D.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.)

The permit renewal application has been certified, signed, dated, and sealed by Jason Timmons, P.E., a Registered Professional Engineer in the State of Florida (PE FL #65869). Other drawings and reports submitted as part of the permit renewal application have been certified, signed, dated, and sealed by professionals registered in the State of Florida that had direct responsibility for preparing those drawings and reports. These documents include, but may not be limited to, the Landfill Staging Plan Drawings (prepared and signed/sealed by HDR Engineering, Inc.) provided in Attachment K-4 of the Operations Plan provided in Attachment C, the Water Quality Monitoring Plan (prepared and signed/sealed by Atkins) provided in Attachment D, Monitoring Plan Evaluation report (prepared and signed/sealed by Atkins) provided in Attachment D, and the Stormwater Terrace Calculations provided in Attachment I (prepared and signed/sealed by HDR Engineering, Inc.). Please refer to those documents attached to this permit renewal application for specific professional certifications.

D.3 A letter of transmittal to the Department; (62-701.320(7)(a),FAC.)

A letter of transmittal to the Department is included with the permit renewal application.

D.4 A completed application form dated and signed by the applicant; (62-701.320(7)(b),FAC.)

A complete application form (dated and signed by the applicant and professional) is included as part of the permit renewal application.

D.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.)

In accordance with Rule 62-701.320(9)(d)1., FAC, Sarasota County requests that CCSWDC Solid Waste Operations Permit be issued for a 20-year duration. The CCSWDC Class I disposal areas (Phase I and Phase II) include leachate collection control systems. Therefore, in accordance with Rule 62-701.320(7)(c) and 62-701.315, FAC, Sarasota County has included a check in the amount of $10,000 with the permit renewal application. This amount represents the fee required for

the first five years of the 20 year permit. Sarasota County, in accordance with Rule 62-701.315(13), if the 20-year duration is approved, will pay an additional $10,000 every 5 years following approval of the permit renewal application until the next permit renewal application is due which is anticipated in 2033.

D.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.)

The permit renewal application and attached sections and reports represent the engineering report that meets the requirements of Rule 62-701.320, FAC.

D.7 Operation Plan and Closure Plan; (62-701.320(7)(e)1,FAC.)

The CCSWDC Operations Plan is provided in Attachment C of this permit renewal application. The Operations Plan includes proposed revisions by Sarasota County. These revisions represent updates to the Operation Plan to better describe as well as clarify the operations at the CCSWDC. The revisions are shown as strikethrough and underline for the Department's review. Upon approval of the Operations Plan and the allowable revisions, the County will provide the Department with a conformed Operations Plan with all approved revisions incorporated in the document. Closure procedures are provided in Part O and Part P of this Engineering Report. However, this application is not requesting a closure construction therefore the closure requirements are listed as future steps that will be taken upon closure of specific areas of the CCSWDC Class I Landfill.

In addition, the Closure and Long-term Care Plan for the Phase I Class I Landfill which was recently closed is provided in as part of the CCSWDC Operations Plan provided in Attachment C. The Phase I Closure and Long-term Care Plan has been revised to better reflect current conditions and operations. All changes are shown with strikethrough and underline notation for review. Upon approval of the revisions to the Closure and Long-term Care Plan, Sarasota County will submit to the Department a conformed Operations Plan document, including the Phase I Closure and Long-term Care Plan, with all allowed changes accepted.

D.8 Contingency Plan; (62-701.320(7)(e)2,FAC.)

The CCSWDC contingency plan for emergencies is described in Section K.2.b of the Operations Plan provided in Attachment C.

D.9 Plans or drawings for the solid waste management facilities in appropriate format (including sheet size restrictions, cover sheet, legends, north arrow, horizontal and vertical scales, elevations referenced to NGVD 1929) showing; (62-701.320(7)(f),FAC.)

a. **A regional map or plan with the project location in relation to major roadways and population centers;**

A regional map showing the landfill location in relation to major roadways and population centers is provided as Figure D.9.a in Attachment B.

b. **A vicinity map or aerial photograph no more than 1 year old showing the facility site and relevant surface features located within 1000 feet of the facility;**

An aerial photograph of the site and surrounding property is provided as Figure D.9.b in Attachment B.

c. **A site plan showing all property boundaries certified by a Florida Licensed Professional Surveyor and Mapper;**

The CCSWDC has remained unchanged since the last submittal. A site property boundary survey certified by a Florida Licensed Professional Surveyor was provided in Reference 1 Attachment E.4. A figure of the CCSWDC property boundaries is provided as Figure D.9.c in Attachment B.

d. **Other necessary details to support the engineering report, including referencing elevations to a consistent, nationally recognized datum and identifying the method used for collecting latitude and longitude data.**

Other information is provided in reports, as attachments, or with the permit application form regarding elevations, locations and datums.

D.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.)

The property deed for the CCSWDC showing proof that Sarasota County owns the property for the CCSWDC was provided in Reference 1 Attachment E.4. The property deed for the CCSWDC is unchanged from this previous submittal.

D.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.)

The operations at the CCSWDC support the County's goal of achieving the waste reduction and recycling goals as described in Section K.2.c of the Operations Plan provided in Attachment C of this permit renewal application.

D.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.)

The following enforcement actions have occurred regarding sites under the control of Sarasota County Solid Waste Operations:

1. Executed Consent Order OGC Case No. 90-1139 dated July 2, 1991. (17th Street Closed Landfill Site)
2. Executed Consent Order OGC Case No. 08-1728 dated October 8, 2008. (Central County Solid Waste Disposal Complex)
3. Executed Consent Order OGC Case No. 10-3569 dated February 28, 2011. (Bee Ridge Landfill)

D.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.)

In accordance with Rule 62-701.320(8), a notice of application published in a newspaper of general circulation and the notifications to elected officials are not required given that Sarasota County is not requesting, as part of this permit renewal application, construction activities or substantial modification to the existing operations permit.

D.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.)

An Aviation Facility Location Map is provided in Attachment B as Figure D.14. One airport and one heliport are located within 5 miles of the CCSWDC. These are Gator Creek Airport and Sarasota Mosquito Control Helistop. The Gator Creek Airport is closed indefinitely and is not included as an active facility on either the FAA or FDOT Aviation Office databases. Therefore, notification to this facility is not required.

The Sarasota County Mosquito Control Helistop is owned by Sarasota County and is located approximately 4.7 miles north of the CCSWDC. The helistop was formerly used by helicopters that sprayed insecticides for mosquito control and is no longer used. Although the helistop is shown in FAA and FDOT Aviation Office databases, the helistop is used solely by helicopters which take off and land vertically, therefore, in accordance with Rule 62-701.320(13)(a), FAC, the helistop is not included in the definition of "airport runway" and therefore is not

applicable to the notification and setback requirements of this section.

There are no other airports or airport runways located within a 6-mile radius of the CCSWDC. The permit renewal application is not requesting lateral or vertical expansion of the Class I Disposal areas or any other construction. Therefore, notification to the FAA and FDOT of this permit renewal application is not required.

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

Personnel training at the CCSWDC is described in the Training Plan provided in Section K-1 and Attachment K-1 of the Operations Plan provided in Attachment C of the permit renewal application.

Part E: Landfill Permit Requirements

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

Please refer to the Aviation Facility Location Map (Figure D.14) provided in Attachment B.

E.2 Plot plan with a scale not greater than 200 feet to the inch showing; (62-701.330(3)(b),FAC.) Dimensions, Locations of proposed and existing water quality monitoring wells, locations of soil borings, proposed plan of trenching or disposal areas, cross-sections showing original elevations and proposed final contours, any previously filled waste disposal areas, and fencing or other features to restrict access.

The CCSWDC site plan and landfill staging plans, including fill elevations, cross sections and details are provided in Attachment K-4 of the Operations Plan in Attachment C. Finally, a figure is provided in the Water Quality Monitoring Plan provided in Attachment D with the locations of existing and proposed water quality monitoring wells. There have been no soil borings conducted since construction of the Phase II Class I disposal area. Please refer to the geotechnical report submitted with the initial permit application for the CCSWDC and the application for construction of the Phase II area included in Reference 1.

E.3 Topographic maps with a scale not greater than 200 feet to the inch with 5-foot contour intervals showing; (62-701.330(3)(c),FAC.): Proposed fill areas, Borrow areas, Access roads, Grades required for proper drainage, Cross sections of lifts, Special drainage devices if necessary, Fencing, Equipment facilities.

A topographic contour map of the CCSWDC prepared in December 2012 was provided with the Annual Topographic Survey and Capacity Report submitted to the Department in April 2013. A copy of the report is provided in Attachment E. In addition, cross sections of proposed grades are provided in the landfill staging drawings provided in Attachment K-4 of the Operations Plan provided in Attachment C of the permit renewal application.

E.4 A report on the landfill describing the following; (62-701.330(3)(d),FAC.)

a. The current and projected population and area to be served by the proposed site;

The CCSWDC serves unincorporated areas of Sarasota County, the City of Sarasota, City of Northport, and City of Venice. The population estimates provided in Table E-1 are based on the results from the Florida Demographic Estimating Conference, February 2013 and UF, BEBR,

Florida Population Studies, Volume 46, Bulletin 165, March 2013 medium county projections.

Table E-1 Sarasota County Population

Calendar Year	Population
2013	386,709
2014	390,783
2015	395,784
2016	401,144
2017	406,550
2018	411,872
2019	417,090
2020	422,206
2025	446,177
2030	467,317
2035	482,642
2040	500,830

b. **The anticipated type, annual quantity, and source of solid waste, expressed in tons;**

The CCSWDC accepts Class I waste including residential, commercial, treated biomedical, water treatment sludge, agricultural, asbestos, construction and demolition debris, shredded/cut tires, industrial, industrial sludge, and domestic sludge wastes. Non-hazardous and non-liquid contaminated soils may be accepted and disposed within the Class I landfill. No hazardous waste is accepted at the CCSWDC. Household hazardous waste is accepted at the Household Hazardous Waste and Citizens Convenience Center located at the CCSWDC. Yard trash is accepted at the CCSWDC and processed at the yard trash processing facility into compost and mulch. Other materials accepted at the CCSWDC include lead acid batteries, white goods, lawn mowers, whole tires, electronics, and household hazardous wastes. These materials are shipped off-site for recycling and disposal.

The CCSWDC serves the unincorporated areas of Sarasota, City of Sarasota, City of Venice, and City of Northport.

A summary of the CCSWDC Class I waste acceptance rates from 2008 through 2012 as well as projected Class I waste acceptance rates for 2013

through 2018 are provided in Table E-2 below. The projected Class I waste rates over the next 5 years indicates an average daily acceptance rate of 918 tons per day over the 5-year period.

Table E-2 Sarasota County CCSWDC
Class I Waste Acceptance Rates

Calendar Year	Annual Class I Waste Acceptance (Tons)	Daily Acceptance Rate (Tons per day)
2008	275,375	891
2009	255,495	827
2010	273,586	885
2011	255,870	828
2012	264,136	855
2013	270,000	874
2014	275,000	890
2015	280,500	908
2016	286,100	926
2017	292,000	945
2018	298,000	964

c. **Planned active life of the facility, the final design height of the facility and the maximum height of the facility during its operation;**

Sarasota County submits to the Department for review an annual topographic survey and design life report for the Class I disposal cells at the CCSWDC. The report submitted in April 2013 is provided in Attachment E. This report indicates that the Phase II Class I disposal area at the CCSWDC has a projected remaining capacity of approximately 13 years. Please note that due to the addition of a 15-foot wide stormwater terrace along the perimeter of Phase II, included as part of this permit renewal application, the total available volume in Phase II was reduced from 6,000,000 cubic yards to approximately 5,900,000 cubic yards. This corresponds to an approximate design life reduction of 3 to 4 months. Therefore, the remaining capacity of the site is approximately 12.7 years with the reduction in volume for the proposed stormwater terrace. The revised total volume available in Phase II will be used in all future design life calculations and reports submitted to the Department.

The total anticipated build-out of the CCSWDC Class I Landfill through Phase V is projected to provide Class I waste capacity beyond 2050. Phases III, IV and V are anticipated to be permitted in future applications but are shown as part of the CCSWDC projected Class I area footprint in site plans and drawings.

d. **The source and type of cover material used for the landfill;**

The CCSWDC uses clean borrow soil for initial and intermediate cover which is provided from a soil borrow source owned by Sarasota County north of the CCSWDC. The soil is stockpiled in the area south of Phase II, the future footprint of Phase III, in two separate mounds. Each mound contains approximately 250,000 cubic yards of soil for a total soil availability of more than 500,000 cubic yards, which is immediately available for operations. This quantity is projected to be sufficient for over 8 years of operations. The borrow area north of the CCSWDC is projected to have sufficient soil available through the remaining life of the CCSWDC through 2050.

The CCSWDC also uses alternative cover materials such as tarps, tire chips, soil/mulch and soil/compost mixtures, shredded asphalt shingles/soil mixtures, and shredded C&D or residual screened materials (RSM). Yard trash (compost or mulch), screened or unscreened, and mixed 50/50 with soil may be used as initial or intermediate cover. The processed yards trash shall not contain particles greater than 6-inches and shall not contain plastic. Cover materials and application are discussed in additional detail in Section K.7 and Attachment K-8 of the Operations Plan provided in Attachment C.

E.5 Provide evidence that an approved laboratory shall conduct water quality monitoring for the facility in accordance with Chapter 62-160,FAC.; (62-701.330(3)(g),FAC.)

Sarasota County is currently contracted with Pace Analytical Services-Florida (E83079) and Bench Mark Environmental, Inc. (E85086) for water quality laboratory services. Current certificates for these laboratories are included in Attachment F of this permit renewal application.

E.6 Provide a statement of how the applicant will demonstrate financial responsibility for the closing and long-term care of the landfill; (62-701.330(3)(h),FAC.)

Please refer to Part R of this permit renewal application.

Part F: General Criteria for Landfills

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

As shown on Figure C.1.e provided in Attachment B, the CCSWDC is located in Flood Zone X according to the FEMA flood zone GIS data which is not a 100-flood plain.

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

CCSWDC maintains a minimum 100-foot setback of the solid waste from the property line.

Part G: Landfill Construction Requirements

The permit renewal application is not requesting additional landfill liner or leachate collection system construction activities therefore Part G is not applicable, except for Part G.5 a.(7) and G.5 d. which includes information relating to the inspection, corrective action, and reporting requirements for the above ground concrete leachate storage tank located at the CCSWDC. All other construction requirements for the individual Class I landfill cells were submitted with their respective permit applications.

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

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

(7) Inspections, corrective action, and reporting requirements;

(a) Weekly inspection of overfill prevention system;

Sarasota County inspectors and personnel are onsite every day the CCSWDC is open. The leachate tank is visually inspected weekly for indications of leakage including the overfill prevention system and exterior of the tank.

(b) Weekly Inspection of exposed tank exteriors;

Sarasota County inspectors and personnel are onsite every day the CCSWDC is open. The leachate tank is visually inspected weekly for indications of leakage including the overfill prevention system and exterior of the tank.

(c) Inspection of tank interiors when tank is drained, or at least every three years;

Sarasota County drains and inspects the interior of the concrete storage tank every three years. The most recent inspection was performed in July 2013 and the inspection report submitted to the Department. The next scheduled interior inspection will be completed in March 2016.

(d) Procedures for immediate corrective action if failures detected;

If any failures are detected, a concrete tank construction and repair contractor will be contacted immediately and appropriate repairs conducted based on the nature of the problem.

(e) Inspection report available for Department review;

Sarasota County maintains inspection reports in accordance with all recordkeeping requirements. The reports are available to the Department upon request.

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

Sarasota County will perform jet cleaning or video inspection of the Phase I and Phase II leachate collection and removal system every 5 years. The inspection reports and videos (if applicable) will be submitted to the Department for their records.

Part H: Hydrogeological Investigation Requirements (62-701.410(1), FAC)

H.1 Submit a hydrogeological investigation and site report including at least the following information: Regional and site specific geology and hydrogeology; Direction and rate of ground water and surface water flow including seasonal variations; Background quality of ground water and surface water; Any on-site hydraulic connections between aquifers; Site stratigraphy and aquifer characteristics for confining layers, semi-confining layers, and all aquifers below the landfill site that may be affected by the landfill; Description of topography, soil types and surface water drainage systems; Identify and locate any existing contaminated areas on the site.

There are no new or additional hydrogeological reports or investigations to provide since submittal of the Phase II reports in February 2007, please refer to Reference 1. As part of the Monitoring Plan Evaluation prepared by Atkins, provided in Attachment D, the hydrogeology including groundwater and surface water was reviewed to determine continued suitability of monitoring network.

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;

A well construction permit inventory was generated from the SWFWMD online database for the sections surrounding the CCSWDC. The list was then sorted with most recent submitted permit applications. As shown there was one new public water supply well installed in Section 23, Township 39, Range 19. This section is approximately 2 miles from the CCSWDC location and therefore meets the setback requirements of Rule 62-701 from public supply wells. There were no other water supply wells constructed within the area of the CCSWDC since the last water well inventory updated in February 2007. The water well inventory from the SWFWMD database is provided in Attachment G.

Part I: Geotechnical Investigation Requirements (62-701.410(2), FAC)

A geotechnical investigation report is not required since additional construction is not being proposed as part of this permit renewal application. The existing geotechnical reports for the CCSWDC and associated Class I disposal areas are available in the respective reference documents.

I.1 Geotechnical Site Investigation Report

d. Foundation Analysis;

(3) Slope Stability Analysis

As part of the Phase II Construction Permit Application (Reference 1 Part J of the Permit Application) a slope stability and foundation analysis was performed using a 3 to 1 (H:V) side slope configuration and 100 and 200 foot waste height options. The conceptual final cover used in the slope stability models did not include a stormwater terrace. The design assumed tack-on stormwater diversion berms, therefore the slope of the landfill was a continuous 3 to 1 slope from toe to top in the slope stability model. As part of this Permit Renewal Application, Sarasota County is proposing a 15-foot wide stormwater terrace, which is discussed in additional detail in Part O of the Engineering Report.

Since the inclusion of the stormwater terrace would set the slope of the landfill within the limits of the 3 to 1 slope used in the original slope stability model, and it is accepted practice that a stormwater terrace improves the slope stability of a side slope, revised slope stability to include the proposed terrace have not been included with this application. The original slope stability models provided with Phase II demonstrate that the slopes meet the required factor of safety for slope stability with a continuous 3 to 1 slope and the addition of the terrace in the model will only increase the stability of the slope, thereby it will increase the factor of safety for slope stability. The models previously submitted represent a worst case scenario and a more conservative model.

Part J: Vertical Expansion of Landfills

Not applicable. A vertical expansion is not proposed for the CCSWDC.

Part K: Landfill Operation Requirements

A revised CCSWDC Operations Plan, as required by Rule 62-701.500, FAC, is provided in Attachment C of this permit renewal application. Proposed revisions are shown with strikethrough and underline. These revisions represent clarifications and improvements to the Operations Plan to better describe and detail the actual procedures that are in accordance with the requirements of Rule 62.701, FAC. The applicable Operations Plan section is indicated for each item in the permit application form submitted with this renewal application package.

In accordance with FAC. 62-701.500(2), the leachate collection system was jet cleaned and inspected in March 2013 and the report submitted to the Department in April 2013. The jet cleaning and inspection found the leachate collection systems in Phase I and Phase II of the Class I landfill to be operating normally and collecting leachate as designed. A copy of the report is provided in Attachment H.

In accordance with K.8.d, Sarasota County maintains agreements with the City of Venice for disposal of leachate. Leachate may also be hauled to the Sarasota County Bee Ridge WRF. Agreements for these facilities are provided in Attachment K of this Engineering Report. In the event these agreements are cancelled or modified, the County will provided the Department with new or updated agreements.

Part L: Water Quality Monitoring Plan

The Water Quality Monitoring Plan is provided in Attachment D of this permit renewal application.

Part M: Special Waste Handling Requirements

Detail regarding special waste management is provided in Section K.2.c of the Operations Plan provided in Attachment C of the permit renewal application.

Part N: Gas Management System Requirements

The CCSWDC includes an active landfill gas collection and control system on the closed Phase I Class I disposal area. The landfill gas is currently flared. In addition, the site includes perimeter landfill gas monitoring probes. Additional information and details regarding landfill gas management including the landfill gas collection and control system maintenance plan at the CCSWDC is provided in Section K.9 and Attachment K-9 of the Operations Plan provided in Attachment C of the permit renewal application.

Part O: Landfill Closure Requirements

A closure construction project is not proposed as part of this permit renewal application and therefore a closure plan is not provided with the application. However, when closure of portions of the CCSWDC Class I Landfill is required a closure plan meeting the requirements of Rule 62-701.600, FAC will be submitted to the Department for review and approval.

However, the conceptual final cover plans for the Phase II Class I Landfill have been updated to include a drainage terrace at approximately 75 feet NGVD. The landfill staging drawings in Attachment K-4 of the Operations Plan provided in Attachment C provide the revised conceptual final cover design, terrace, and landfill staging steps. Calculations supporting the terrace design to manage the 25-year, 24-hour design storm are provided in Attachment I (prepared signed/sealed by HDR Engineering, Inc.).

Part P: Other Closure Procedures

A closure project is not proposed as part of this permit renewal application and therefore a closure plan is not provided with the application. However, when closure of portions of the CCSWDC Class I Landfill is required a closure plan meeting the requirements of Rule 62-701.610, FAC will be submitted to the Department for review and approval. The Closure Plan for the Phase I Landfill has been updated to reflect completion of the Phase I Landfill Closure in June 2013. The revised Phase I Closure and Long-term Care Plan is provided in the Operations Plan provided in Attachment C.

Part Q: Long-term Care Requirements

The Closure and Long-Term Care Plan for the closed Phase I Class I Landfill area is provided in the Operations Plan provided in Attachment C. Revisions to the LTCP are shown as strikethrough and underline.

Part R: Financial Responsibility Requirements

R.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.).

Please refer to the updated Financial Assurance Cost Estimates on FDEP Form #62-701-900(28) provided in Attachment J of the permit renewal application. The cost estimates have been prepared using 3rd party cost and quote information. In addition, the quantities for closure of the Phase I Class I landfill have been removed since closure construction was completed in January 2013, and the construction completion accepted by the Department in June 2013.

R.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.).

In accordance with Rule 62-701.630(4), FAC, Sarasota County will submit to the Department annually an update of the closure and long-term cost estimates by either increasing the previously approved cost estimate using the Department issued inflation factor or by submitting a full cost estimate with updated 3rd Party cost and quote information and/or quantities.

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

Sarasota County uses a financial test to demonstrate funding of the closure and long-term care costs associated with the CCSWDC Facilities. Proof of financial assurance is submitted to the Department annually based on the approved closure and long-term care cost estimate.

ATTACHMENT A

REFERENCED DOCUMENT LIST AND TIPPING FEE SCHEDULE

Referenced Document List

The following documents are provided for historical reference. Some, but not all, of these documents are referenced in the September 2013 Operations Permit Renewal Application when applicable. Received date listed is the date received by the Department.

1. Central County Solid Waste Disposal Complex Class I Landfill Phase II Expansion Construction/Operation Permit Application (two 3-ring binder volumes and plan set) dated February 2007 (received February 20, 2007), as revised, replaced or amended (replacement pages inserted into original) dated and received June 22, 2007, dated September 21, 2007 (received September 27, 2007), dated January 11, 2008 (received January 16, 2008, dated March 18, 2008 (received March 19, 2008), dated April 24, 2008 (received April 25, 2008), dated June 5, 2008 (received June 6, 2008). This information includes, but is not limited to:

    a. *Operations Plan*, dated March 2008 (Appendix A);

    b. *Water Quality Monitoring Plan Addendum*, revised April 2009 (received April 23, 2009) Appendix C; and

    c. Plan Set titled, Phase II Class I Landfill Expansion Central County Solid Waste Disposal Complex (34 Sheets) dated March 2008 (received March 19, 2008) including Sheets G-02, G-05, C-04, C-05A through C-12 and C-14 through C-21 received January 16, 2008 (inserted into March 2008 plan set);

    d. Document entitled "Ground Water Monitoring Plan Addendum," prepared by SCS Engineers, dated June 28, 2002, with revisions dated July 24, 2002 [Section 2 – Leachate Sampling Parameters] and September 16, 2002 [Appendix A], received June 28, 2002, July 29, 2002, and September 20, 2002; including revisions to Section 4 [Ground Water Sampling and Parameters], prepared by PBS&J dated February 22, 2007, received February 26, 2007;

    e. Plan Sheets titled, Sarasota County Phase I Class I Operations Drawings - Central County Solid Waste Disposal Complex ... (24" x 36" Sheets 1 through 9, 13C through 13R, and 14 through 17) dated January 2008, signed and sealed January 7, 2008 (received January 9, 2008).

2. Document entitled "Ground Water Monitoring Plan Addendum," prepared by SCS Engineers, dated June 28, 2002, with revisions dated July 24, 2002 [Section 2 – Leachate Sampling Parameters] and September 16, 2002 [Appendix A], received June 28, 2002 and July 29, 2002, and September 20, 2002; including revisions to Section 4 [Ground Water Sampling and Parameters], prepared by PBS&J dated February 22, 2007, received February 26, 2007.

3. Central County Solid Waste Disposal Complex Class I Landfill Phase I Gas Collection and Control System Construction and Operation Permit Application (3-ring binder & plan set) dated December 29, 2008 (received December 30, 2008), as revised, replaced or amended (information collated into originals*) dated March 13, 2009 (received March 26, 2009) and dated April 20, 2009 (received April 22, 2009). This information includes, but is not limited to:

    a. *CCSWDC Operation Plan*, dated March 2008, as revised March 2009;

    b. *LFGCCS Operation and Maintenance Plan*, dated March 2009;

    c. Plan Sheets titled, Permit Drawings for Central County Solid Waste Disposal Complex, Sarasota County Phase I Gas Collection and Control System… (17 Sheets) signed and sealed April 20, 2009 (received April 22, 2009).

4. Central County Solid Waste Disposal Complex (CCSWDC) Phase II Expansion Minor Modification Permit Application… [for operation of a temporary gas vent system and rain cell cover and dewatering system in Cells 3 & 4] dated January 11, 2010 (received January 12, 2010), as revised, replaced or amended (information collated into information in Specific Condition #A.2.a., above) dated February 18, 2010 (received February 19, 2010). This information includes, but is not limited to:

    a. *CCSWDC Operation Plan*, dated March 2009, as revised February 2010.

5. Central County Solid Waste Disposal Complex (CCSWDC) Class I Operations… Minor Modification Permit Application, dated and received July 2, 2010 (permit fee received August 24, 2010), as revised, replaced or amended (information collated into information in Specific Condition #A.2.a., above) dated and received December 30, 2010, and received via e-mail February 1, 2011 and March 8, 2011. This information includes, but is not limited to:

    a. *CCSWDC Operation Plan*, dated December 2010;

    b. *Water Quality Monitoring Plan, Central County Solid Waste Disposal Complex,* prepared by Sarasota County Solid Waste Operations, dated December 17, 2010, revised Section 5.1 received February 1,2011, revised Section 4.2 received March 8, 2011.

    c. *LFGCCS Operation and Maintenance Plan*, [Op. Plan, Att. K-15] dated July 2010.

6. Application for Construction/Minor Modification to Class I Operation Permit - Central County Solid Waste Disposal Complex (CCSWDC)… (one 3- ring binder and plan set) dated January 19, 2012 (received January 23, 2012), as revised, replaced or amended (replacement pages inserted into original*) dated March 2, 2012 (received March 5, 2012), prepared by SCS Engineers. This information includes, but is not limited to:

    a. *CCSWDC Operation Plan*, dated December 2010.

    b. Plan Set titled, Sarasota County Central County Solid Waste Disposal Complex Stormwater Management System Improvements (7 Sheets) dated February 2012 (received March 5, 2012).

7. Application for a Minor Permit Modification, Sarasota County Central County Solid Waste Disposal Complex, dated June 15, 2012 (received June 18, 2012), as revised, replaced or amended (information collated into information in Specific Condition #A.2.a., above), and received via e-mail August 2, 2012. This information includes, but is not limited to:

    a. Central County Solid Waste Disposal Complex, Water Quality Monitoring Plan, prepared by Sarasota County Solid Waste Operations, dated June 15, 2012, revised Section 3.1 received August 2, 2012.

8. Central County Solid Waste Disposal Complex (CCSWDC) Class I Landfill Minor Modification Permit Application…, dated December 13, 2012, as revised, replaced or amended January 15, 2013 and January 16, 2013. This information includes, but is not limited to:

    a. *CCSWDC Operation Plan*, dated December 2012, including revised Attachment K-2 received January 16, 2013;

    b. Revised Sheets C-7, C-9, C-10, C-11 received December 13, 2012 and revised Sheet C-8, received January 15, 2013; and

    c. Sheet 45 – Sarasota County Phase II – Cell 2 Fill Sequencing, dated December 29, 2010

9. Document entitled Operation Permit Renewal Application - Central County Solid Waste Disposal Complex, (3-ring bound document) dated February 28, 2002 (received March 1, 2002) as revised, replaced or amended (information inserted into original) June 28, 2002, July 26, 2002 (received July 29, 2002), September 20, 2002, May 2, 2003, May 28, 2003, April, 1 2004, June 4, 2004 (received June 7, 2004), and November 18, 2004, including, but not limited to:

    a. Operations Plan (Section L);
    b. Groundwater Monitoring Plan Addendum (Section M);

c. Stormwater berm sideslope stability information (Section J). b. Plan Sheets titled, Sarasota County Central County Solid Waste Disposal Complex Operations Drawings'".. (11" x 17" Sheets 1 through 17, including 13A, B, C and D) dated March 2004 (received April 1, 2004) including revised sheets inserted into original received June 7, 2004 and full-size set received February 10, 2005.

10. Geotechnical Evaluation, Hydrogeological Survey and Groundwater Monitoring Plan, Sarasota Central Landfill Complex, Sarasota County, Florida, (spiral bound document) dated March 10, 1992 (received June 28, 2002) prepared by Ardaman & Associates, Inc.

11. Appendix A, Groundwater Monitoring Plan Evaluation, Central County Solid Waste Disposal Complex, (3-ring bound document), dated June 28, 2002, including information (inserted into original) received July 29, 2002.

12. Information concerning Citizen Convenience Center dated May 27, 2005 (received June 1, 2005) (inserted into Operations Plan [ref. SC#A.2.a(l)]) , prepared by PBSJ, including plan sheets titled, Central County Landfill Citizen's Convenience Center,... Mar. 2005 (7 sheets) (received April 21, 2005) and Sheet 4 received June 1, 2005 (inserted into set).

13. Information concerning construction of the leachate forcemain to City of Venice WWTP (collated into a spiral bound document- except as noted), including:

    a. Sarasota County Central County Landfill Leachate Forcemain and Pump Station Construction Project Bid No. 6125JW, dated October 2005, signed and sealed April 26, 2006 (received April 27, 2006), including revised information received May 30, 2006 (inserted into original),
    b. Application form dated April 26, 2006 (received May 30, 2006);
    c. Domestic Wastewater Collection/Transmission System information received April 27, 2006;
    d. Construction Plans for the Central County Landfill Leachate Force Main and Pump Station, dated July 2005, prepared by PBSJ (received April 21, 2006)(39 sheets- not collated into spiral document), including revised sheets 26, 28 and 29 received May 30, 2006.

SARASOTA COUNTY

Dedicated to Quality Service

Environmental Services

Central County Solid Waste Disposal Complex

4000 Knights Trail Road

Nokomis, Florida 34275

Tel: 941-861-5000 **www.scgov.net**

TIPPING FEE RATES - Effective 10/1/2012

Only waste generated from Sarasota County will be accepted at this facility.

SOLID WASTE:		**$57.56/Ton**
Minimum Fee For All Vehicles		**$7.50**
CONSTRUCTION & DEMOLITION DEBRIS	**or**	**$52.94/Ton** **$16.29/cubic yard**
For All Vehicles		
WASTE TIRE		**$152.26/Ton**
Individual fee (passenger tires up to 5 max)		**$ 2.00 each**
YARD WASTE		**$41.37/Ton**
Minimum Fee For All Vehicles		**$ 5.00 each**
VEHICLE WEIGHING	**Documentation**	**$ 5.00 each**
FRIABLE ASBESTOS		**$75.00/Ton**
Minimum Fee For All Vehicles		**$10.00 each**
SLUDGE		**$75.00/Ton**

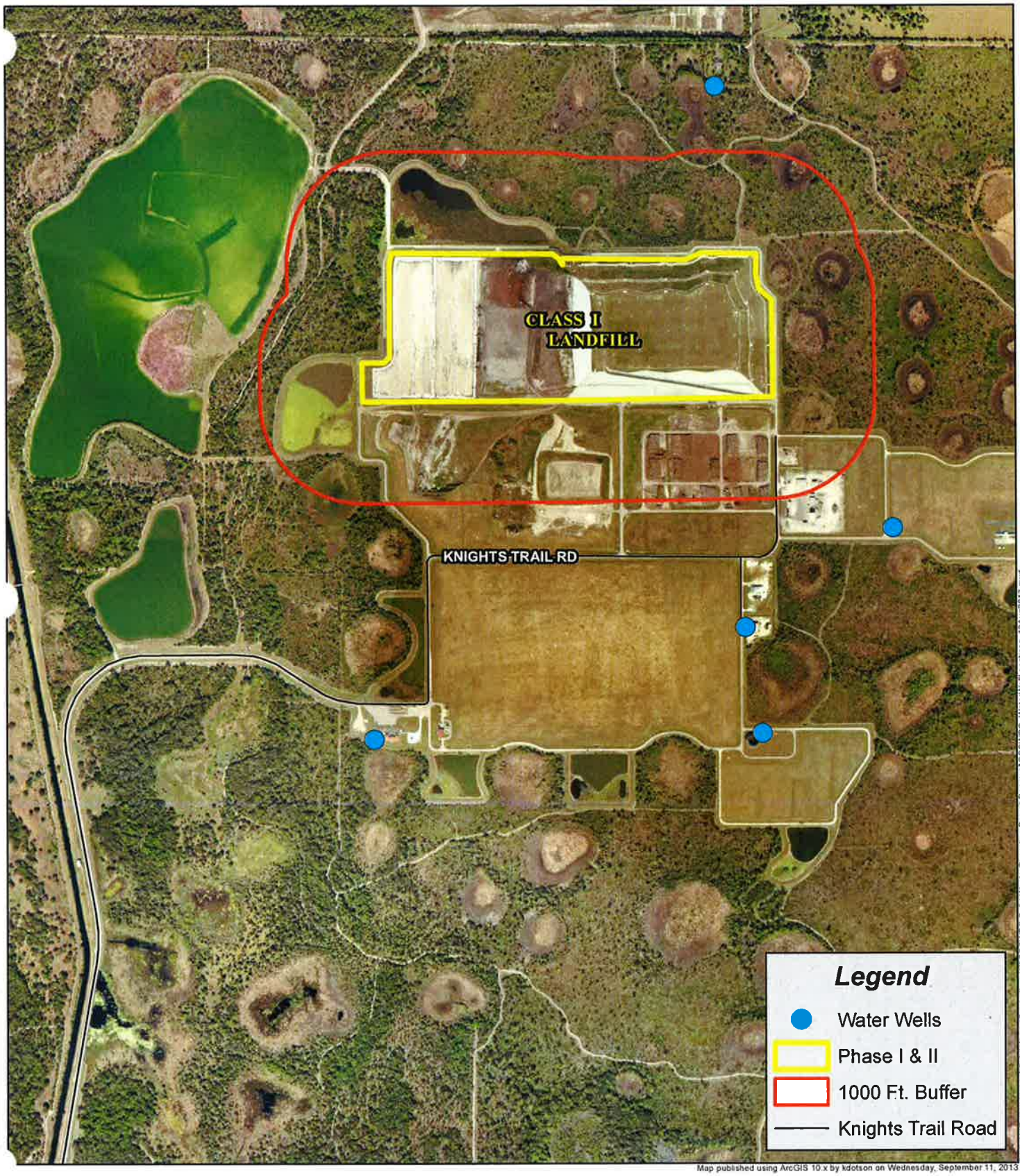
ATTACHMENT B

FIGURES

Figure C.1.b

Central County Solid Waste Disposal Complex

Water Well Locations



Map published using ArcGIS 10.x by kdotson on Wednesday, September 11, 2013

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Aerial Imagery Provided by Pictometry International:
Sarasota County, FL
February 2013
4" Resolution
N.A.D. 1983 HARN State Plane Florida West FIPS 0902 (U.S. Survey Feet)

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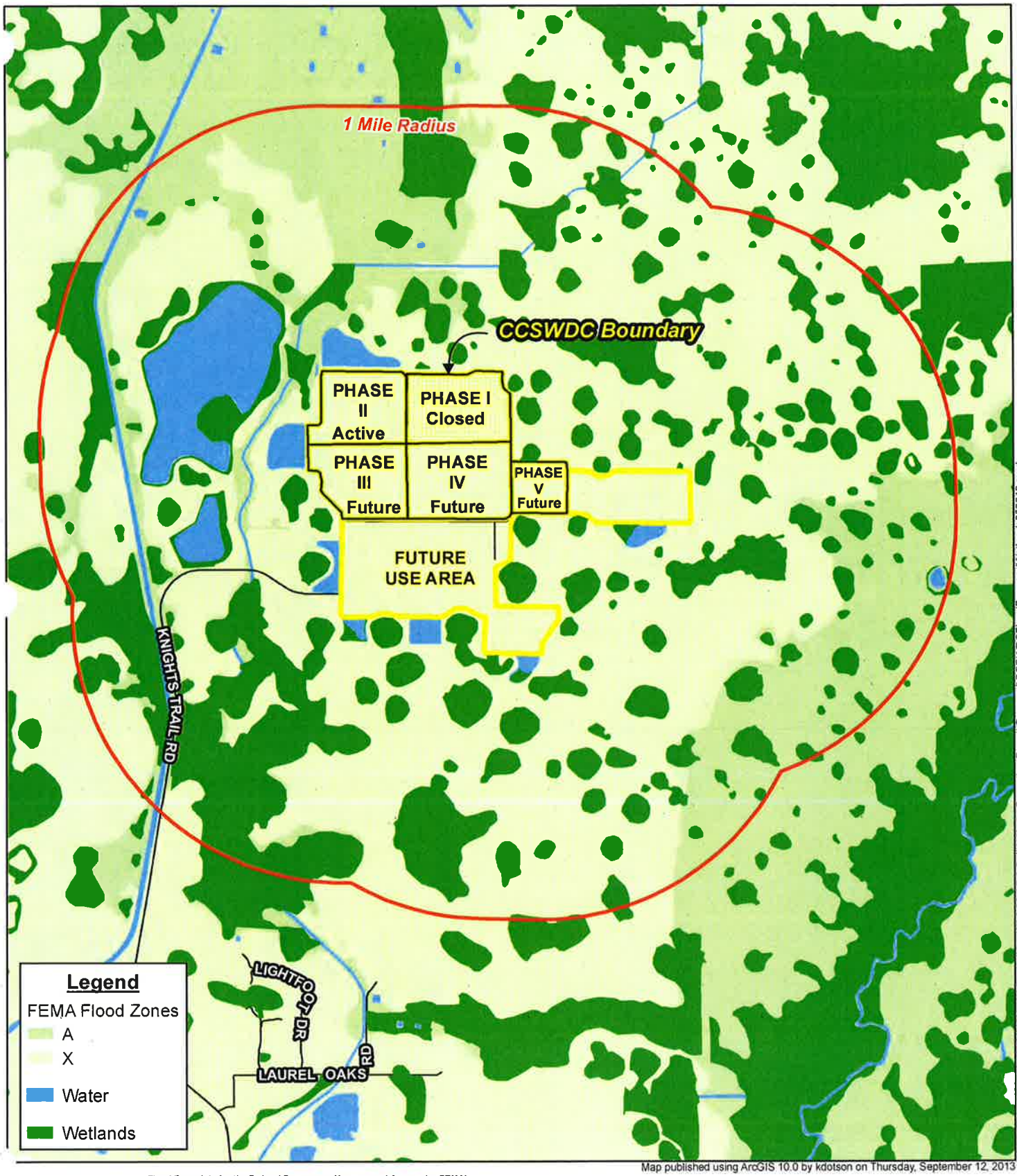
Figure C.1.e

Central County Solid Waste Disposal Complex

FEMA Flood Zones and SWFWMD Wetlands



Path: N:\Environmental\Solid Waste\CentralLandfill\CCSWDC Solid Waste Operation Permit Renewal\CCSWDCFloodZoneandWetlands052013.mxd

Map published using ArcGIS 10.0 by kdotson on Thursday, September 12, 2013

Flood Zone data for the Federal Emergency Management Agency (or FEMA) was accessed via Sarasota County's PROD.GIS.FEMAFloodZones SDE Feature Class.
The Database Connection is:
\SQLProd.sde\PROD.GIS.CeZonesAndDistricts\PROD.GIS\FEMAFloodZones

Wetlands information was obtained from the Southwest Florida Water Management District (or SWFWMD) website, via LANDUSELANDCOVER2010_sarae_se, at:
http://www.swfwmd.state.fl.us/data/gis/libraries/physical_dense/lu10.php.

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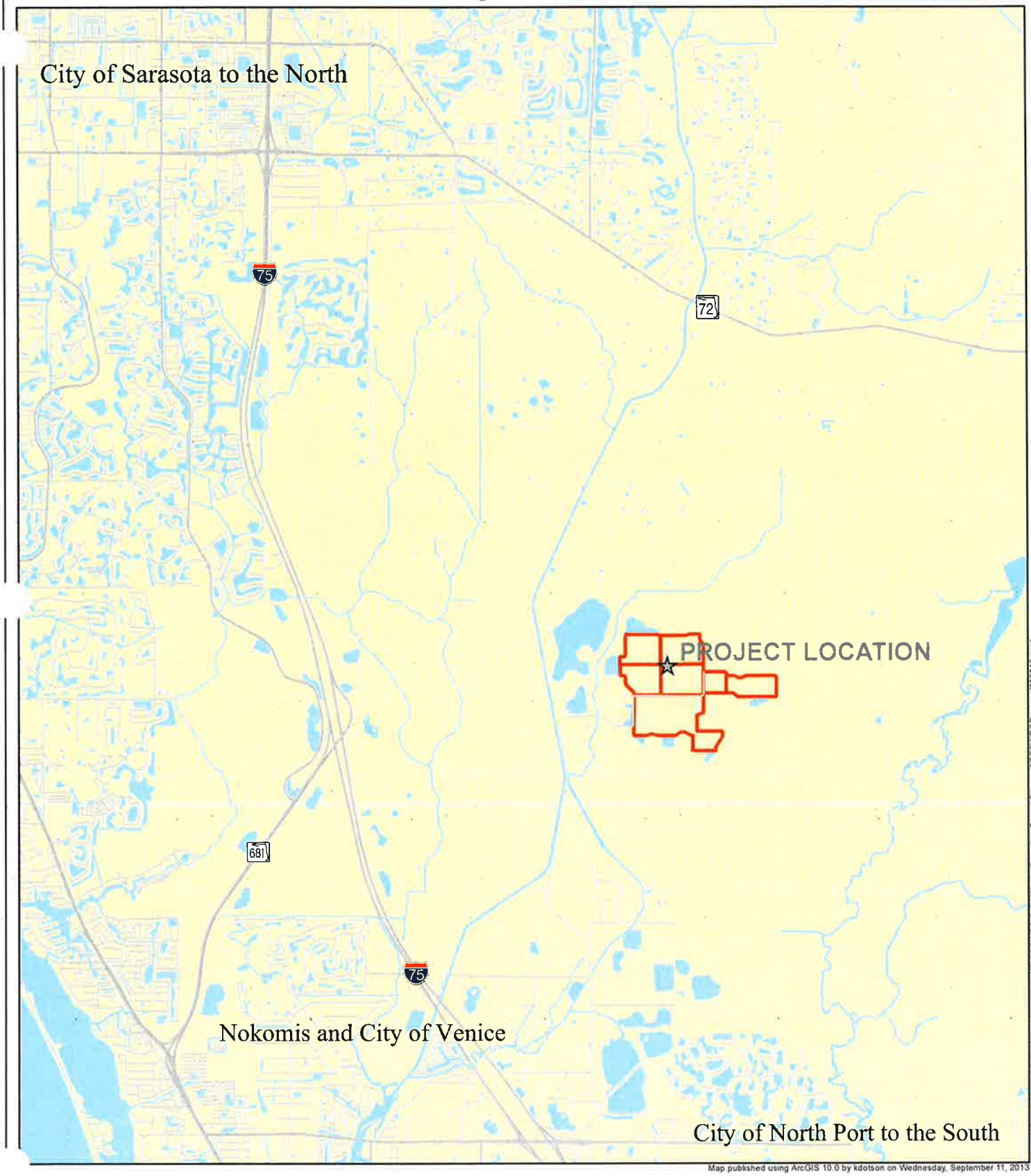
Figure D.9.a

Central County Solid Waste Disposal Complex

Regional Map



Map published using ArcGIS 10.0 by kdotson on Wednesday, September 11, 2013

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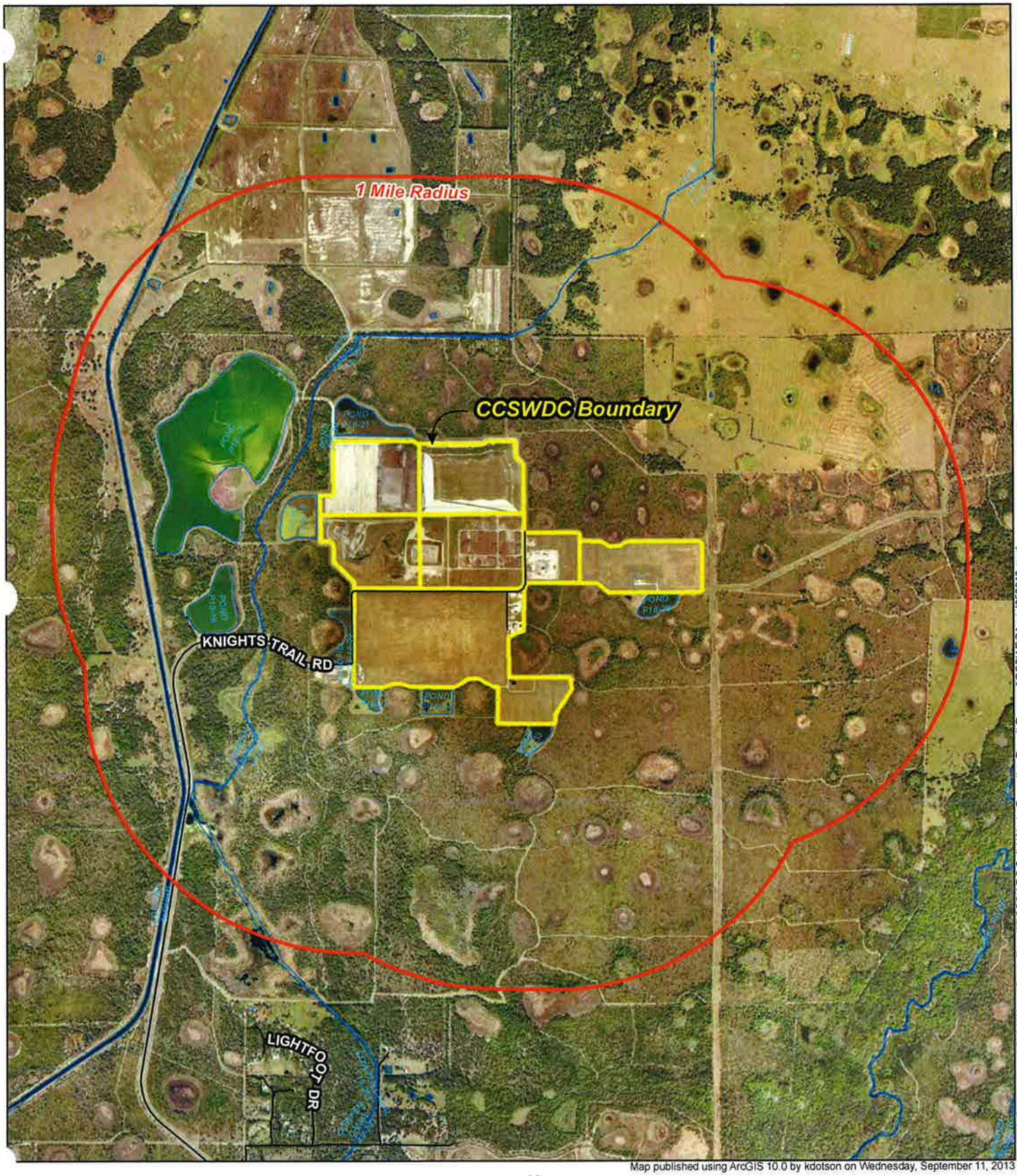
Figure D.9.b

Central County Solid Waste Disposal Complex

Aerial Photograph, 1 Mile Radius



Map published using ArcGIS 10.0 by kdotson on Wednesday, September 11, 2013

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Aerial Imagery Provided by Pictometry International:
Sarasota County, FL
February 2013
4" Resolution
N.A.D. 1983 HARN State Plane Florida West FIPS 0902 (U.S. Survey Feet)

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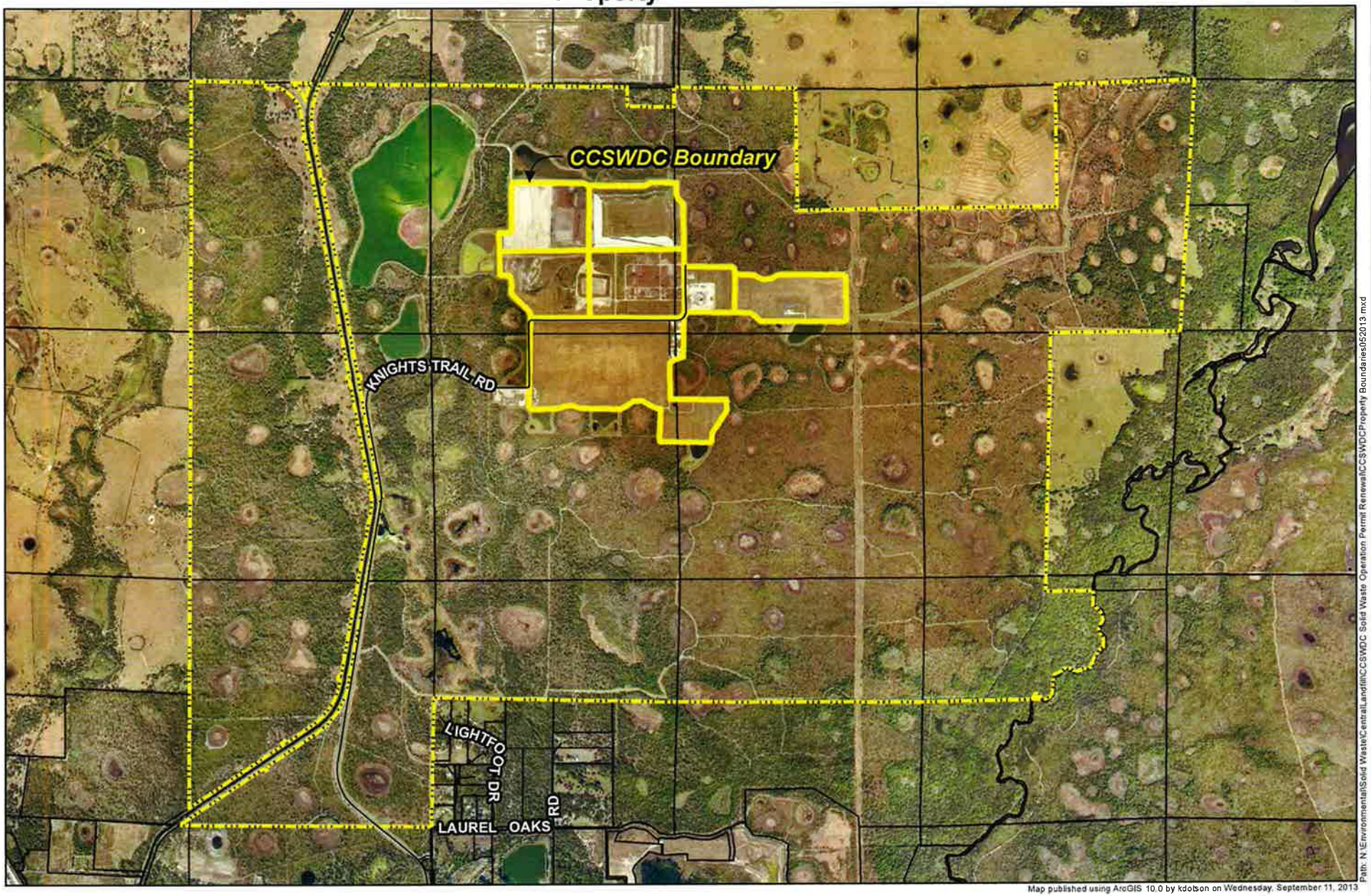
Figure D.9.c

Central County Solid Waste Disposal Complex

Property Boundaries



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Aerial Imagery Provided by Pictometry International:
Sarasota County, FL
February 2013
4" Resolution
N.A.D. 1983 HARN State Plane Florida West FIPS 0902 (U.S. Survey Feet)

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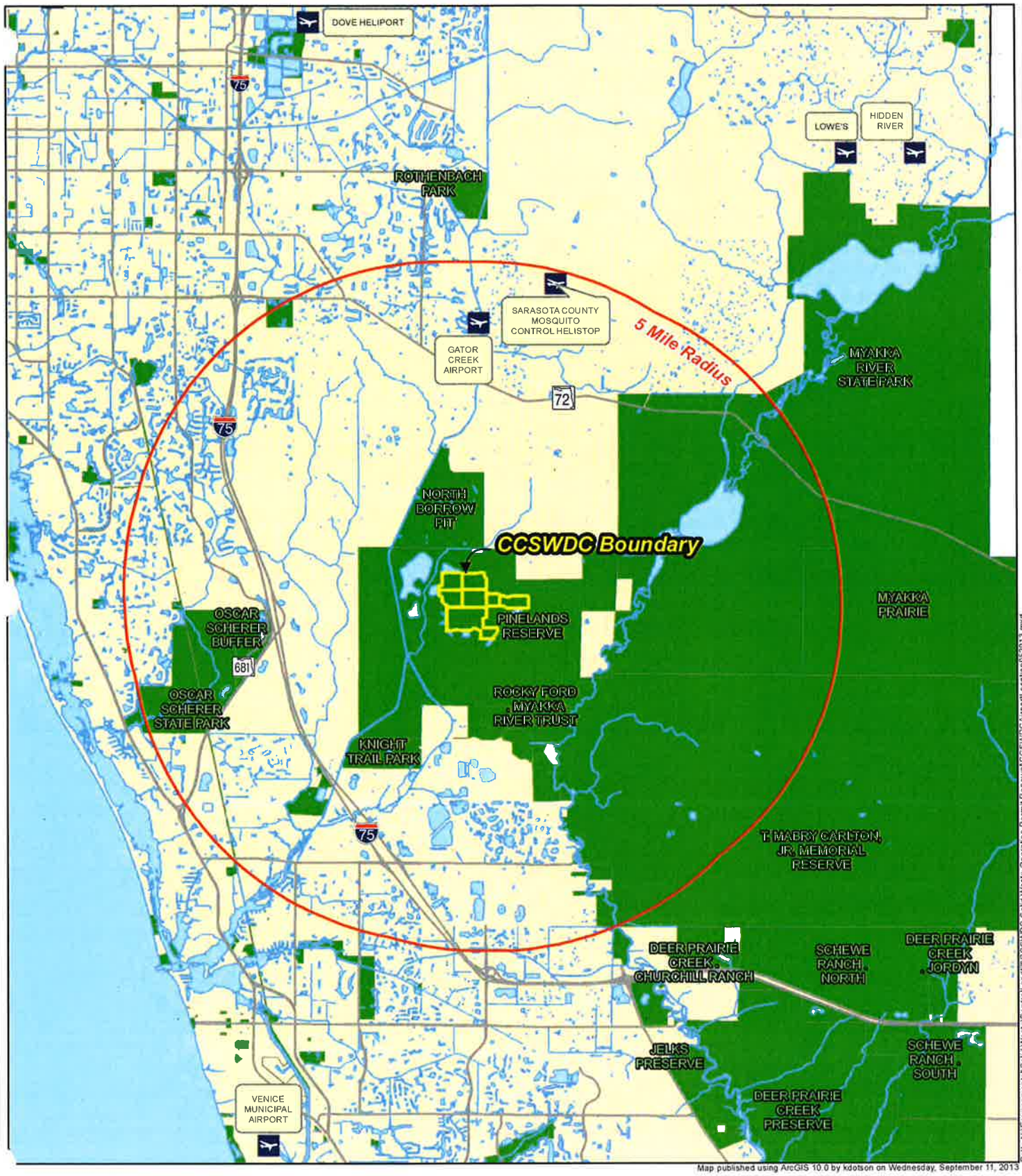
Figure D.14

Central County Solid Waste Disposal Complex

Aviation Facility Location Map



Map published using ArcGIS 10.0 by kdotson on Wednesday, September 11, 2013

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Aviation facility location information was obtained from the Federal Aviation Administration website: (http://www.faa.gov/airports/airport_safety/airportdata_5010/) The information was current as of 05/02/2013.

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ATTACHMENT C
OPERATIONS PLAN

Sarasota County
Solid Waste Operations

Central County Solid Waste Disposal Complex Operations Plan

September 2013

Prepared by
Sarasota County Solid Waste Operations
4000 Knights Trail Road
Nokomis, FL 34275

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SECTION K
OPERATIONS PLAN

K.1 TRAINING

In accordance with Rule 62-701.500(1), Florida Administrative Code (F.A.C.), key supervisory staff members at the Central County Solid Waste Disposal Complex (CCSWDC) have received Landfill Operator Certification training. The training plan can be found in Attachment K-1. Sarasota County staff or a qualified landfill operations contractor will operate the CCSWDC. 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 operation hours. The spotters shall also be responsible for enforcing provisions for controlling the waste received. These provisions are described in Section K.2.c.

The CCSWDC 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.

Interim spotters, who do not have the formal spotter training, may be employed at the CCSWDC provided that the interim spotter is under the direct supervision of a trained operator or trained spotter. The interim spotter must receive training as an operator or spotter within three months of employment.

An interim operator may be employed at the CCSWDC provided that the interim operator has had at least one year of experience at the facility or a similar facility. An interim operator must receive operator training within one year of employment as interim operator. An interim operator shall serve as the operator for the facility in lieu of a trained operator for no more than three consecutive months.

In the event the spotter is located on heavy equipment spreading waste at the working face, then the equipment operator must be a trained landfill operator or spotter. The equipment operator will remove unauthorized waste from the working face to a temporary area next to the working face for later removal/management or stop operations and notify another operator or ground personnel to assist with removal/management of the unauthorized waste before resuming operations.

K.2 LANDFILL OPERATIONS PLAN

K.2.a Designation of Responsible Persons

The CCSWDC is owned by Sarasota County and operated under the direction of the Sarasota County Solid Waste Operations ~~Unit~~Division Manager~~:~~ (Manager). The Manager will be the designated responsible person for the operation of the CCSWDC.

A list of the designated landfill positions is provided below. The Contractor must have an adequate number of positions working to fulfill their contractual obligations which at all times shall include at a minimum a manager (general ~~manager, a~~or operations), an equipment operator and a spotter. The County shall have a minimum of one position at the site when waste is being accepted. Training requirements are also provided for each position. The anticipated position list for both the Contractor and the County is provided below.

CONTRACTOR:

- General Manager (~~1) (~~Operator)
- ~~Lead~~ Operations Manager (Operator)
- Equipment ~~Operator (1)~~Operators (Operator~~)~~
- ~~Equipment Operator (5~~/Spotter)
- Laborer/Spotter (~~1) (~~Spotter)
- ~~Laborer (1) (Spotter)~~

COUNTY:

- ~~Solid Waste~~ Manager (~~1) (~~Operator)
- Compliance Specialist (~~1) (~~Operator)
- Solid Waste Engineer (~~1)~~ Operator)

K.2.b Contingency Operations for Emergencies

K.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 CCSWDC, the following safety and contingency plan will be implemented (see Attachment K-2). In addition, staff shall review and implement the most current version of the Sarasota County Solid Waste Operations Emergency Plan on file at the CCSWDC. 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 working 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. The large stormwater retention basins adjacent to the landfill will serve as the water source for ~~fire fighting~~firefighting purposes.

In the event of a fire or other emergency, the solid waste operations manager or their designee will notify the Florida Department of Environmental Protection (FDEP) within 24 hours by telephone and within seven 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. However, if the fire cannot be extinguished by CCSWDC personnel within one hour, the FDEP and the local government will be notified of the fire and informed of the fire control measures taken at the facility. If the fire cannot be extinguished within 48 hours or Solid Waste Operations determines additional assistance is needed at anytime, the local fire control protection agency will be called.

In addition, the local government and neighbors, which may be impacted by the fire, will be notified.

The Nokomis Fire Department presently maintains a fire station at 111 Pavonia Road in Nokomis, approximately 10.9 miles from the CCSWDC. This station has equipment capable of obtaining water from surface sources for fire fighting. In addition, the City of Venice has a fire station located at 5300 Laurel Road in Venice, FL located approximately 7.6 miles from the CCSWDC.

Waste will continue to be accepted and disposal operations will continue in the event of a fire. Operations will be moved a safe distance from the fire location so as not to pose a hazard to operating personnel or customers.

A hot load area will be provided within the lined disposal area 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 K.11.a. and K.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 ~~48~~24 hours of equipment breakdown, if required. These basic emergency procedures should protect the landfill and equipment, and allow reactivation of the operation in an orderly and timely manner. Two mobile electrical generators are maintained on-site to provide power during outages for the administration building, scale house, and ~~maintenance building~~Contractor's maintenance building, and leachate collection system. There is also a stationary, dedicated emergency generator to provide power to the administration building, scale house and scales.

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 Storage Tank refer to Section K.8.b, Leachate Collection and Removal System. ~~A list of emergency telephone numbers is provided below.~~

A list of emergency telephone numbers is provided below.

Ambulance Service	911
Police Department	911
Fire Department	911
CCSWDC Administration Building	(941) 861-1573
Main Switchboard Sarasota County Government	(941) 861-5000
~~Southwest~~South District, Dept. of Environmental Protection	~~(813) 632-7600~~(239)-344-5600

Remember, if you are calling from a phone, which is connected to the County's switchboard, you must dial 9 then 911 to reach the emergency operator.

K.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 areas in accordance with Section K.2.h.

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. In the event direct percolation into the waste does not drain leachate as quickly as needed, the operator may utilize other leachate drainage options including directing leachate to a leachate containment area along the west side of the Phase II active subcell to drain directly into the leachate collection system of the active subcell of Phase II, using drains at the working face constructed of cut/shredded tires to improve drainage at the working face, and using p~~P~~umping equipment that is available on-site, if required, to remove ponded leachate by pumping it to either a tanker truck for proper treatment and disposal, or to a leachate collection manhole. Additional details and information regarding the operational options listed above for wet weather conditions and control of stormwater and leachate is included in Section K.2.f.(4), Stormwater Controls.

K.2.c Controlling the Type of Waste Received at the Site

The ~~automated accounting system,~~ clerks at the ~~scalehouse, and~~ scale house, the site security fence, and access gate system discourage unauthorized entry and disposal of unauthorized waste. A sign located at the entrance states the general regulations including the types of unauthorized solid waste.

At least one trained spotter will be at each working face when wastes are received at the landfill. Normally, one working face will be operating at the landfill. There may be occasions where two or more working faces are required such as when the first lift of waste is placed in a new ~~cell~~subcell, during high volume periods such as after a storm, or when the size of a working face is limited such as at the corner of a ~~cell~~subcell. The spotters will be trained in accordance with Rule 62-701.320(15) and in accordance with the training plan described in Attachment K-1 to recognize unauthorized waste. Each load of waste will be visually inspected at ground level by the spotter as well as by 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 until the material is taken to the appropriate recycling, processing or disposal area.

A trained spotter at the working face will visually inspect the waste as it is deposited. If unauthorized 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 K-12.~~.

Sarasota segregates and/or removes from the Class I Landfill working face the following materials at the CCSWDC for the purpose of recycling these materials:

- Yard Wastes
- White Goods (i.e., household appliances)
- Waste Tires
- Construction and Demolition Wastes
- Lead Acid or Rechargeable Batteries
- Waste Oil
- Lawn Mowers
- Electronic Devices (CRT televisions and computers)

The segregation and removal of the above materials furthers the County's goals for achieving the state-wide mandated recycling goals. Please note that construction and demolition debris and yard waste mixed with MSW are not removed from the Class I working face since they are considered contaminated and are treated as Class I waste. Also, construction and demolition debris may be disposed in the Class I Landfill when the C&D processing facility is not able or not open to accept C&D.

K.2.c.(1) Household Hazardous Waste and Citizen's Convenience Center

The Household Hazardous Waste and Citizen's Convenience Center (HHWCCC) is located near the CCSWDC entrance, just east of the administration building and scalehouse as shown on the Site Plan provided in Attachment K-4. The HHWCCC consists of spaces for roll off containers for MSW, scrap metal, and recyclables. Tires, electronics, and household hazardous waste are also collected at this location. The roll off containers and electronics storage areas are located on concrete pads. Three permanent canopies that prevent the accumulation of water in the containers during inclement weather are available at the site. Household chemicals are stored in a pre-manufactured hazardous waste storage unit. ~~The Citizen's Convenience Center~~HHWCCC has a full-time attendant and is in operation from 8:00 A.M. to 5:00 P.M. Monday through Friday. The attendant meets customers at the entrance, directs them to the appropriate area of the facility, and monitors the waste for unacceptable materials. The roll-off containers of MSW are emptied daily, however small quantities of waste may be left overnight in the containers from customers who arrive near the end of the day. The containers are under cover at the HHWCCC and the waste taken at the HHWCCC typically has deminimus quantities of putrescible waste. ~~and all~~ Ttires are also taken to the designated Tire Area on a daily basis.

K.2.c.(2) Special Wastes

White goods and electronic wastes are accepted at the CCSWDC 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 until they are removed from the site for offsite recycling. These materials shall be stored in the designated white goods and recyclables storage area located near the southeast corner of Phase I as ~~shown on Sheet G-03, Overall Site Plan and Phasing Plan, provided with the previously submitted Phase II Class I Landfill Expansion Permit Drawings (Revised March 2008).~~shown on the CCSWDC Site Plan provided in Attachment K-4.

K.2.c.(2).1 Shredded Waste

The CCSWDC does not currently accept shredded waste nor does the County shred waste at the CCSWDC.

K.2.c.(2).2 Motor Vehicles, Marine Vessels, and Mobile Homes

The CCSWDC does not accept motor vehicles for disposal. The CCSWDC will accept marine vessels (including motor boats, sail boats, jetskis or other marine vessel), but only when the marine vessel has had the engine(s), fuel tanks (emptied and punctured or completely removed), fluids, batteries or other appliances completely removed from the marine vessel. The CCSWDC will also accept mobile homes for disposal that have had all appliances and air conditioners, and other unacceptable materials, completely removed from the mobile home. These items will be accepted during the operating hours of the CCSWDC, however, in the event a marine vessel or mobile home is accepted near the end of the operating day and there is not sufficient cover or other waste available to properly dispose and cover the item in the working face, then the marine vessel or mobile home maybe kept near the working face overnight and disposed in the landfill the following operational day. Since the marine vessel or mobile home is non-putrescible, it will not contribute to vectors or odors during the time it is waiting at the working face for final disposal.

K.2.c.(2).3 Electronics

Electronic products that are discovered at the working face will be removed and stored in a safe area within the active working face (bermed area). At the end of the day, at a minimum, these materials will be transported directly to the designated storage area. 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 on Sheet G-03, Overall Site Plan and Phasing Plan, provided with the previously submitted Phase II Class I Landfill Expansion Permit Drawings. The damaged waste shall be placed inside a watertight container~~at the HHWCCC. The electronics drop off at the HHWCCC is staffed by a full-time attendant who unloads all vehicles that come into the facility. The electronics are mainly from residential curbside collection routes and may include, but are not limited to, televisions, computers, monitors, copiers, etc… The electronics are physically unloaded and placed on pallets or the concrete pad and wrapped in cellophane or loaded into a container if undamaged. Damaged components, such as CRTs, are placed inside a cardboard box or container on a pallet. Electronics are routinely removed by an e-waste recycler such that

the concrete pad and pallets have capacity to continue accepting the electronic wastes. Electronic device storage shall include up to 100 pallets of electronic devices on the e-waste slab, 3 e-waste roll-off containers, and 10 e-waste broken unit palletized boxes. Note that broken unit palletized boxes are kept under cover. FDEP will be notified if for any reason the e-waste storage quantities will be exceeded. The County will provide a plan for additional storage areas and/or containers, the amount of storage time needed for the additional quantity, and the schedule for removal.

K.2.c.(2).4 White Goods

White goods, as defined in Rule 62-701, FAC, will be removed from the working face and taken to the white goods storage area located south of Phase I as shown on ~~Sheet G-03, Overall Site Plan and Phasing Plan, provided in the previously submitted Phase II Class I Landfill Expansion Permit Drawings.~~the Site Plan provided as part of the Landfill Staging Plans provided in Attachment K-4. White goods shall be removed from the site at least monthly. Refrigeration units will be stored in an upright position until all liquids, CFCs and Freon are removed. Refrigerants are removed from the items on-site by a contractor licensed to perform this function. White goods that have had fluids and/or refrigerant removed from them will be clearly marked.

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.

A maximum of 1,250 (total) white goods and lawn mowers may be stored at the site at any time. The white goods shall be removed from the site at least monthly (every 30 days).

K.2.c.(2).5 Asbestos

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 County who will 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.

K.2.c.(2).6 Waste Oil and Oily Waste

Used (waste) oil and oily wastes will not be mixed or commingled with solid waste that is to be disposed of at the CCSWDC. Waste oil will not be directly disposed of at the CCSWDC disposal areas.

Oily wastes, sorbents or other materials used for maintenance or to clean up or contain leaks, spills or accidental releases of used oil, and soils contaminated with used oil as a result of spills or accidental releases are not subject to the disposal prohibition listed above.

Waste oil or oily wastes that are collected for the purpose of recycling from residents or during routine waste collection routes by the franchise hauler are accepted at the HHWCCC. Waste oil and oily wastes are stored in containers until removed from the site for recycling or disposal. The CCSWDC has the following containers on-site.

- 2 - 500 gallon containers for used oil with double containment (HHWCCC).
- 3 - 55-gallon containers for oily wastes.
- 20 gallons of used oil placed upright in undamaged container (Contractor's maintenance building).

FDEP will be notified if for any reason the waste oil and oily waste storage quantities will be exceeded. The County will provide a plan for additional storage areas and/or containers, the amount of storage time needed for the additional quantity, and the schedule for removal.

K.2.c.(2).7 Lawn Mowers

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.

K.2.c.(2).8 Yard Waste

The yard waste processing facility location is south of Phase I as shown on the Site Plan. The facility is permitted under a separate yard waste processing facility registration. 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.

Bagged yard waste shall not be mulched at the site unless the bags are removed prior to mulching.

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 tub 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.

Any unprocessed yard trash will be removed from the facility within six months, or within the period required to accumulate 3,000 tons or 12,000 cubic yards, whichever comes first. Processed yard trash will be removed or marketed within 18 months. Yard waste shall be managed in accordance with the facility's yard waste processing facility registration and Rule 62-709.320, F.A.C.

K.2.c.(2).9 Lead Acid Batteries and Other Unauthorized Waste

Other unauthorized waste and small quantity household hazardous wastes such as lead-acid batteries, fluorescent tubes, pesticides, solvents, cadmium batteries, and thermometers are accepted at the HHWCCC. In the event these type of wastes are~~, which are~~ discovered at the working face, they are~~will be~~ removed and temporarily stored in containers at the working face. ~~in the designated 30-foot x 45-foot covered concrete pad adjacent to the maintenance building. This designated storage area is only for T~~temporary storage of material removed from the working face ~~and~~ is not a designated public household hazardous waste disposal facility or transfer station. The temporarily stored materials are taken at the end of each day to the HHWCCC for disposal or recycling. ~~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 wastes will be removed from the site monthly. The maximum on-site storage for unauthorized wastes will be as follows:~~

Up to 100 lead-acid batteries may be stored on a secondary spill containment pallet under roof cover and protected from rainfall at the HHWCCC. Picked up by a battery recycling company and components (mainly lead) are recovered. Other wastes listed in this section are property containerized or packaged at the HHWCCC for disposal or recycling.

- ~~1,000 electronic devices on e-waste slab.~~
- ~~30 batteries in a secondary containment covered tray.~~
- ~~2 - 500 gallon containers for used oil with double containment (at the Citizen Convenience Center).~~
- ~~20 gallons of used oil placed upright in undamaged container (at the Contractor's maintenance building).~~
- ~~1,250 white goods, and lawnmowers, will be placed upright until all liquids, CFCs, and Freon are removed.~~

~~Sarasota County will accept~~ FDEP will be notified if for any reason the quantities listed above will be exceeded, the County will provide a plan for additional storage areas and/or containers, the amount of storage time needed for the additional quantity, and the schedule for removal.

K.2.c.(2).10 Contaminated Soil

Acceptance of contaminated soil ~~for the purpose of landfilling (disposal),~~ as defined by Rule 62-713, FAC, at the CCSWDC is conducted on a case-by-case basis whereby soils may be tested using the toxicity characteristic leaching procedure (TCLP) and the paint filter test for free liquids. Results of the tests are evaluated to determine whether the soil will be accepted at the landfill. In any case, contaminated soil accepted at CCSWDC ~~in accordance with the criteria included in Attachment K-4~~would be placed directly into the lined active landfill subcell and not stockpiled at the site.

K.2.c.(2).11 Waste Tires

Waste tires are delivered to the CCSWDC in segregated loads by customers or delivered on waste hauler trucks when collected on the residential waste collection routes. The tires are taken to the waste tire processing facility located to the east of the yard waste processing area as shown on the Site Plan. Waste tires encountered during operations at the Class I Landfill working face will be placed in a container at the working face that will be removed ~~at~~when the ~~end of~~container has reached capacity and taken to ~~the working day and stored in the area designated for~~ waste tire processing within the CCSWDC. ~~The waste tire processing facility is located within the future Phase V landfill area as shown on Sheet G-03, Overall Site Plan and Phasing Plan, provided~~ The CCSWDC may use the waste tires for initial cover or dispose of the tires in the Class I landfill as long as the tires are size reduced in accordance with Rule 62-711, FAC. Waste tires shall be managed in accordance with the current waste tire processing facility permit issued by FDEP and Rule 62-711, FAC. ~~with the previously submitted Phase II Class I Landfill Expansion Permit Drawings.~~

~~At least one trained spotter will be at each working face when wastes are received at the landfill. Normally, one working face will be operating at the landfill. There may be occasions where two or more working faces are required such as when the first lift of waste is placed in a new cell, during high volume periods such as after a storm, or when the size of a working face is limited such as at the corner of a cell. The spotters will be trained in accordance with Rule 62-701.320(15) and in accordance with the training plan described in Attachment K-1 to recognize unauthorized waste. Each load of waste will be visually inspected at ground level by the spotter as well as by 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 at the designated 30-foot x 45-foot covered concrete pad adjacent to the maintenance building and ultimate removal from the site for proper disposal or recycling.~~

K.2.c.(3) Liquid Waste

"Liquid Waste" means any waste material that is determined to contain free liquids as defined by Method 9095 (Paint Filter Liquids Test), as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Pub. No. SW-846).

Non-containerized liquid waste will not be accepted at the CCSWDC unless:

1. The liquid waste is household waste other than septic waste; or

2. The liquid waste is leachate or gas condensate derived from the CCSWDC, or byproducts of the treatment of such leachate or gas condensate, since the CCSWDC Class I Landfill is lined and has a leachate collection system.

Containers holding liquid waste shall not be accepted at the CCSWDC unless:

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

2. The container is designed to hold liquids for use other than storage; or

3. The waste is household waste.

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

K.2.c.(4) Hazardous Waste

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 Items 3, 4, 5, and 6 of Section K.6 will be followed. ~~if any unauthorized wastes are discovered.~~

If unauthorized waste (i.e., hazardous, PCBs, untreated biomedical, or free liquid) are found at the landfill working face, the waste will be isolated and the contractor's general manager or designee would be promptly notified~~.~~, who would then immediately notify the County Manager. The ~~contractor's general manager or designee is trained in the proper procedure to follow including notification to the~~County Manger then notifies FDEP. ~~Similarly, if suspect waste is found the waste will be isolated, identified if~~

~~possible, and the County's operation manager or designee will be notified.~~ The County's operation manager or designee will prepare a ~~suspect waste~~ report and ensure that the waste is properly disposed. ~~The waste load inspection form contained in Attachment K-5 is used for this purpose.~~ Hazardous waste will be isolated and restricted from access until it is removed from the CCSWDC Landfill by a licensed hazardous waste contractor and properly disposed in accordance with federal, state and local regulations~~of from the CCSWC Landfill by a licensed hazardous waste contractor~~. Hazardous wastes will be removed from the site within 48 hours or as soon as practical.

K.2.c.(5) Construction and Demolition Debris

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.

The maximum quantities of C&D wastes that may be stored at the site, and the schedule for removal from the site, shall be as required under the current Waste Processing Facility Permit issued by FDEP.

K.2.c.(6) Biological Waste

The CCSWDC will accept for disposal the following provided the referenced provisions are met:

- Bodies of domestic animals, upon the death of such animals due to disease, shall be accomplished pursuant to Section 823.041(1), F.S.
- Bodies of captive wildlife, as well as bodies of domestic animals that have not died due to disease.
- Biomedical waste that has been treated may be disposed of as solid waste that is not biomedical at the CCSWDC. Such treated waste must be in containers clearly labeled with the phrase "Treated Biomedical Waste." Sarasota County CCSWDC will only accept the waste if the generator notified the County that treated biomedical waste will be disposed of at the CCSWDC before such disposal. This requirement does not supersede the provisions of Section 381.0098(8), F.S., regarding acute care hospitals. It is the sole responsibility of the generator, not Sarasota County or the CCSWDC, to ensure that all transport vehicles transporting treated biomedical waste to the CCSWDC for disposal shall be fully enclosed and secured when unattended. Sarasota County and the CCSWDC may set limitations or restrictions on the disposal of treated biomedical waste at the CCSWDC.

~~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 County who will 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 Citizen's Convenience Center. Waste oil is stored in secure containers until removed from the site for recycling purposes. Lawn mowers are accepted at the CCSWDC as long as they are 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 white goods. Waste oil, lawn mowers, and yard trash will be managed as described in the Landfill Recycling Plan, Attachment K-12. The yard waste processing facility location is south of Phase I as shown on Sheet G-03, Overall Site Plan and Phasing Plan, provided with the previously submitted Phase II Class I Landfill Expansion Permit Drawings. The facility is permitted under a separate yard waste processing facility registration.~~

~~The Citizen's Convenience Center is located near the CCSWDC entrance and consists of spaces for roll off containers for MSW, scrap metal, and recyclables. Tires, electronics, and household hazardous waste is also collected at this location. The roll off containers and electronics storage areas are located on concrete pads. Three permanent canopies that prevent the accumulation of water in the containers during inclement weather are available at the site. Household chemicals are stored in a pre-manufactured hazardous waste storage unit. The Citizen's Convenience Center has a full-time attendant and is in operation from 8:00 A.M. to 5:00 P.M. six days per week. The attendant meets customers at the entrance, directs them to the appropriate area of the facility, and monitors the waste for unacceptable materials. The roll-off containers of MSW are emptied daily and all tires are also taken to the designated Tire Area on a daily basis.~~

~~The electronics drop off at the Citizen's Convenience Center is manned by a full-time attendant who unloads all vehicles that come into the facility. The electronics are from residential curbside collection routes and may include, but are not limited to, televisions, computers, monitors, copiers, etc. The electronics are physically unloaded and placed on pallets or the concrete pad and wrapped in cellophane. Electronics typically will remain at the facility for less than one week but may remain for up to two weeks. Any debris from the operation is swept up and placed in a closed drum for disposal. A vendor will remove the electronics to a recycler by backing semi-trailers up to the slab and loading the pallets onto the truck with pallet jacks or fork lifts.~~

K.2.d Weighing or Measuring Incoming Wastes

All waste entering the landfill site will be weighed. Three electronic 50-ton scales are installed at the CCSWDC entrance. An Information Management System (IMS) is linked to the scales to facilitate accurate data collection and measurement of incoming materials.

K.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~~disposal or processing areas. 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.

K.2.f Method and Sequence of Filling Waste

~~The overall phasing plan for the CCSWDC is depicted on Sheet G-03, Overall Site Plan and Phasing Plan, provided with the previously submitted Phase II Class I Landfill Expansion Permit Drawings. The layout for the four (4) cells in Phase II of the Class I landfill is shown on Sheet C-01, Basegrade Plan. A detailed staging plan for the fill sequencing within Phase II is provided on Sheets C-07, C-08, and C-09. Revisions were made to the staging plan and sections of the permit drawings to accurately reflect the fill sequencing in each cell. The revised staging plan and sections, Sheets C-07, C-08, C-09, C-10, and C-11, and Fill Sequence Sheet 45 are included in Attachment K-13.~~The Landfill Staging Plans for the Phase II Class I disposal area are provided in Attachment K-4. These plans provide a general guide for the Contractor to use during fill operations. The typical maximum height for each lift is 10 feet. The temporary roads and swales for access and surface water drainage will be phased in as the Phase II 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. These landfill staging plans are intended as a general guide for the operator and are not intended to indicate the exact daily fill operations. The operations will progress in accordance with these plans, however, based on actual site and weather conditions the Contractor may adjust filling location to achieve safe and efficient waste filling operations.

K.2.f.(1) Temporary Gas Vent Removal

Four temporary gas vents were installed within the bottom liner system during Phase II construction. These gas vents were required when naturally occurring gas within the soil beneath Phase II began to collect beneath the liner and ~~cause~~caused the liner system to lift off of the subgrade in several locations. The vents ~~are located~~were constructed near the center of Cells 2 and 3 close to the ridge line between the two cells. Attachment K-~~15~~11 contains information on the construction and locations of the gas vents.

~~Prior to the placement of waste within Cell 2, three of the temporary gas vents located in the cell were removed and the liner system repaired. FDEP Southwest District office was notified of the vent removal/liner repair in Cell 2. The vent in Cell 3 is still in place.~~There is only one gas vent remaining in Phase II. The remaining gas vent is located in Subcell 3. The gas vents in Subcell 2 were removed and the liner repaired before waste operations began in that subcell. When the vent in ~~Cell~~Subcell 3 will need to be removed and the liner repaired, prior to placement of waste within the ~~cell~~subcell, FDEP Southwest District office will be notified at least two (2) weeks prior. Vent removal and liner repair will be performed in accordance with the following procedures:

1. Remove rain cover (if present) in vicinity of vent and excavate protective cover soil near repair area;
2. Remove protective casing from standpipe;
3. Remove clamp from primary liner boot, cut primary liner outside of boot weld, and lift boot over standpipe;
4. Remove clamp from secondary liner boot, cut secondary liner outside of boot weld, and lift boot over standpipe;
5. Remove any hydrated or damaged geosynthetic clay liner (GCL) as necessary to allow removal of vent pipe;

6. Remove vent pipe, being careful not to damage in-place liner components or subgrade;

7. Inspect subgrade, replace any soft soil with material meeting requirements of Phase II project specifications, and provide smooth surface for placement of overlying geosynthetics;

8. Patch GCL, secondary liner, secondary geocomposite, primary liner, and primary geocomposite in accordance with the requirements of Phase II project specifications and CQA Plan with the exception that no laboratory or field testing beyond vacuum testing of liner welds will be required of the repair materials due to the limited extent of the repairs;

9. Replace protective cover material over repair; and,

10. Replace rain cover if ~~needed~~it was present before the repair.

All repairs shall be performed by a company approved by a liner manufacturer to perform liner installation. All repairs shall be observed by a third party inspector who will submit documentation to the FDEP ~~Southwest~~South District office that the repairs were performed in general accordance with the Phase II specifications and CQA Plan.

K.2.f.(2) Filling in New ~~Cell~~Subcell

The initial lift of solid waste shall be deposited in each new Phase II ~~cell~~subcell (designated disposal unit) beginning at the south end of the landfill ~~cell~~subcell.

Waste will be placed within the designated edge of waste shown on the previously submitted Permit Drawings. The edge of waste will be located by measuring 7 feet inward from the edge of liner markers on the north and west sides of Phase II. The edge of waste will be located by measuring 14 feet inward from the edge of liner markers on the south side of Phase II. Periodic inspections will be made to ensure that the markers are in place and the edge of waste is located the required distance from the edge of the liner.

The initial lift of solid waste will progress from south to north~~, then north to south fill pattern,~~ across the entire width of the landfill ~~cell~~subcell. The working face will primarily move in an east/west direction across the width of the landfill ~~cell~~subcell. ~~Selected solid waste loads containing no rigid objects will be used for at least the first 4 feet of the first lift, and it will be filled to an elevation of approximately 40 feet NGVD within the Phase II cells which is higher than~~ The initial lift will be composed of select solid waste loads containing no rigid objects and will be a minimum of 4 feet thick. The initial 4 feet of select waste will be placed with a low ground pressure dozer and not the waste compactor in order to minimize the potential for damage to the bottom liner. A spotter will also be stationed on the bottom liner protective cover sand during placement of select waste in the initial lift to remove any large rigid objects. The top surface of the initial lift will be filled to the ~~cell~~subcell's lined external containment berms in order to promote stormwater runoff. The lower lift thickness will be placed in the high end (south) of the cells and the greater lift thickness will be placed on the low end (north).

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 waste. 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 waste for the remaining rows. A slope of not more than 3H : 1V will be maintained. The working face shall be less than 200 feet wide. A maneuvering area shall be provided for large private and commercial vehicles. Depending on space limitation within the working face area, a section of the working face may also be designated for smaller loads and vehicles.

Solid waste will be placed at the working face and spread in 2-foot layers then compacted. The spreading of waste 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 the 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~~subcell within the Phase II area will follow the sequence outlined below~~: (Refer to revised Sheets C-07 through C-09, Landfill Staging and as shown in the Plans~~Landfill Staging Plans~~,~~ provided in Attachment K-4.~~13).~~:

Filling of each ~~cell~~subcell will generally progress from the south end of the ~~cell~~subcell to the north end, then from the north end to the south end of the ~~cell~~subcell while providing a slope on the cover to allow storm water drainage as shown on the ~~revised Staging Plans~~Landfill Staging Plans~~, Sheets C-07 through C-09, Landfill Staging Plans,~~ provided in Attachment K-~~13. Only select waste containing no rigid materials will be used~~4. In addition, during the wet weather season (generally May to October), the operator may progress from east to west only within the ~~first 4 feet of the initial lift~~cell in ~~a cell~~order to keep drainage to the west from the Phase I side slope.

Subsequent waste lifts will be added to a ~~cell~~subcell in accordance with the L~~l~~andfill S~~s~~taging P~~p~~lans before opening new cells to waste disposal.

The surface runoff from unused portions of cells will be directed away from solid waste by grading and using temporary diversion berms.

Areas on the top and sides of each lift will 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 the ~~revised Sheets C-07 through C-09, Landfill Staging Plans, provided in Attachment K-13. Intermediate cover will be applied to internal top and side slopes and completed external slopes within seven days if the area will not receive more waste within 180 days. The top of lifts will be sloped to promote storm water drainage. Intermediate covered areas that will not be landfilled or covered with final cover within six months will be sodded (external slopes) or mulched (internal and top slopes) to avoid slope erosion. Storm water collected within the bermed working area will be considered leachate and will be collected and disposed as such. Efficient use of these techniques~~

~~will decrease leachate volumes~~Landfill Staging Plans provided in Attachment K-4. Intermediate cover operations are discussed in detail in Section K.7.g.

~~K.2.g~~K.2.f.(3) Waste Compaction and Application of Cover

Cover material for daily operations of the landfill will be obtained from the designated stockpile area, C&D Site, and/or compost generated from yard waste recycling. Compost used with soil for cover material shall be free of waste. Cover material will be deposited in the stockpile area location shown on ~~Sheet G-03, Overall Site Plan and Phasing Plan, provided with the previously submitted Phase II Class I Landfill Expansion Permit Drawings.~~the Site Plan. The designated stockpile area will have 3H:1V side slopes in order to minimize erosion. Additional soil obtained from offsite borrow areas will be placed within the stockpile area during the operational life of the facility. A silt fence will be installed around the stockpile area ~~and~~if the side slopes ~~will be grassed to further reduce and control erosion~~of the stockpiles are not vegetated.

Waste will be spread in layers 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 K.7.f, K.7.g, and K.7.h., of this Operations Plan.

~~K.2.h~~K.2.f.(4) Stormwater and Leachate Controls

The stormwater management system at the CCSWDC 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. The stormwater management system for CCSWDC was constructed under a permit issued by the ~~Southwest~~South Florida Water Management District in 1993~~.~~ and under a FDEP Environmental Resource Permit for Phase II issued in 2008. All components of the system were installed during Phase I and Phase II construction.

The side slope of each ~~cell~~subcell within Phase II as well as the Phase I/Phase II overlay liner system were constructed with a rain cover to avoid erosion of the protective cover, limit plant growth, and assist with the management of stormwater until waste is deposited within the cells. The rain cover consists of a 20-mil scrim-reinforced polyethylene liner held in place with sand bags. ~~Specifications for the rain cover installed during Phase II construction are provided in Attachment K-16.~~

Stormwater collected on the protective sand layer of Phase II cells that have not yet received waste ~~(i.e. in active cell)~~ will flow north to the sump areas within each ~~cell~~subcell. Any collected stormwater that has not been in contact with solid waste or otherwise contaminated by leachate will be collected in the temporary stormwater inlets installed in Subc~~C~~ells 3 and 4 and routed to the leachate collection manhole fitted with temporary stormwater piping that will outfall into the perimeter channel which is part of the permitted stormwater management system. Stormwater may also be pumped over the perimeter berm to the perimeter channel. Any stormwater collected in an open ~~cell~~subcell that has been in contact with solid waste will be considered leachate. The leachate will not be allowed to enter the stormwater collection system and will be routed, drained or pumped to the existing Phase II pump station north of ~~Cell~~Subcell 2 or to the nearest active ~~cell~~subcell as described later in this section. If it is not clear whether stormwater has been impacted by leachate, the County will collect samples and perform testing of the stormwater management system as specified within the current Environmental Resource Permit (ERP) prior to

disposal as leachate or stormwater. ~~Stormwater from Phase II Cells 3 and 4 will be collected utilizing the existing leachate collection system. Inlet structures were installed in line with the existing 8-inch leachate collection pipe at the north end of each cell. Valves will be closed on the pipes from the leachate collection manholes to the Phase II pump station. Stormwater will be directed to the leachate collection manhole. The collection manhole was penetrated and an 8-inch outfall pipe was installed to direct the captured stormwater to the existing perimeter channel. The discharge point into the channel is lined with riprap to avoid erosion of the channel.~~

One month prior to the acceptance of the waste into each ~~cell~~subcell (~~cells~~Subcells 3 and 4), Sarasota County shall notify FDEP that the stormwater diversion modifications were removed. Sarasota County will provide FDEP a schedule of when the inlets are to be removed, the tee -capped, the 8-inch outfall pipe from the leachate collection system to the perimeter channel is to be plugged or grout filled, and the downstream valve –opened. After the work has been completed, Sarasota County shall provide a construction certification to the FDEP for the decommissioning of the Phase II stormwater diversion modification.~~–~~

If the rain cover system on the side slopes in Phase II becomes irreparable, Sarasota County may elect to replace the rain cover, place a sod layer or simply maintain the protective sand layer cover in each ~~cell~~subcell. Prior to receiving waste, the 24-inch protective sand layer will be restored to original design and permitted specifications for ~~Cell~~Subcells -3~~,~~ and 4.

The rain cover or sod will be removed prior to the placement of waste within a ~~cell~~subcell. The rain cover or sod within a ~~cell~~subcell may be removed either all at once or in stages depending on how long it is anticipated it will take to place the first lift of waste within the ~~cell~~subcell. If the rain cover or sod is removed in stages, then stormwater that has not been in contact with waste may be collected and pumped over the top of the berm and into the perimeter channel or inactive adjacent ~~cell~~subcell.

All stormwater runoff will be conveyed via perimeter drainage channels to detention facilities. Ditch blocks located in the perimeter channels at strategic locations act as sediment traps and will require periodic maintenance.

The ultimate discharge of the detention facilities will be to Old Cow Pen Slough or isolated wetlands through fixed control weirs and spreader swales.

On areas of the landfill that are covered with intermediate cover, pipes may be used from the top of the landfill to the areas of Phase II that are collecting only stormwater. The pipes will be installed as shown in the Landfill Staging Plans provided in Attachment K-4. As the filling of the waste progresses, temporary stormwater letdown structures will be installed from the intermediate cover to facilitate drainage without erosion. Temporary stormwater diversion berms will be installed around the top perimeter of each lift and connected to the temporary letdown structures. The temporary letdowns will be located in the approximate locations as shown on the ~~revised Sheets C-07 through C-09, Landfill Staging Plans,~~Landfill Staging Plans provided in Attachment K-~~1~~34. Stormwater will be directed to these temporary letdown structures by sloping the top of each lift to promote drainage as shown on the staging plans.

Sediment collection provided by perimeter ditches and ditch blocks will minimize siltation of the main retention areas. In addition, the active working face(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 working face. Stormwater collected within the berms surrounding the active working face(s) is considered to be leachate and will be allowed to percolate into the landfill for collection by the leachate collection system. or will be routed to the collection area to the west of the subcell as described below. This leachate may also be pumped to a leachate cleanout pipe or leachate manhole as a means of discharging it to the leachate collection system. This water will be filtered through a screen on the pump intake prior to discharge to a cleanout pipe or manhole.

During normal operations and rainfall events, rain water which becomes leachate at the working face will percolate into the waste to drain the area. However,

K.2.f.(4).1 Leachate Containment Area

In order for the operator to limit leachate ponding at the working face during intense rainfall events, the operator may install piping which drains excessive leachate to the toe of the landfill and into the leachate collection system as shown onSheet 45in the Landfill Staging Plans provided in Attachment K13K-4, also referred to as the leachate containment area. At the pipe inlet, tires or sand with silt fence maybe used as a filter medium to limit sediment transport through the pipe, allow leachate to freely drain to the inlet of the pipe, and to prevent objects from blocking the pipe inlet. Leachate may accumulate while the pipe is draining the area; however, the operator will inspect the inlet area periodically to ensure that the pipe inlet is not clogged and is allowing free drainage of water to the pipe to keep the accumulation at the inlet to a minimum. As the working face moves, the piping used to assist in drainage of excessive leachate will be relocated and reinstalled in a location selected by the operator which best drains the area. The general setup and installation of the piping will be as shown on the Sheet 45 provided in Attachment K-13in the Landfill Staging Plans provided in Attachment K-4. If tires are used for the inlet and outlet areas, they will be temporary and before final disposal of the tire pieces, they will be reduced in size in accordance with the tire disposal requirements of Rule 62-711, F.A.C.

The leachate may be pumped to a leachate cleanout pipe or leachate manhole as a means of discharging it to the leachate collection system from the containment area. The pumped leachate will be filtered through a screen on the pump intake prior to discharge to a cleanout pipe or manhole. .

K.2.f.(4).2 Leachate Drains at Working Face

In order for the operator to limit leachate ponding at the worki In addition, to improve leachate percolation back into the waste at the working face, the operator may install trench drains constructed of cut/shredded tires which meet the size requirements for disposal in accordance with Rule 62-711, F.A.C. The drains will be excavated near the working face to promote drainage of leachate. In general, the drains will be approximately 5 to 10 feet deep per lift, approximately 5 to 10 feet wide, and a length as needed to contain the runoff from the turnaround area and working face. These dimensions may require adjustment based on actual field conditions and drainage requirements. The tire trenches will improve drainage of leachate which accumulates at the working face, decrease the size of the area that may be exposed to leachate, and decrease the leachate amount that may be piped to the containment area.

If tires are used for the inlet and outlet areas, they will be temporary and before final disposal of the tire pieces, they will be reduced in size in accordance with the tire disposal requirements of Rule 62-711, F.A.C.

On areas of the landfill that are covered with intermediate cover, pipes may be used from the top of the

~~landfill to the areas with rain cover on Phase II to shed stormwater off the landfill and reduce erosion. The pipes will be installed as shown on the Sheet 45 provided in Attachment K-13.~~

K.2.f.(5) **Stormwater 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 channels 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 Sarasota 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 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. The ponds and stormwater conveyance systems will be maintained and operated in accordance with the SWFWMD and FDEP ERP Permits for the CCSWDC.

~~K.2.i~~K.2.g ~~Groundwater~~**Water Quality Monitoring Plan**

Please refer to the Water Quality Monitoring Plan and addenda for the CCSWDC for information regarding the groundwater monitoring network and well locations.

~~K.2.j~~**K.2.h Maintaining Leachate Collection System**

Leachate collection system maintenance will include daily inspection of all leachate pump stations, leachate collection ~~metering~~ manholes and leak detection manholes. All pump running data as well as leachate level and flow data will be recorded, as described in Section K.8 of the Operations Plan, and checked for irregularities. Pumps are pulled and checked for operational parameters ~~at least once~~ every two years~~.~~ or as needed. An example leachate pump data form is provided in Attachment K-~~7~~6. The leachate collection system will be cleaned and inspected as described in part K.8.h of this Operations Plan.

K.3 LANDFILL OPERATION RECORD

The Administrative office located adjacent to the scale facilities at the entrance of the CCSWDC is shown on ~~Sheet G-03, Overall Site Plan and Phasing Plan of the previously submitted Phase II Class I Landfill Expansion Permit Drawings.~~the Site Plan. The office provides facilities for employees including a training/meeting room, sanitary facilities, and first aid equipment. Similar additional facilities are located at the ~~Equipment Maintenance~~County and Contractor's maintenance building. Files are located in the Administrative office and contain the operating record for the facilities as required by regulatory agencies/permits. Items that will 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, and 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 records with location ~~records~~information if friable asbestos.
- All monitoring reports for groundwater, ~~stormwater, leachate~~ surface ~~and~~water, and landfill gas.
- Waste tire processing records.
- Copies of all notifications required by 62-701 F.A.C.
- On-site precipitation record.
- FDEP inspection reports.
- Load checking reports.
- Leachate storage tank inspection reports.
- All training verifications.
- All other reports related to the design, operation, monitoring and permitting for the facilities.

K.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 reports will be submitted to FDEP annually or upon request.

K.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. In addition to the lockable access gates, which are the primary barriers and access controls when the CCSWDC is closed, the access lanes to the scales, the bypass lane and exits lanes include a powered access control arms that were voluntarily installed by the County. These gates are activated using HID cards issued to County and staff and other authorized users or can be activated by scale house and administration staff upon identification of visitors requesting access. These gates provide additional access control during the CCSWDC's operational hours.

K.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:

Mechanism for Inspections

(1) Specific locations within the active working face are to be dedicated to load examination. These 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 Contracting 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 their load at a designated location adjacent to the working face. If any unauthorized 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 K.2.c. These unauthorized wastes will be stored as described in Section K.2.c. and removed from the site within 30 days.

(3) The inspection form (see Attachment K-57) shall be filled out and signed off by the inspector. The inspector will identify and note all unauthorized waste found during 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 remove or clean-up the disposed materials.

(5) Violations involving hazardous waste dumping will be handled by the Sarasota County Solid Waste's Hazardous Waste Section. Every attempt will 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 will be the Contract Operator's responsibility to segregate and secure the waste and pay all costs relative to safely disposing of said waste.

(6) A list of offenders will be compiled by the Solid Waste's Hazardous Waste Section and the list will be provided to Sarasota County with updates on a periodic basis.

K.7 PROCEDURES FOR SPREADING & 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 and either reused or stockpiled for later use prior to the placement of a new lift.
- The materials described in Attachment K-~~9~~8 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 six 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 near the working face may not be necessary because of the proximity of the on-site soil stockpile area.

K.7.a Waste Layer Thickness and Compaction Frequencies

Waste will be spread in layers 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.

K.7.b First Layer of Waste

Selected solid waste loads containing no large rigid objects will be used for at least the first four feet of the first lift of a new ~~cell~~subcell in order to protect the liner and leachate collection system. The first lift will be a minimum of four feet deep to bring the daily cover grade to an elevation ~~of approximately 40 feet NGVD which is~~ higher than the ~~cell~~subcell's lined external containment berms in order to promote shedding of stormwater. The first 4 feet of select waste will be placed with a low ground pressure dozer and a spotter will be located on the sand layer during placement to remove any large, rigid objects. Waste will be deposited at the inside toe of the ~~cell~~subcell's lined external containment berm on the south end of the ~~cell~~subcell and spread to the north. ~~No solid waste will 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 K.2.f. in this Operations Plan.

K.7.c Slopes, Side Grades, and Lift Height

The typical height for each lift is 10 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.~~as shown in the Landfill Staging Plans provided in Attachment K-4. The toe of waste will be placed approximately 30 feet from the divider berm or on the lower portion of the divider berm, depending on if the operation is including a leachate containment area for leachate drainage. The leachate containment area at the toe of a subcell divider berm is discussed in subsequent sections. A maximum slope of 3H: 1V will be maintained on the working face. All top slope areas will be sloped to drain stormwater off of the landfill.

Waste will be placed within the ~~designated edge~~limits of waste ~~as shown on the previously submitted~~of Phase II ~~Class I Landfill Expansion Permit Drawings~~. The edge of waste will be located by measuring seven feet inward from the edge of liner markers on the north and west sides of Phase II ~~including the temporary liner termination for Cell 2.~~. The edge of waste will be located by measuring 14 feet inward from the edge of liner markers on the south side of Phase II. Periodic inspections will be made to ensure that the markers are in place and the edge of waste is located the required distance from the edge of the liner.

K.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 the unnecessary use of cover material.

K.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 K-98 provides a description and specification for initial cover materials previously approved for this facility.

A layer of shredded yard waste may be applied when needed to the top of the initial cover to minimize erosion during rainy weather and to prevent birds from pecking through the initial cover layer to the garbage. The shredded yard waste layer shall not exceed 12-inches and shall be removed prior to placement of additional waste. 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. To enhance the infiltration of leachate through the waste, the initial cover material may be broken up in place by a dozer blade or equipment traffic immediately prior to the placement of the subsequent lift of waste. As described in previous sections, other methods may be used during wet weather conditions to enhance infiltration of leachate as

needed. Any remaining litter and cleanings from equipment will be placed at the bottom of the completed ~~cell~~subcell and covered.

Before moving the working face, the area that will remain inactive will be covered with compacted cover soil (free of waste) 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.

K.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. A temporary cover such as a tarpaulin may be used to cover the working face and removed before placement of additional waste. Initial cover alternative materials are listed in Attachment K-~~9~~8.

K.7.g Intermediate Cover

Intermediate cover consisting of at least one 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 seven 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 have all external~~, internal and top~~ slopes sodded. Top slopes ~~greater than 6:1 sodded,~~ and ~~the~~ internal areas will be either seeded and mulched or mulched only to avoid erosion. If only mulch is utilized, the mulch layer shall not exceed 12-inches in depth and shall be removed along with the ~~interim~~intermediate soil cover layer prior to the placement of additional waste.

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 and seeded to prevent erosion.

Components of the landfill gas collection system may be installed in areas that receive intermediate cover. The locations of all underground piping associated with these systems will be marked to avoid damage to them during landfill operation and intermediate cover maintenance activities. Above ground structures such as well heads, and valves, will be kept readily visible by such measures as clearing vegetation, painting components bright colors, and installing protective posts and flagging. These measures should protect the above ground structures from damage during routine intermediate cover maintenance activities such as mowing, grass repair, and washout repair.

K.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 II. The perimeter ~~sideslopes~~side slopes of all completed ~~cell~~subcells will have a slope of 3H:1V.

The cap and final cover will consist of a minimum of 12 inches of intermediate cover soil, a geomembrane layer that complies with FDEP rules, a geocomposite drainage layer, and 24 inches of local common soil of which the upper 6 inches will be capable of supporting vegetative cover. Specifications for the local common soil will be provided with the closure permit application.

Components of the landfill gas collection system may be installed in areas that receive final cover. The locations of all underground piping associated with these systems will be marked to avoid damage to them during landfill operation and final cover maintenance activities. Above ground structures such as well heads, and valves, will be kept readily visible by such measures as clearing vegetation, painting components bright colors, and installing protective posts and flagging. Protective posts shall be installed such that they do not damage the final cover system. These measures should protect the above ground structures from damage during routine final cover maintenance activities such as mowing, grass repair, and washout repair.

Additional information regarding final closure requirements, final cover design, closure and maintenance/long-term care of the Phase I Landfill area, which was closed in June 2013, except for the south slope which has a TPO geomembrane temporary final cover, is provided in the Phase I Closure and Long-term Care Plan provided in Attachment K-5.

K.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~~, the Manager will be notified.

K.7.j Litter Control Devices

Litter will be controlled by requiring covered loads, efficient unloading and cover operations, litter fences, perimeter fencing, and routine clean-up. Litter outside the working area will be picked up within 24 hours.

A small litter fence will be placed at the limit of each landfill ~~cell~~subcell area for the full length of the active working face.

K.7.k Erosion Control Procedures

Erosion control procedures at CCSWDC mainly consist of stormwater management for active working face areas and in areas surrounding the landfill phases~~cells~~. Stormwater management, for used portions of active ~~cell~~subcells where initial or intermediate cover over the waste has been placed in accordance with FDEP requirements, is achieved by:

- Grading the waste-in-place with an adequate slope and adequately covering the waste to divert stormwater away from the working face.
- Use of terraces and letdown pipes.
- Maintaining internal and external berms.

The stormwater management system will be of critical importance during the filling sequence. As each lift is constructed, temporary stormwater diversion berms will be constructed.

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 letdown structures and will serve as erosion control to protect recently covered side slopes. These external berms will be sodded to minimize erosion and will be directly connected to the temporary letdown structures to facilitate proper management of stormwater runoff.

Sediments that reach the perimeter channels 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 proposed first drainage terrace, the first set of temporary letdown structures will be constructed. This operating procedure will minimize the amount of erosion and sediment accumulation that must periodically be removed from the perimeter ditches.

Areas provided with intermediate cover, or other areas that discharge to the stormwater management system that 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 seven days.
- If waste or liner is exposed, then the area will be repaired by the end of the next working day.

K.8 PROCEDURE FOR LEACHATE MANAGEMENT

K.8.a Leachate ~~Monitoring, Sampling, and Analysis~~Collection

The sump pumps located in ~~Cell~~Subcells 1 through 5 of Phase I will operate in an automatic mode based on the liquid level in the sump. Figure L-2 in Attachment K-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 each ~~cell~~subcell's lined external containment berm. As shown on Figure L-2, 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 are provided for backup of the Phase I sump pumps. This allows for removal of each pump on a regular scheduled basis to perform preventative maintenance. When a sump pump is removed for schedule maintenance and the pump will not be reinstalled within 24 hours, a spare pump will be reinstalled immediately while the maintenance is being performed. Each pump will receive preventative maintenance in accordance with the manufacturer's recommendations ~~at a frequency based on run time~~.

During normal operations, ~~Cell~~Subcells 1 through 4 of Phase II will drain by gravity to a duplex leachate pump station located north of ~~Cell~~Subcell 2. The pump station will operate in an automatic mode based on the liquid level within the wet well. ~~Sheet C-17, Leachate Collection System Details, of the previously submitted Phase II Class I Landfill Expansion Permit Drawings shows the operation levels for the pumps.~~ Pump levels are set to keep the liquid level in the leachate collection sump below the inlet from the metering manhole and the pump off is set above the intake of the pumps to avoid air suction or running the pumps dry. The pressure transducers located at the end of the pump housing accurately measure the level of liquid within the wet well and provide a digital readout of this level at the control panel mounted adjacent to the pump station. ~~As shown on Sheet C-17, Leachate Collection System Details, the~~ The duplex pumps will operate on a lead/lag basis.

~~Additional details on leachate sampling locations, sampling and analysis schedule, and data submission is provided in the Water Quality Monitoring Plan and Addendums.~~

K.8.b Leachate Collection and Removal System

K.8.b.(1) Phase I Collection System

The Phase I Class I landfill leachate collection system consists of a geonet drainage layer and perforated collection pipe above the composite liner system to collect and convey leachate. The leachate that is conveyed to sumps will be pumped to an existing 1,800,000 gallon on-site leachate storage tank. A typical detail for the Phase I sumps is provided in Figure L-2 of Attachment K-3. The leachate collection piping system consists of 8-inch diameter perforated HDPE 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 boxes.~~.

K.8.b.(2) Phase II Collection System

The Phase II Class I landfill leachate collection system consists of a geonet composite drainage layer and perforated collection pipe above the double synthetic liner system to collect and convey leachate. The leachate that is collected within the Phase II ~~cell~~subcells will be pumped to the on-site leachate storage tank. The leachate collection piping system consists of 8-inch diameter perforated HDPE 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 metering manhole located on the north perimeter berm of each ~~cell~~subcell. The original design included measurement of~~At the metering manhole,~~ leachate flows from each ~~cell~~subcell ~~are measured~~ using a Parshall flume and an ultrasonic water level sensor in the metering manholes. ~~The ultra-sonic level sensors in the metering manholes were selected based on anticipated normal flow rates. Specifically, the level-sensor was selected for a flow rate of 3 gpm to 194 gpm. The metering manhole was designed to accurately measure flows of 0.6 inches in depth or greater which corresponds to 2.29 gpm and above.~~ However,~~Therefore,~~ during periods of low flow below the measurement ability of the ultra-sonic level sensors or when methane gas interfered with operation of the ultrasonic flow sensor, flow was~~ill~~ not ~~be~~ registered at each ~~cell~~subcell, but the total leachate collected was~~will be~~ measured by the flow meter at the main Phase II pump station~~s~~. This made the measurements at

the metering manholes unreliable and unusable for leachate quantification. Therefore, in 2013, the County requested that flow from the Phase II Main Leachate Pump Station be recorded as well as flow from the leak detection manholes, but flow recording from the leachate metering manholes be discontinued since these measurements had considerable error associated with them. Each metering manhole drains by gravity to a duplex leachate pump station located adjacent to ~~Cell~~Subcell 2. The discharge from the leachate pump station is directed through a HDPE leachate forcemain installed along the north and west sides of Phase II, the west and south sides of future Phase III and the south side of future Phase IV. ~~Provisions for sampling the Phase II leachate as well as monitoring flows and pressure are provided in the valve vault located adjacent to the leachate pump station as shown on the details provided on Sheet C-17, Leachate Collection System Details, of the previously submitted Phase II Class I Landfill Expansion Permit Drawings.~~ Any stormwater accumulated in an unused ~~cell~~subcell will be routed to the leachate collection manholes. The leachate collection manholes are fitted with a temporary stormwater piping that allows discharge of stormwater directly into the perimeter channel. Otherwise, the stormwater can be pumped out from the ~~cell~~subcell using portable pumps and discharged to the perimeter channel. The valve connecting the leachate collection pipe within the ~~cell~~subcell to the manhole will be in the closed position to prevent stormwater from draining to the leachate pump station. Prior to waste disposal within a ~~cell~~subcell, the temporary stormwater diversion modifications will be removed. Immediately prior to solid waste being deposited into a new landfill ~~cell~~subcell, the valve at the manhole will be opened to allow the free flow of leachate to the pump station.

Leachate collected within the geocomposite drainage layer of the leak detection system of Phase II will be drained by gravity to a leak detection manhole located on the north perimeter berm of each ~~cell~~subcell. The discharge valve at the leak detection manhole will normally be closed to allow the quantity of leakage to be measured. An ultrasonic water level sensor calibrated to the storage volume within the manhole at a given level will be used to measure leakage rate. After the leakage rate has been determined, the leachate within the leak detection manholes will subsequently be drained by gravity to the leachate pump station and the valve closed for another measurement. The leak detection system has been designed such that a leak developing within the most remote part of a ~~cell~~subcell will flow to the leak detection manhole within 12 hours. A Leakage Action Rate (LAR) of 100 gallons/acre/day has been established for the Phase II ~~cell~~subcells, which corresponds to the Environmental Protection Agency guidance and FDEP experience with facilities containing similar liner systems. At this rate, the 470 gallon storage volume within the leak detection manhole will be exhausted within 8.75 hours. For leakage rates greater than 100 gallons/acre/day, measures should be initiated to find and repair or minimize leaks within the primary liner system.

The following procedures will be initiated if the LAR of 100 gallons/acre/day is exceeded:

1. Increase monitoring of the leakage quantity from the ~~cell~~subcell(s) affected. This consists of increasing the frequency of monitoring liquid levels within the leak detection manhole(s) to determine the time required to fill the five-foot storage volume in the manholes. It is anticipated that readings will be made at least daily after the LAR is exceeded and the calculated leakage rates will be recorded.

2. Immediately notify FDEP once it is ascertained that the LAR is being exceeded and provide a plan on how Sarasota County intends to address the exceedance.

3. Attempt to locate and fix sources of leaks to the extent practical. Measures to locate leaks could include inspecting the leak detection manhole to determine whether groundwater is leaking into it, observing the surface of the ~~cell~~subcell to determine if there are indications as to where leaks may be located such as large protrusions of waste that may have penetrated the liner system, and ~~video taping~~videotaping the leak detection pipe to determine where large inflows are occurring. If the location of a leak can be identified and excavation of waste is practical, then the liner will be exposed and repaired.

4. Adjust operational practices as needed to reduce the likelihood of future damage to the liner such as increasing the thickness of the initial layer of select waste on the ~~cell~~subcell bottom.

5. If leaks cannot be specifically located or if it is not practical to find them, adjust operations to try to reduce the leakage to below the LAR. This could include measures to reduce the generation of leachate such as grading the landfill to promote runoff, installing drains and berms to direct runoff away from the landfill, the installation of additional intermediate or temporary cover, installing temporary geomembrane rain covers, or accelerating the placement of final cover in areas that have reached final elevation.

K.8.b.(3) Phase I/Phase II Overlay Liner System

The overlay liner system, located over the west ~~sideslope~~side slope of Phase I, reduces the quantity of leachate entering the Phase I leachate collection system from the Phase II expansion areas by directing it to the Phase II leachate collection system. This will be accomplished by hydraulically separating the newer waste above it from the older waste beneath the overlay liner system.

The overlay liner system consists of (from the top down) two feet of protective cover material, a geonet composite drainage layer, a textured 60-mil HDPE liner, and a minimum of 12 inches of intermediate cover placed over the waste. The rain cover ~~would~~will be removed prior to the placement of waste against the overlay liner system.

~~The rain cover on the overlay liner system includes rain gutters to divert stormwater off the rain cover to temporary letdowns that will direct the stormwater to the perimeter channel located north of Phase I. The locations of the rain gutters and temporary letdowns are shown on Sheet C-03 of the previously submitted Phase II Class I Landfill Expansion Permit Drawings. Details of these features are included on Sheet C-13B of the previously submitted Phase II Class I Landfill Expansion Permit Drawings. Calculations demonstrating that the rain gutters and letdowns are capable of transmitting the flow generated from the 25-year design storm are included in Attachment H.2 of the Phase II Permit Application Engineering Report.~~

Leachate percolating through the newer waste located above the overlay liner system will be captured by the liner and directed to the base of the overlay liner system by means of the geonet

composite drainage layer. A stone-filled trench drain with an 8-inch diameter perforated HDPE pipe located at the Phase I/Phase II divider berm will collect the leachate and direct it to the low point within ~~Cell~~Subcell 1 of Phase II where it will flow out of the ~~cell~~subcell with the rest of the leachate collected within ~~Cell~~Subcell 1. From there, the leachate will flow as previously described for the Phase II collection system.

K.8.b.(4) **Leachate Disposal System: General Description**

Leachate that is generated from the landfill ~~cell~~subcells will be pumped to the existing 1.8 million gallon leachate storage tank. The leachate accumulated in the leachate storage tank will be removed by a leachate pumping station that will pump through a 4-inch PVC forcemain 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 forcemain 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 existing leachate storage tank has a total capacity of 1.8 million gallons. The exposed plan area of the secondary containment system surrounding the existing 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~~The liquid ~~accumulating~~collected in the secondary containment area may be handled as leachate or discharged to the stormwater system. In the event the liquid in the secondary containment is pumped to the stormwater system then the liquid 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 *u*mhos/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. If the liquid collected in the secondary containment system is pumped back to the leachate storage tank to be handled as leachate then the liquid will not be tested for specific conductance.

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 leachate storage tank reaches 90 percent capacity (1.62 million gallons) and a high water alarm will be activated. An electric actuated shutoff valve in the fill line will be activated to prevent overfilling the tank when the capacity reaches 1.8 million gallons in 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 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. Leachate will be managed in accordance with the Contingency Plan (Section K.8.e) when the tank is out of service. Reports of the above inspections will be maintained by Sarasota County.

The leachate pumping station will have automatic controls with the following set points:

~~Elevation~~

	Elevation (feet NGVD 1929)	Height from Bottom of Tank (feet)
High water alarm	40	18
~~Lag pump on~~	28	6
~~Lead pump on~~	27	5
~~Pumps off~~	26	4
~~Tank bottom~~	22	0

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~~.

K.8.c If Leachate Becomes Regulated as Hazardous Waste

Sarasota County will evaluate options for pre-treating the leachate and alternate disposal if it becomes regulated as a hazardous waste.

K.8.d Off-Site Treatment of Leachate

The primary disposal location for CCSWDC leachate ~~and alternate disposal~~ is the City of Venice WWTP. ~~Facility commitment letters are provided in Attachment K-6.~~ A secondary disposal location is the Bee Ridge WRF. 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.

K.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 ~~then~~than three consecutive days.

- Liquid accumulation in the leachate storage tank leak detection system in amounts greater than expected from rainfall.
- Rise of leachate levels inside the leachate storage tank greater than 52.6 feet -NGVD (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 24 hours) and leachate disposal facilities of the emergency event.

(2) If the problem is excess leachate in the detection system of the leachate storage tank, remedial measures shall be taken immediately to eliminate the leak. The detection system of the concrete leachate storage tank consists of a layer of gravel located between the bottom of the leachate storage tank and the top of the secondary containment slab that enables the detection of leaks at the bottom of the leachate storage tank. Additional tractor trailer tanker units and operators shall be called to the site to expedite transport of leachate to the receiving WWTP or additional quantities shall be pumped through the forcemain to the City of Venice lift station. The leachate storage tank shall be emptied completely, if required, to facilitate repairs. Leachate will be pumped to mobile tanks during repair periods.

(3) If the problem is excessive levels of leachate in the leachate storage tank (elevation exceeds the high water alarm level), the maximum amount of leachate shall be diverted from the tank by increasing the frequency or number of tanker trucks hauling leachate to the primary or secondary WWTPs, pumping additional quantities of leachate through the forcemain to the City of Venice lift station, or storing leachate in mobile tanks.

(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 days) that the facility is ready to return to normal operating conditions.

(5) Inspections and repairs to the leachate storage tank will be scheduled during winter months to the extent possible in order to minimize the quantity of leachate that must be removed. While the leachate storage tank is out of service, leachate will be pumped directly to either tanker trucks, temporary storage tanks, or through the forcemain to the City of Venice lift station.

K.8.f Recording Quantities of Leachate Generated

K.8.f.(1) Phase I Leachate Pump Stations

A control panel for each sump pump in Cell Nos. 1 through 5 of Phase I is ~~mounted on~~ located near the ~~valve box at the top of each cell's lined external containment berm~~pump station. Each ~~control panel will be~~pump station is equipped with a pump hour meter, level indicator, and flow meter.

A control panel for the Phase II duplex leachate pump station is mounted adjacent to the pump station. The control panel is equipped with a flow meter, water level indicator, and a pump hour meter.

The following information will be recorded once per operating day from each pump location.

~~Cell~~Subcell No. or Phase
Flow Meter Reading
Hour Meter Reading
Sump or Wet Well Liquid Level

The above information is recorded on the form provided in Attachment K-~~7~~6.

In the event a flow meter is not in operation, Sarasota County may record the run-time hours for the pump and convert time to flow using historical records, until the flow meter is returned to service.

K.8.f.(2) Phase II Leachate Metering Manholes and Leak Detection Manholes

Flow is not recorded from the separate leachate collection metering manholes at Subcells 1 through 4.

The level sensor reading at each leak detection manhole in Subcells 1 through 4 is recorded each operational day and the change in level converted to gallons/acre/day to compare to the allowable ALR as described in Section K.8.b.(2) above. ~~A control panel for the Phase II metering manholes is mounted adjacent to the manholes. The panel is equipped with a water level indicator, instantaneous flow meter, and a flow totalizer.~~

~~The following information will be recorded once per operating day from each metering manhole location.~~

~~Cell No.~~
~~Instantaneous Flow~~
~~Totalized Flow~~
~~Liquid Level~~

~~The above information is recorded on the form provided in Attachment K-7.~~

K.8.f.(3) Phase II Main Pump Station

The Phase II leachate collection manholes from Subcell 1 through 4 gravity drain to the main leachate pump station at Phase II where the leachate is pumped from the sump to the leachate storage tank. There are two sump pumps located in the pump station. The following information is recorded daily from the pump station location.

Flow Meter Reading
Hour Meter Reading (Both Pumps)

K.8.f.(4) Recording Methods

The leachate collection information included in the sections above for Phases I and II~~pump station information~~ may be recorded visually at each pump station by recording the values directly from the pump station readouts or by the collection of the data via a telemetry system. Please note that the telemetry system, as of September 2013, is planned as a future installation. The telemetry system, when installed, will upload a minimum of one reading of the leachate pump station parameters per day. The readings can then be viewed by County staff via computer and recorded on the forms provided in Attachment K-~~8~~6. The leachate data recorded on the individual pump station forms are used in the overall leachate generation form for the facility. These forms are provided in Attachment K-6.

K.8.g Precipitation and Leachate Generation Rates

Rainfall for each 24-hour period measured at an official gauge located on-site will be recorded and entered onto a spreadsheet (format included in Attachment K-~~10~~6) to compare precipitation to leachate generation.

K.8.h Leachate Collection System Inspection and Cleaning

~~CCSWDC~~The County will water pressure clean or conduct a video inspection of the leachate collection ~~system~~systems in Phase I and Phase II at least once every five years in accordance with Rule 62-701.500 F.A.C. requirements. Leachate pumps, metering manholes, and leak detection manholes at CCSWDC will be inspected for operation failures at least daily. Control panels will be inspected and operational data recorded as described in Section K.8.f.

K.9 LANDFILL GAS MANAGEMENT AND MONITORING

K.9.a Landfill Gas Management

The CCSWDC is located near the center of aover 6,000 ~~acre site~~acres of County-owned property. The minimum distance from the Class I landfill to the nearest property line is 1,800 feet. This distance represents 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.

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 12 months after reporting NMOC emissions greater than or equal to 50 Mg/year (megagram per year), a detailed landfill gas collection and controls system design plan submittal shall be made to the NSPS implementing agency. Within 18 months after this submittal, the installation of the landfill gas collection and control system shall be completed. Based on current Tier 2 sampling and model projections, the CCSWDC Class I landfill has not exceeded the NMOC threshold at the time of this report and is not expected to exceed the threshold until 2015. Operation of the Landfill Gas System is provided in greater detail in Attachment K-~~14~~9, LFGCCS Operation and Maintenance Plan.

K.9.b Landfill 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 and enclosed on-site structures at the monitoring locations shown on Figure 1 in Attachment K-3. Monitoring will be conducted on a quarterly basis and a report submitted to FDEP within 15 days after the end of the quarter in which monitoring occurred. The outside monitoring locations, as shown on Figure 1 provided in Attachment K-3, will consist of gas monitoring probes as shown on Figure L-3 in Attachment K-3. All gas probes will be clearly labeled and easily visible at all times.

The CCSWDC gas monitoring locations include four gas monitoring probes as described above and numbered GP-2, GP-3, GP-7, and GP-9 and six gas monitoring locations GM-1, GM-2, GM-3, GM-4, GM-5, and GM-7 in structures as shown on Figure 1 provided in Attachment K-3.

These locations are summarized in the table below:

CCSWDC Landfill Gas Monitoring Points

MONITORING POINT	TYPE OF MONITORING	LOCATION
GP-2	Probe	North of Phase I
GP-3	Probe	East of Phase I
GP-7	Probe	North of C&D Processing Area
GP-9	Probe	West of ~~Cell~~Subcell 4, Phase II
GM-1	Monitoring Location	Contractor's Maintenance Bldg.
GM-2	Monitoring Location	C&D Processing Area
GM-3	Monitoring Location	County Maintenance Bldg.
GM-4	Monitoring Location	Administrative Bldg.
GM-5	Monitoring Location	Scale House
GM-7	Monitoring Location	Control Panel at Leachate Storage Tank

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 their great distance from the landfill (over 3,400 feet) and the shallow groundwater table (5 to 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 between these structures and the landfill area.

Please note that gas monitoring probes north of Phase II are not necessary due to the presence of Stormwater Pond No. 1 that will effectively cut off the migration route of landfill gas in that direction. Also, gas monitoring probes south of Phase II are not necessary due to the long distance between the edge of waste and the property line and structures that can be adversely affected by migrating landfill gas. The high water table at the site also makes it unlikely that gas will migrate significant distances.

The landfill gas probes and monitoring locations shown on Figure 1 will be sampled at least quarterly for concentrations of combustible gases determined as a percent of the lower explosive limit (LEL) calibrated to methane as described in FAC 62-701.530.(2).

A methane/combustible gas detector (meter) will be used to measure the LEL at the monitoring locations. No purging of the probe will be allowed. Once the meter is connected to the sampling port, the valve will be opened and the meter pump will be engaged and meter reading observed. The highest value observed is recorded as well as the steady state value observed.

If the results of gas monitoring show that combustible gas concentrations exceed 25 percent of the LEL calibrated to methane in structures or 100 percent of the LEL calibrated to methane at the property boundary, Sarasota County will immediately take all necessary steps to ensure protection of human health and notify FDEP. Within seven days of detection, a gas remediation plan detailing the nature and extent of the problem and the proposed remedy will be submitted to FDEP for approval. The remedy will be completed within 60 days of detection unless otherwise approved by FDEP.

K.9.c Odor Reporting Procedures

The CCSWDC shall be operated to control objectionable odors in accordance with Rule 62-296.320(2), F.A.C. After being notified by the FDEP that objectionable odors have been confirmed beyond the landfill property boundary, the CCSWDC shall:

(1) Immediately take steps to reduce the objectionable odors. Such steps may include applying or increasing initial cover, reducing the size of the working face, and ceasing operations in the areas where odors have been detected;

(2) Submit to the FDEP for approval an odor remediation plan for the gas releases. The plan shall describe the nature and extent of the problem and the proposed long-term remedy. The remedy shall be initiated within 30 days of approval;

(3) Implement a routine odor monitoring program to determine the timing and extent of any off-site odors, and to evaluate the effectiveness of the odor remediation plan.

K.10 STORMWATER MANAGEMENT SYSTEM

The landfill stormwater management system for CCSWDC is discussed in Section K.2.~~fh~~ – Stormwater System.

K.11 EQUIPMENT AND OPERATION FEATURE REQUIREMENTS

K.11.a Adequate In-Service Equipment

Equipment proposed for the CCSWDC will include the equipment listed in Table K-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.

Emergency Electrical Generation Equipment is of adequate size to assure complete operation of the Leachate Disposal and Collection Systems.

TABLE K-1. EQUIPMENT USED AT THE CCSWDC

NUMBER	EQUIPMENT
2	Bulldozer
1	Compactor
1	Dump Truck
1	Front-end Loader or Hydraulic Excavator
1	Grader
1	Water Truck

K.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 within 24 hours of a need being identified.

K.11.c Communication Equipment~~Facilities~~

Radios and cell phones will be the primary communications devices to provide safe conditions for landfill personnel.

K.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 K-~~11~~10 for FDEP approval letter). The reuse of leachate involves spraying small quantities of leachate from a spray bar mounted on the rear of a tank

~~TABLE K-1. EQUIPMENT USED AT THE CCSWDC~~

~~NUMBER~~	~~EQUIPMENT~~
~~2~~	~~Bulldozer~~
~~2~~	~~Compactors~~
~~2~~	~~Dump Truck~~
~~1~~	~~Front-end Loader~~
~~1~~	~~Grader~~
~~1~~	~~Hydraulic Excavator~~
~~1~~	~~Water Truck~~
~~1~~	~~Fuel Truck~~
~~2~~	~~Pick-up Trucks~~
~~2~~	~~UD Gators~~
~~1~~	~~Roll-off Truck~~
~~1~~	~~Compressor~~
~~1~~	~~Pressure Washer~~
~~1~~	~~Welder~~

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 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 a ~~10H~~5H: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 application rate of leachate should be such that leachate does not accumulate on the landfill surface, and infiltrates quickly into the covered refuse.

- Leachate will not be sprayed at the end of the day on the initial cover of the active 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 used.
- If a water truck that is normally used for dust control on areas outside the working face is used, the operator, following leachate spraying, will fill the truck tank with clean water and the load sprayed as if it were leachate. This will flush and decontaminate the truck tank so that it may be used again for dust control outside the working face.

Daily volume of leachate sprayed (gallons), per this method, will be recorded.

If needed, dust masks will be available to personnel working in excessively dusty areas.

In general the CCSWDC will employ multiple methods for dust control as described above; in addition, many of the CCSWDC's roads are paved for all-weather conditions, as described in Section K.12 below.

Reasonable dust control precautions may include, but are not limited to, the following:

- Paving and maintenance of roads, parking areas and yards.
- Application of water to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing.
- Application of asphalt, water, or other FDEP-approved dust suppressants to unpaved roads, yards, open stock piles and similar activities.
- Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent re-entrainment, and from buildings or work areas to prevent particulate from becoming airborne.
- Landscaping or planting of vegetation.
- Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter.
- Confining abrasive blasting where possible.
- Enclosure or covering of conveyor systems.

K.11.e Litter Control Devices

See Section K.7.j. in this Operations Plan.

K.11.f Signs Indicating Name of Operating Authority, Traffic Flow, Hours of Operations, and Charges for Disposal

Permanent signs ~~along the access road and~~ at the facility identify the Sarasota County Central County Solid Waste Disposal Facility and indicate 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.

K.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 Sheet G-03, Overall Site Plan and Phasing Plan of the previously submitted Phase II Class I Landfill Expansion Permit Drawings.~~ 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.

K.13 ADDITIONAL RECORD KEEPING AND REPORTING

See Section K.3 of this Operations Plan for records and documents retained. Documents used for development, operations, construction, background water quality, and permitting of the CCSWDC will be kept for the design life of the CCSWDC. Weigh tickets shall be kept for five years. All monitoring information, including calibration and maintenance records, chart recordings, and all reports required by permit shall be kept for 10 years.

Records that are more than five years old may be archived at an off-site storage location. The archived records will be stored in a secure place where they will be protected from damage. Provisions will be made to retrieve records from storage as required within seven days. The County utilizes electronic archiving where a document is scanned and archived as an electronic document. The electronic files will be available and accessible within seven days as well.

ATTACHMENT K-1

TRAINING PLAN

~~ATTACHMENT K-1~~

TRAINING PLAN

As stated in 62-701.500(1), F.A.C., all 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. Interim spotters, who do not have the formal spotter training, may be employed at the CCSWDC provided that the interim spotter is under the direct supervision of a trained operator or trained spotter. The interim spotter must receive training as an operator or spotter within 3 months of employment. An interim operator may be employed at the facility provided that it is for a period of no longer than 3 months from employment or if supervised by a trained operator, the interim operator must receive training within one year of employment.

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 can be found at the following website: http://www.treeo.ufl.edu/sw/. A listing of positions requiring training is provided in Section K.2.a.

ATTACHMENT K-2

SAFETY AND CONTINGENCY PLAN

~~*SOLID WASTE OPERATIONS*~~

~~CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX~~

~~SAFETY~~ ~~PLAN~~

~~SAFETY~~

The program shall consist of the following parts:

I. Training

A. General and safety training of all landfill and contractor personnel will be required.

B. Safety topics may include, but not be limited to the following: CPR, First Aid, Site Safety, Personal Protection Equipment (PPE), Lock Out / Tag Out, Weather Hazards, Heat Stress, and Fire Extinguisher training.

C. All staff shall receive training on the job-specific aspects of their position. This training will be provided by and is the responsibility of the employee's immediate supervisor, or their designee.

D. 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 his immediate supervisor, or their designee. 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 of the immediate supervisor in charge of the employee, or their designee.

II. PPE

Special safety equipment such as rain gear including rubber boots, boots having steel toes and 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 where applicable. It shall be the responsibility of each individual employee and the immediate supervisor to assure that proper safety equipment is in use. 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.

III. Safety Meetings

A. Safety meetings shall be held periodically but no less than one meeting shall be held every month.

B. Safety meetings shall be the responsibility of the Solid Waste Operations Manager and all on-site contractors for their respectively personnel.

C. Safety meeting topics shall include a discussion of all incidents which have occurred since the last safety meeting was held along with topics of current importance and interest.

IV. Safety Officer

A. The Solid Waste Operations Safety Officer shall be appointed by the Manager of the Solid Waste Operations.

B. The position of Solid Waste Operations 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 Safety Officer shall be given time during the regular working hours to perform the duties of the Safety Officer.

V. Emergency & Fire Safety

This section provides the standard operating procedures 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.

A. 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 that is connected to the County phone system you must dial 9- 911 to reach the emergency operator.

B. 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.

C. If there are injuries, you should render whatever assistance you can without endangering yourself. An Automatic Defibulator (AED) for CPR emergencies is located in the Landfill Administration Office.

D. If possible, evacuate any personnel or equipment that may be endangered.

E. 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 can be found in every Solid Waste Operations vehicle, on every piece of heavy equipment, and in buildings located throughout the landfill site. Upon arrival of the Emergency Responders, you should take whatever steps necessary to assist.

~~E.~~F. 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 K.2.b~~11.e~~ of the Operations Plan shall be followed.

VI. Waste Tire Storage Area

Refer to Waste Tire Storage Area Safety Plan included in this attachment.

VII. List of Emergency Response Equipment

A. In the event of a fire emergency, the following equipment may be available at the landfill and may be used as the situation dictates in the evolution of responding to a fire emergency, such as making berms, smothering with earth and materials, and then use of water in extinguishing fires:

- Front End Loaders.
- Tractors.
- Water Truck.
- Water Pumps.

B. 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.

C. 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. Upon arrival of the fire department, this water supply will be used under the direction of the officer in charge from the fire department.

VIII. Procedure to be Followed for Cleanup

Any residual from a fire shall be addressed as follows:

A. The County will conduct soil sampling as applicable of the area to confirm the absence or presence of contaminants.

B. If contaminants are found that exceed established clean-up target levels, then remedial actions may be taken that can include removal of soil.

CONTINGENCY PLAN

In the event an emergency should occur that would interrupt operations at the landfill, the emergency provisions of Section K.2.b.~~1~~ of the Operations Plan shall be followed and the following procedures shall be implemented:

The waste collection entities operating within the County shall be notified of the operational interruption and approximate time when operations will be restored.

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.

- Manatee County Lena Road Landfill
- Charlotte County Zemel Road Landfill
- Waste Management Landfill in Okeechobee County

~~WASTE TIRE STORAGE AREA SAFETY PLAN~~

SOLID WASTE OPERATIONS

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX

SAFETY PLAN
WASTE TIRE STORAGE AREA

Updated June 1, 2012 **as part of Waste Tire Processing Facility Permit Application**

SAFETY

The program shall consist of the following parts:

I. Training

A. General & safety training of all landfill and contractor personnel will be required.

B. Safety topics may include, but not be limited to the following: CPR, First Aid, Site Safety, Personal Protection Equipment (PPE), Lock-out / Tag Out, Weather Hazards, Heat Stress, and Fire Extinguisher training.

C. All staff shall receive training on the job-specific aspects of their position. This training will be provided by and it the responsibility of the employee's immediate supervisor, or their designee.

D. 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 his immediate supervisor, or their designee. 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 of the immediate supervisor in charge of the employee, or their designee.

II. PPE

A. Special safety equipment such a rain gear including rubber boots, boots having steel toes and 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 where applicable. It shall be the responsibility of each individual employee and their immediate supervisor to assure that proper safety equipment is in use.

III. Safety Meetings

A. Safety meeting shall be held periodically but no less than one meeting shall be held every other month.

B. Safety meeting shall be the responsibility of the Solid Waste Operations Manager and all on-site contractors for their respectively personnel.

C. Safety meeting topics shall include a discussion of all incidents which have occurred since the last safety meeting was held along with topics of current importance and interest.

IV. Safety Officer

A. The Solid Waste Operations Safety Officer shall be appointed by the Manager of the Solid Waste Operations.

B. The position of Solid Waste Operations 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 Safety Officer shall be given time during the regular working hours to perform the duties of the Safety Officer.

V. Emergency & 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 the landfill or transfer station.

A. Notification: Call 911. As in any emergency, the first thing to do is to notify the proper emergency response team. In the case of FIRE, notify the Fire Department through the emergency phone number 911. Remember; if you are calling from a phone that is connected to the County phone system you must dial 9-911 to reach an emergency operator.
B. 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.
C. If there are injuries, you should render whatever assistance you can without endangering yourself. An Automatic Defibulator (AED) for CPR emergencies is located in the Landfill Administration Office.
D. If possible, evacuate any personnel or equipment that may be endangered.
E. 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 can be found in every Solid Waste Operations vehicle, on every piece of heavy equipment and in buildings located throughout the landfill site.
F. Upon arrival of the Emergency Responders, you should take whatever steps necessary to assist.

Used Tire Storage Area Special Rules

In the event there is a fire or other emergency in the used tire storage area, the following rules shall apply:

A. After following the emergency procedure outlined above, personnel shall ensure that a berm is placed to the west of the waste tire pile area and the drain to the east is diked-off to assure that no oily material generated by the combustion of the tires escapes the designated Waste Tire area.
B. The State of Florida, Department of Environmental Protection shall be immediately notified by calling the Tampa office at 813-632-7600. Within 7 days of any emergency involving potential impacts to the site, the Solid Waste Operations Manager shall submit to the Department a written report on the emergency, the results of the action taken and an action plan to mitigate future occurrences.
C. In addition, any special conditions as set forth by the jurisdictional Fire Department shall be met.

List of Emergency Response Equipment

A. In the event of a fire emergency, the following equipment may be available at the landfill and may be used as the situation dictates in the evolution of responding to a fire emergency, such

as making berms, smothering with earth & materials, and then use of water in extinguishing fires:

- Front End Loaders
- Tractors
- Water Truck
- Water Pumps

B. 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.

C. 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. Upon arrival of the fire department, this water supply will be used under the direction of the officer in charge from the fire department.

VI. Procedure to be Followed for Clean-up

Any residual from a fire at the tire storage area shall be addressed as follows:

A. The County will conduct soil sampling of the waste tire area to confirm the absence or presence of contaminants.

B. If contaminants are found that exceed established clean-up target levels, then remedial actions may be taken that can include remove of soil.

ATTACHMENT K-3

FIGURES

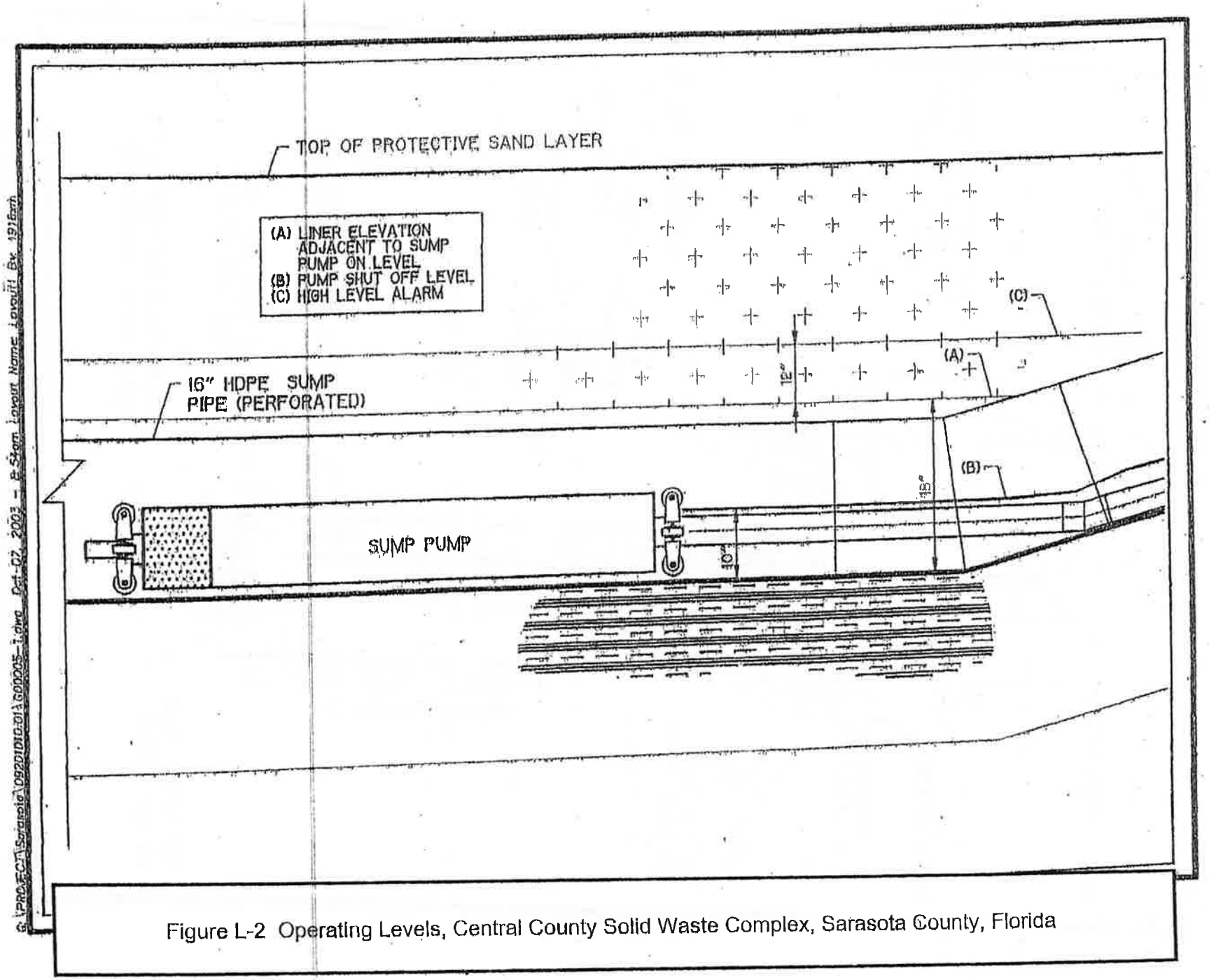


Figure L-2 Operating Levels, Central County Solid Waste Complex, Sarasota County, Florida

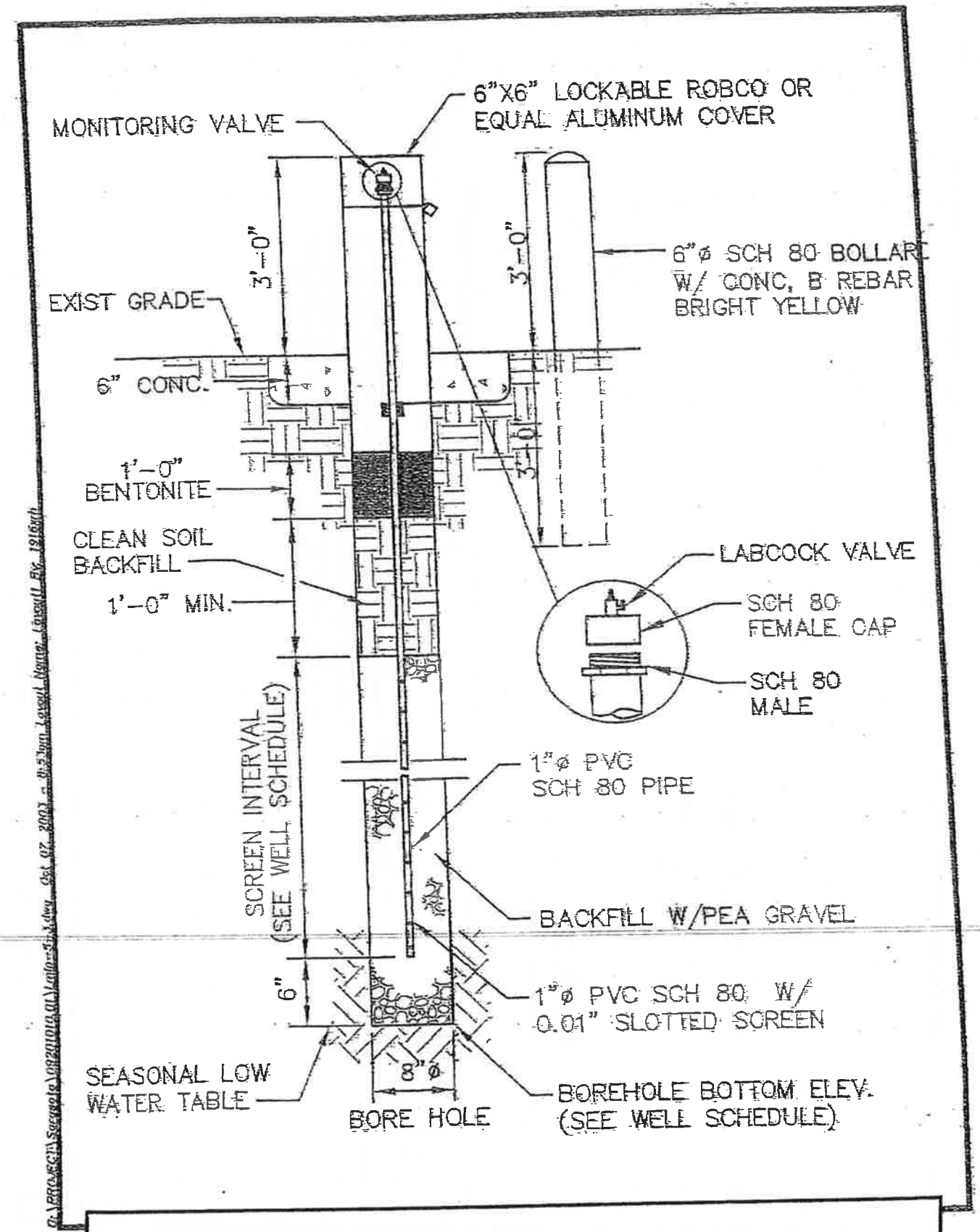


Figure L-3 LFG Monitor Probe, CCSWDC, Sarasota County, Florida

ATTACHMENT K-4

~~CONTAMINATED SOIL ACCEPTANCE CRITERIA~~

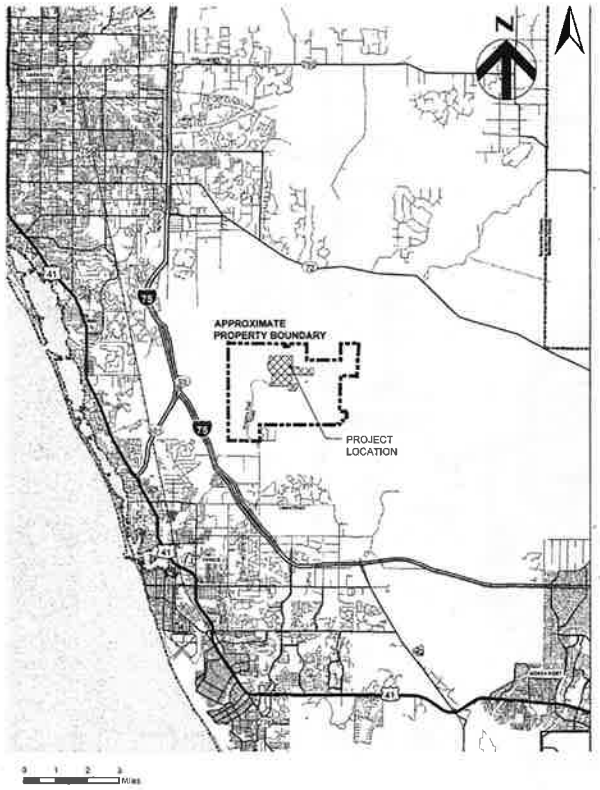
LANDFILL STAGING PLANS

Please note that Full-Size Signed/Sealed Landfill Staging Plans are provided separately in the front cover of the Permit Application Binder for review.

Sarasota County

HDR

HDR Engineering, Inc.
2621 Cattlemen Road, Suite 106
Sarasota, FL 34232-6212
(941) 343.2700
CA00004213



Central County Solid Waste Disposal Complex

Phase II Class I Landfill Staging Plans

ADDRESS: 4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT NO. 096-185625-002

SARASOTA COUNTY, FLORIDA

SEPTEMBER 2013

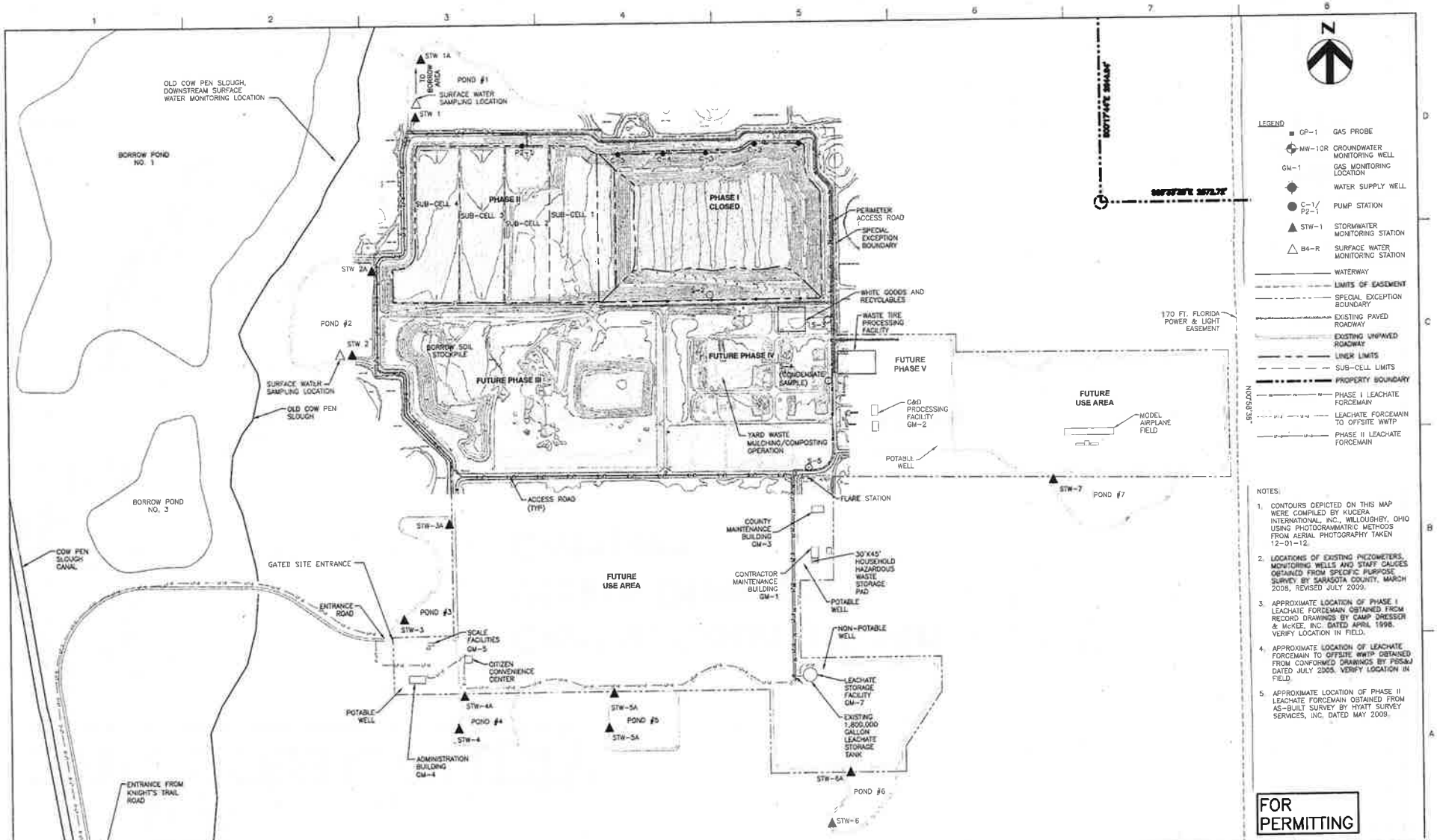
INDEX OF DRAWINGS

G-01	COVER SHEET
C-00	SITE PLAN
C-01	LANDFILL STAGING PLAN
C-02	LANDFILL STAGING PLAN
C-03	LANDFILL STAGING PLAN
C-04	LANDFILL STAGING SECTIONS
C-05	LANDFILL STAGING SECTIONS
C-06	DETAILS

THOMAS M. VANOSDOL
No. 44200
STATE OF FLORIDA
PROFESSIONAL ENGINEER

FOR PERMITTING

SHEET G-01



HDR

ISSUE	DATE	DESCRIPTION
A	08/2013	ISSUED FOR REVIEW

PROJECT MANAGER T.M. YANOZSCHAK
REVIEWED BY K. SIEMERING
DRAWN BY B. JOHNSON
PROJECT NUMBER 056-185625-002

Thomas M. Yanoschak, P.E.
Certificate No. 44200

Sarasota County
Central County Solid Waste Disposal Complex
PHASE II CLASS I LANDFILL
STAGING PLANS
SARASOTA COUNTY FLORIDA

SITE PLAN

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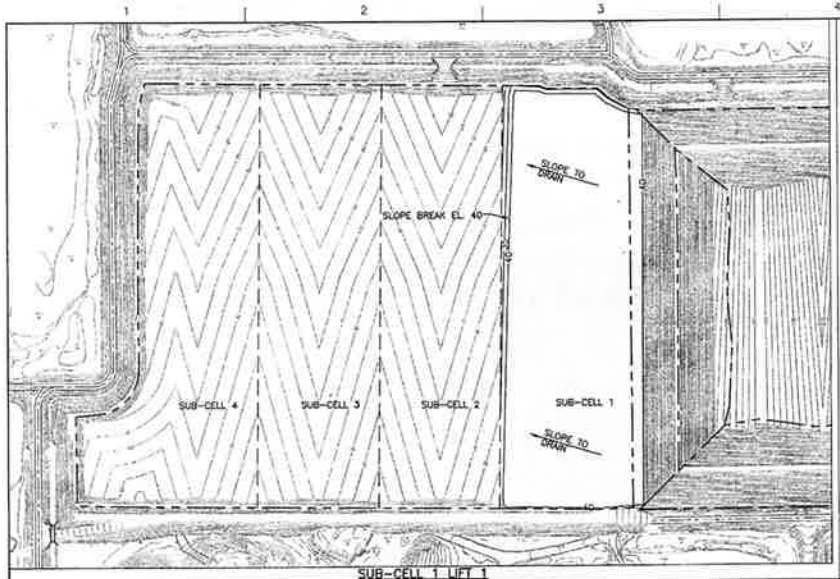
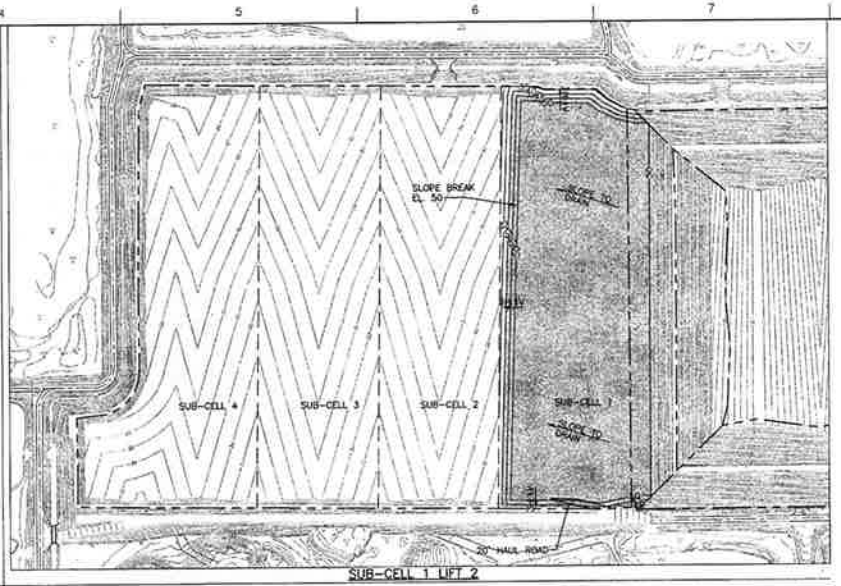
SCALE 1"=400'
SHEET **C-00**



SUB-CELL 1 LIFT 1



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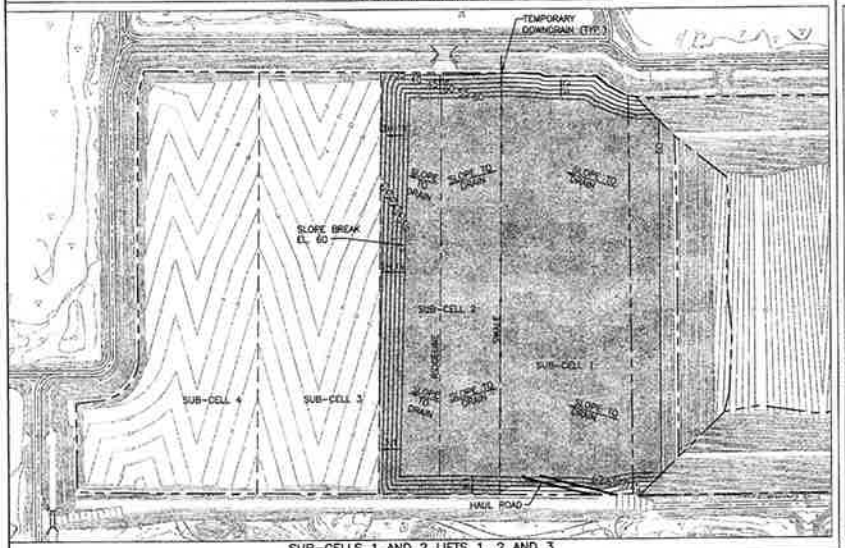
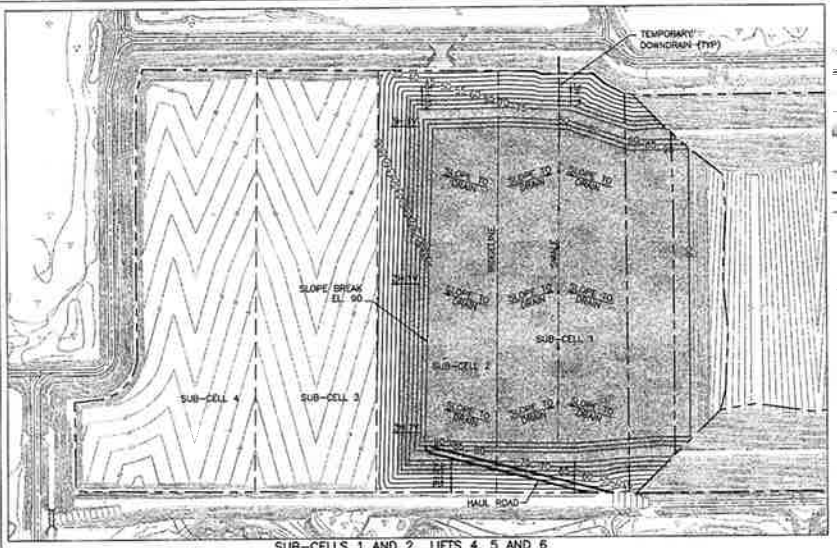


SUB-CELLS 1 AND 2 LIFTS 1, 2 AND 3



SUB-CELLS 1 AND 2 LIFTS 4, 5 AND 6

NOTES:

1. CONTOURS WITHIN UNFILLED SUB-CELLS REPRESENT TOP OF PROTECTIVE COVER.
2. TYPICAL LIFT THICKNESS IS 10 FEET.
3. ALL STORMWATER THAT COMES IN CONTACT WITH WASTE WILL BE HANDLED AS LEACHATE AND WILL BE DIRECTED TO THE LEACHATE COLLECTION SYSTEM.
4. STORMWATER RUNOFF FROM PORTIONS OF LANDFILL WITH DAILY AND INTERMEDIATE COVER WILL BE DIRECTED TO PERIMETER DRAINAGE CHANNEL.
5. LIFT PROGRESSION WILL ALTERNATE BETWEEN SOUTH TO NORTH AND THEN NORTH TO SOUTH ACROSS THE ENTIRE WIDTH OF THE LANDFILL SUB-CELL.
6. EXTERIOR FILL SEQUENCE CONTOURS REPRESENT FINAL COVER GRADES.
7. LOCATION OF TEMPORARY DOWNDRAINS ARE APPROXIMATE.

LEGEND

- EXISTING ELEVATION CONTOUR
- PROPOSED ELEVATION CONTOUR
- CHAIN LINK FENCE
- CENTER LINE OF ROAD
- SUB-CELL WASTE FILLING
- VEGETATION
- TEMPORARY DRAINAGE SWALE
- TEMPORARY RIDGE LINE
- TEMPORARY DOWNDRAIN

INCREMENTAL VOLUME

SUB-CELL 1 LIFT 1 –	163,336.88 CY
SUB-CELL 1 LIFT 2 –	219,944.44 CY
SUB-CELLS 1 & 2 LIFTS 1, 2 AND 3 –	755,127.84 CY
SUB-CELLS 1 AND 2 LIFTS 4, 5 AND 6 –	1,091,520.89 CY

TOTAL VOLUME

2,229,930.05 CY

FOR PERMITTING

HDR

HDR Engineering, Inc.
3420 Bay Center Drive, Suite 400
Tampa, FL 33609-3444
(813) 282-3300
Florida Certificate of Authorization No. 00004370

ISSUE	DATE	DESCRIPTION
A	09/2013	ISSUED FOR REVIEW

PROJECT MANAGER	T.M. YANOSCHAK
REVIEWED BY	R. SIEMERING
DRAWN BY	B. JOHNSON
PROJECT NUMBER	096-185625-002

THOMAS M. YANOSCHAK LICENSE No. 44200 STATE OF FLORIDA PROFESSIONAL ENGINEER

Thomas M. Yanoschak, P.E.
Certificate No. 44200

Sarasota County

Central County Solid Waste Disposal Complex

PHASE II CLASS I LANDFILL STAGING PLANS

SARASOTA COUNTY FLORIDA

LANDFILL STAGING PLAN

0 1" 2"

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SHEET C-01

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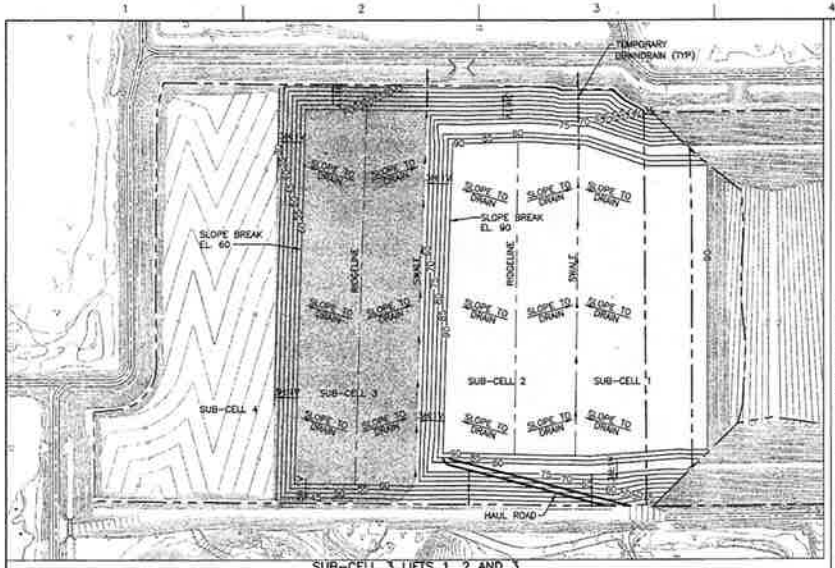
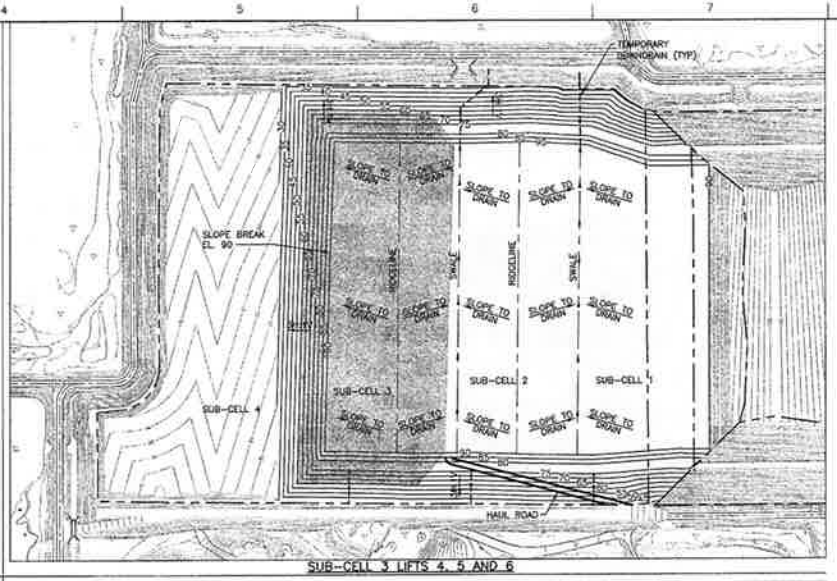
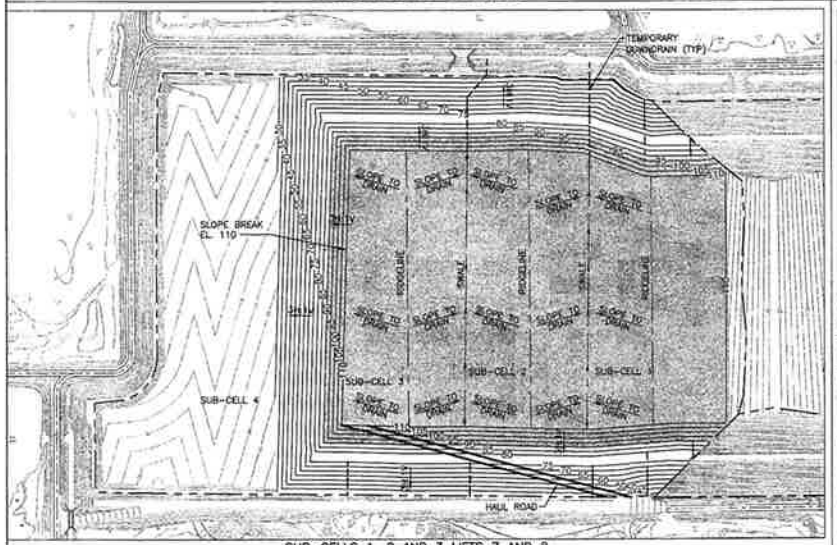


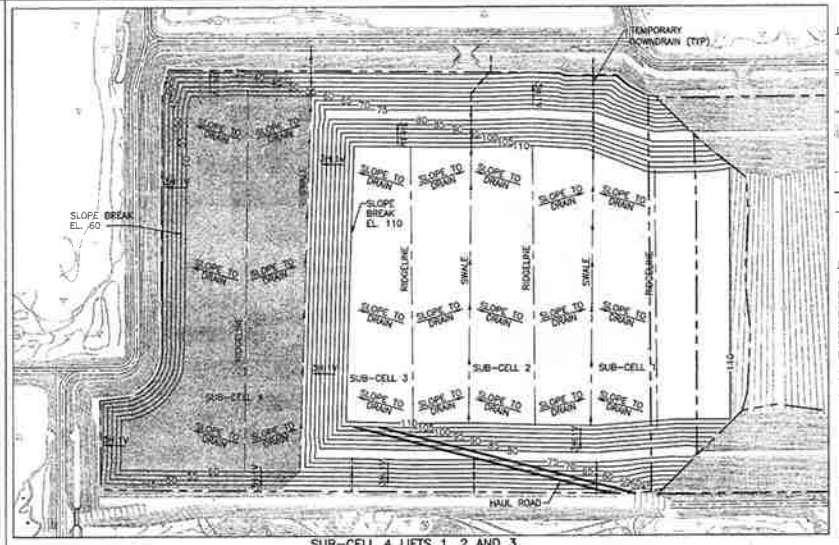
SUB-CELL 3 LIFTS 1, 2 AND 3



SUB-CELL 3 LIFTS 4, 5 AND 6



SUB-CELLS 1, 2 AND 3 LIFTS 7 AND 8



SUB-CELL 4 LIFTS 1, 2 AND 3

N

NOTES:

1. CONTOURS WITHIN UNFILLED SUB-CELLS REPRESENT TOP OF PROTECTIVE COVER.
2. TYPICAL LIFT THICKNESS IS 10 FEET.
3. ALL STORMWATER THAT COMES IN CONTACT WITH WASTE WILL BE HANDLED AS LEACHATE AND WILL BE DIRECTED TO THE LEACHATE COLLECTION SYSTEM.
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6. EXTERIOR FILL SEQUENCE CONTOURS REPRESENT FINAL COVER GRADES.
7. LOCATION OF TEMPORARY DOWNDRAINS ARE APPROXIMATE.

LEGEND

- EXISTING ELEVATION CONTOUR
- PROPOSED ELEVATION CONTOUR
- CHAIN LINK FENCE
- CENTER LINE OF ROAD
- SUB-CELL WASTE FILLING
- VEGETATION
- TEMPORARY DRAINAGE SWALE
- TEMPORARY RIDGE LINE
- TEMPORARY DOWNDRAIN

INCREMENTAL VOLUME

SUB-CELL 3 LIFTS 1, 2 AND 3 –	545,409.32 CY
SUB-CELL 3 LIFTS 4, 5 AND 6 –	514,631.63 CY
SUB-CELLS 1, 2 AND 3 LIFTS 7 AND 8 –	915,525.42 CY
SUB-CELL 4 LIFTS 1, 2 AND 3 –	619,716.62 CY

TOTAL VOLUME

4,825,213.04 CY

FOR PERMITTING

HDR

HDR Engineering, Inc.
3638 Bay Center Drive , Suite 400
Tampa, FL 33609-3444
(813) 282-2300
Florida Certificate of Authorization
No. 00004370

ISSUE	DATE	DESCRIPTION
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PROJECT MANAGER	T.M. YANOSCHAK
REVIEWED BY	R. SIEMERING
DRAWN BY	B. JOHNSON
PROJECT NUMBER	096-185833-002

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Sarasota County

Central County Solid Waste Disposal Complex

PHASE II CLASS I LANDFILL STAGING PLANS

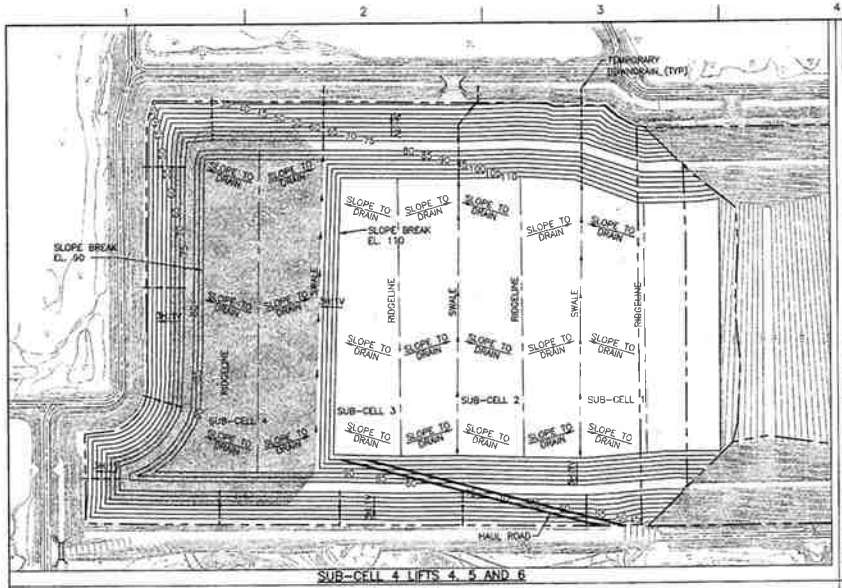
SARASOTA COUNTY FLORIDA

LANDFILL STAGING PLAN

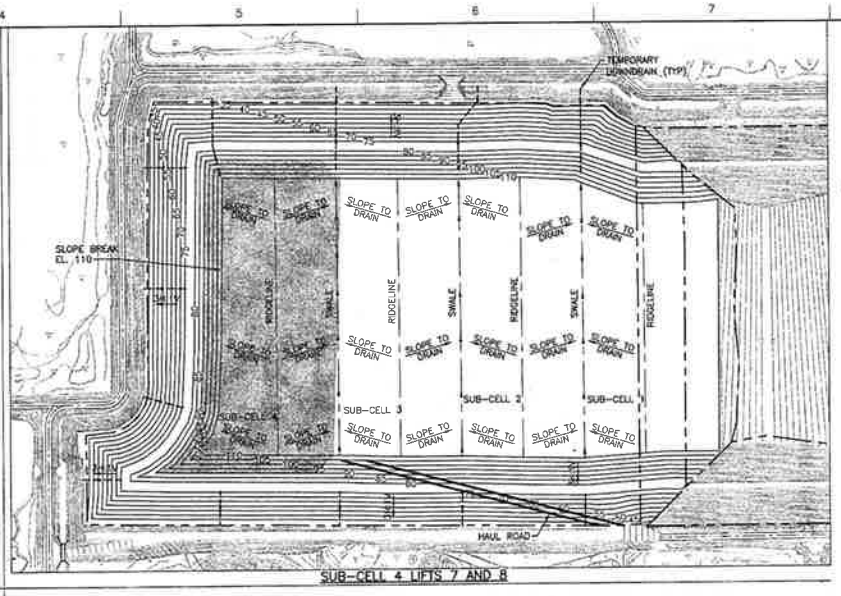
0 1" 2"

FILENAME	000-02.dwg
SCALE	1"=200'

SHEET C-02



SUB-CELL 4 LIFTS 4, 5 AND 6



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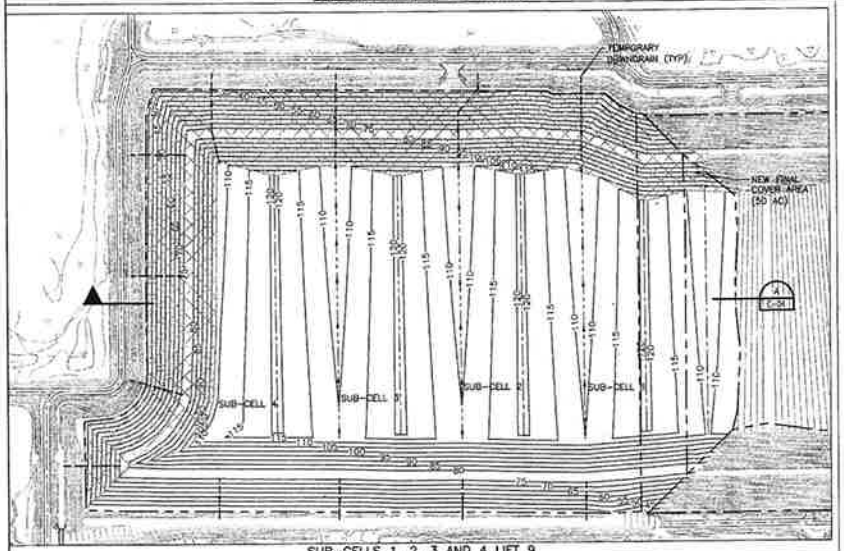

SUB-CELLS 1, 2, 3 AND 4 LIFT 9

NOTES:

1. CONTOURS WITHIN UNFILLED SUB-CELLS REPRESENT TOP OF PROTECTIVE COVER.
2. TYPICAL LIFT THICKNESS IS 10 FEET.
3. ALL STORMWATER THAT COMES IN CONTACT WITH WASTE WILL BE HANDLED AS LEACHATE AND WILL BE DIRECTED TO THE LEACHATE COLLECTION SYSTEM.
4. STORMWATER RUNOFF FROM PORTIONS OF LANDFILL WITH DAILY AND INTERMEDIATE COVER WILL BE DIRECTED TO PERIMETER DRAINAGE CHANNEL.
5. STAGING ASSUMES FINAL COVER WILL NOT BE PLACED ON SOUTH SLOPE OF PHASE II PENDING CONSTRUCTION OF PHASE III.
6. DUE TO THE LIMITED HEIGHT AND LARGE TOP DECK FOR PHASE II, SUFFICIENT ACREAGE TO MAKE IT PRACTICAL TO PARTIALLY CLOSE PHASE II WILL NOT OCCUR UNTIL APPROXIMATELY OCTOBER 2020.
7. LIFT PROGRESSION WILL ALTERNATE BETWEEN SOUTH TO NORTH AND THEN NORTH TO SOUTH ACROSS THE ENTIRE WIDTH OF THE LANDFILL SUB-CELL.
8. EXTERIOR FILL SEQUENCE CONTOURS REPRESENT FINAL COVER GRADES.
9. LOCATION OF TEMPORARY DOWNDRAINS ARE APPROXIMATE.

LEGEND

- EXISTING ELEVATION CONTOUR
- PROPOSED ELEVATION CONTOUR
- CHAIN LINK FENCE
- CENTER LINE OF ROAD
- SUB-CELL WASTE FILLING
- VEGETATION
- TEMPORARY DRAINAGE SWALE
- TEMPORARY RIDGE LINE
- TEMPORARY DOWNDRAIN
- AREA RECEIVING FINAL COVER

INCREMENTAL VOLUME

SUB-CELL 4 LIFTS 4, 5 AND 6 –	536,143.23 CY
SUB-CELL 4 LIFTS 7 AND 8 –	286,628.20 CY
SUB-CELLS 1, 2, 3 AND 4 LIFT 9 –	252,219.87 CY

TOTAL VOLUME

5,900,204.34 CY

FOR PERMITTING

HDR
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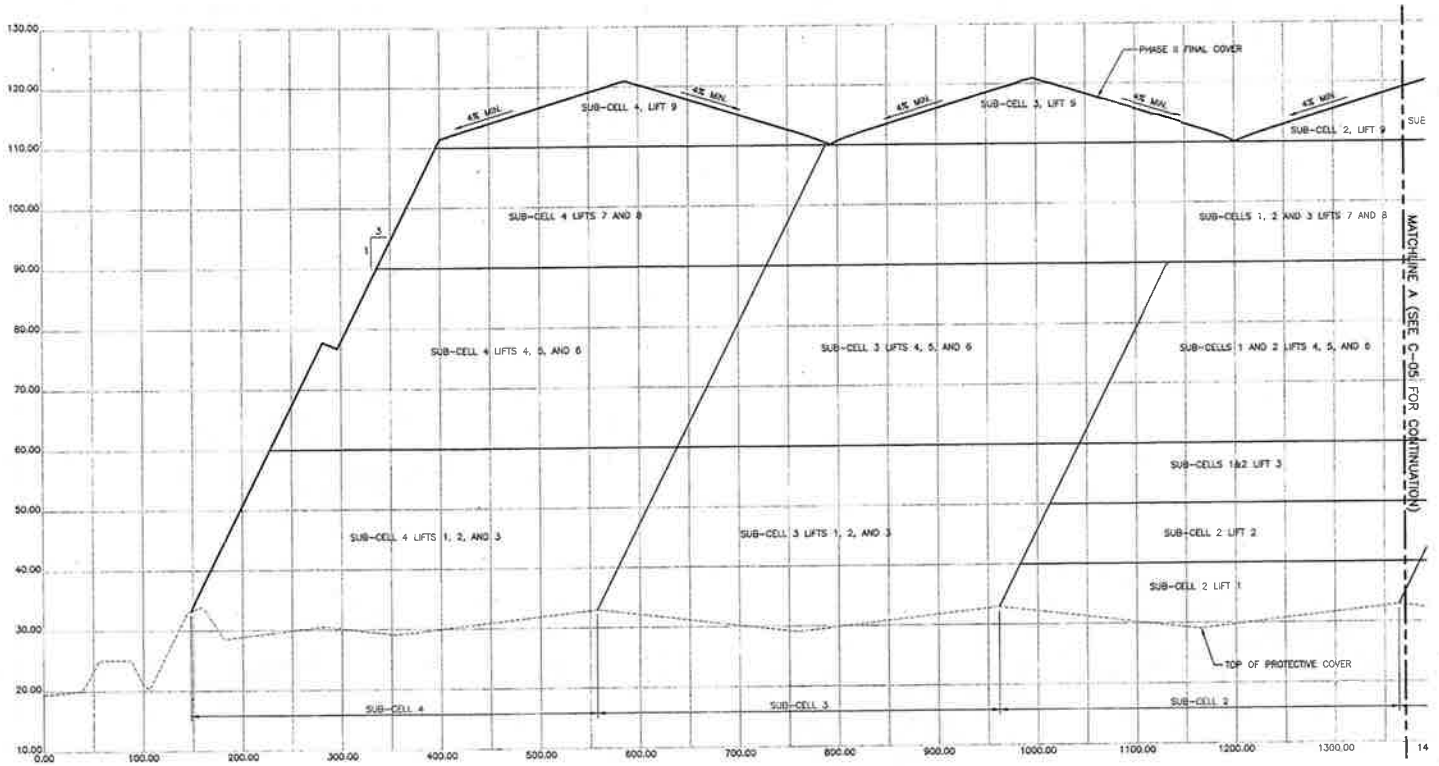
Sarasota County
Central County Solid Waste Disposal Complex
PHASE II CLASS I LANDFILL STAGING PLANS
SARASOTA COUNTY FLORIDA

LANDFILL STAGING PLAN

0 1" 2"

FILENAME ODC-03.dwg
SCALE 1"=200'

SHEET C-03



SECTION
HORIZ. - 1"=60' VERT. - 1"=10'

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Sarasota County
Central County Solid Waste Disposal Complex
PHASE II CLASS I LANDFILL STAGING PLANS
SARASOTA COUNTY FLORIDA

LANDFILL STAGING SECTIONS

0 1" 2"

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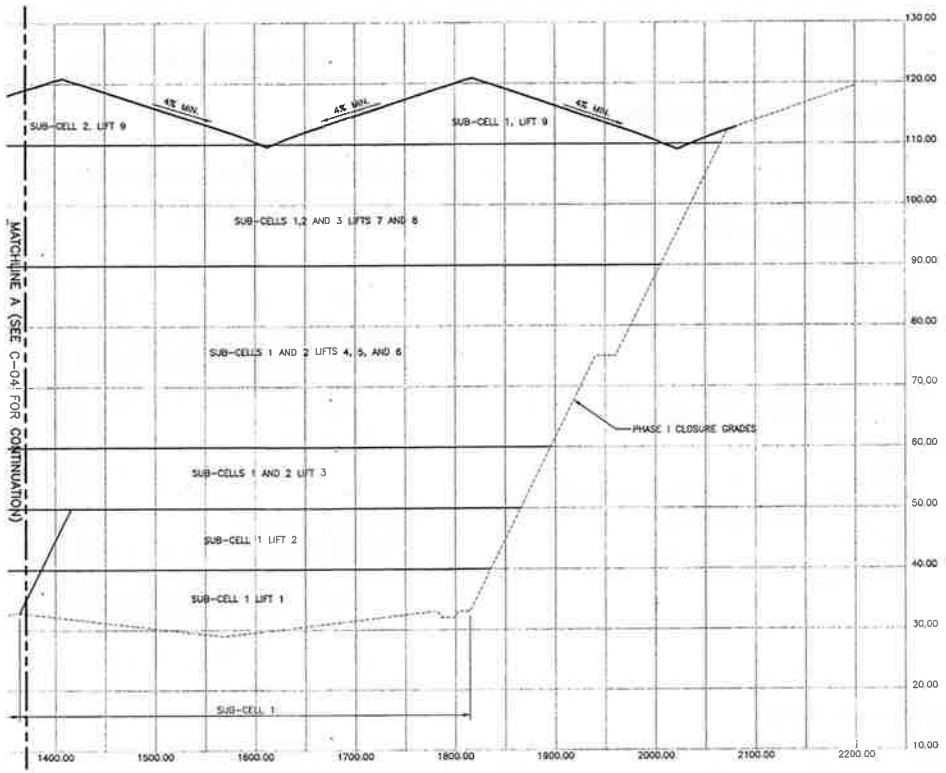

SECTION (CONT.)
HORIZ - 1"=60' VERT. - 1"=10'

A C-03

PROPOSED PHASE II FILL SEQUENCE

1. SUB-CELL 1 – LIFT 1
2. SUB-CELL 1 – LIFT 2
3. SUB-CELL 2 – LIFT 1
4. SUB-CELL 2 – LIFT 2
5. SUB-CELL 1 AND 2 – LIFT 3
6. SUB-CELLS 1 AND 2 – LIFT 4
7. SUB-CELLS 1 AND 2 – LIFT 5
8. SUB-CELLS 1 AND 2 – LIFT 6
9. SUB-CELL 3 – LIFT 1
10. SUB-CELL 3 – LIFT 2
11. SUB-CELL 3 – LIFT 3
12. SUB-CELL 3 – LIFT 4
13. SUB-CELL 3 – LIFT 5
14. SUB-CELL 3 – LIFT 6
15. SUB-CELLS 1, 2, AND 3 – LIFT 7
16. SUB-CELLS 1, 2, AND 3 – LIFT 8
17. SUB-CELL 4 – LIFT 1
18. SUB-CELL 4 – LIFT 2
19. SUB-CELL 4 – LIFT 3
20. SUB-CELL 4 – LIFT 4
21. SUB-CELL 4 – LIFT 5
22. SUB-CELL 4 – LIFT 6
23. SUB-CELL 4 – LIFT 7
24. SUB-CELL 4 – LIFT 8
25. SUB-CELLS 1, 2, 3, AND 4 – LIFT 9

FOR PERMITTING

HDR

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REVIEWED BY	R. SIEMERING
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Sarasota County
Central County Solid Waste Disposal Complex
PHASE II CLASS I LANDFILL
STAGING PLANS
SARASOTA COUNTY FLORIDA

LANDFILL STAGING SECTIONS

0 1" 2"

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SCALE AS SHOWN

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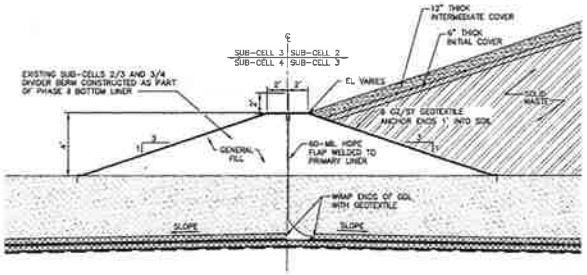

SUB-CELL DIVIDER BERM - NO LEACHATE CONTAINMENT AREA

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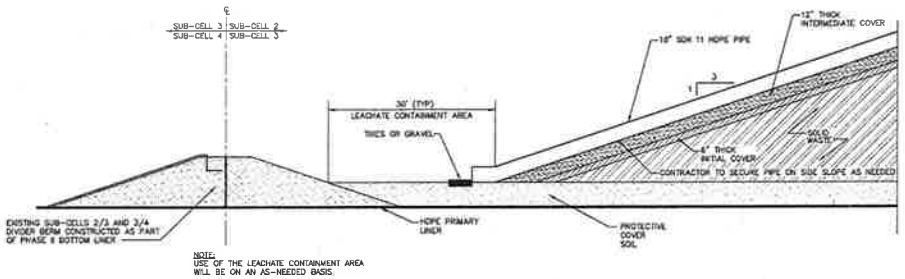

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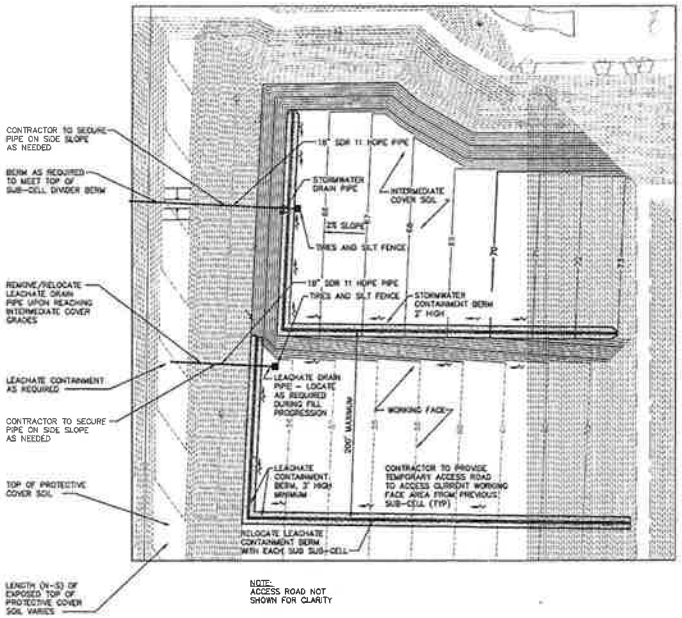

TYPICAL WORKING FACE

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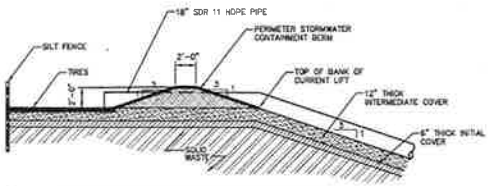

PERIMETER STORMWATER CONTAINMENT BERM

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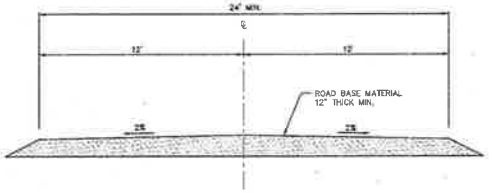

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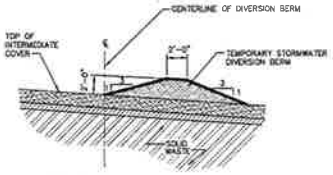

TEMPORARY STORMWATER DIVERSION BERM

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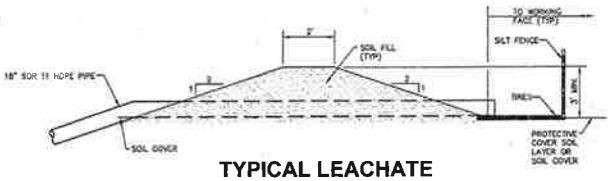

TYPICAL LEACHATE CONTAINMENT BERM

NOT TO SCALE

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REVIEWED BY	R. SIEMERING
DRAWN BY	B. JOHNSON
PROJECT NUMBER	096-185625-002

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Certificate No. 44200

Sarasota County
Central County Solid Waste Disposal Complex
PHASE II CLASS I LANDFILL
STAGING PLANS
SARASOTA COUNTY FLORIDA

DETAILS

0 1" 2"

FILENAME C0C-06.dwg
SCALE AS SHOWN

SHEET C-06

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ATTACHMENT K-45

~~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 and not stockpiled at the site unless authorized in writing by the FDEP.~~

PHASE I CLOSURE AND LONG-TERM CARE PLAN

Sarasota County
Solid Waste Operations

Central County Solid Waste Disposal Complex Phase I Closure and Long Term Care Plan

September 2013

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1.0 INTRODUCTION

1.1 Purpose

The purpose of ~~this~~a Closure and Long-Term Care Plan (Plan) is to provide general guidelines and procedures for the closure requirements, closure construction, inspection, maintenance, repairs, monitoring, and record keeping~~-~~. In 2010, Sarasota County received a Closure Construction Permit for Phase ~~I~~I of the Class I Landfill located at the Central County Solid Waste Disposal Complex (CCSWDC) ~~located~~from FDEP and completed construction in ~~Nokomis, Florida. This Plan is being submitted in support~~January 2013. The FDEP issued an approval of the ~~Phase I Closure Construction Permit Application.~~closure construction certification in June 2013.

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

The Plan contains a general discussion of the following: (1) closure requirements specified in 62-701.600, F.A.C., and (2) long-term care requirements specified in 62-701.620(2), F.A.C., which include a description of the procedures for erosion control, filling areas of subsidence or other depressions, maintenance of stormwater management system, leachate collection and management, groundwater monitoring and monitor well maintenance, maintenance of vegetative cover, and general maintenance of the facility, and provisions and anticipated source of cover material and vegetation for long term care, consistent with the information provided in support of the financial assurance long-term care estimates required by Rule 62-701.630, F.A.C.

An overall Ssite Pplan of the CCSWDC is provided ~~on Sheet C-01 of the Closure Design Drawings located in Appendix A of the Phase I Closure Construction Permit Application.~~in Appendix A. The site plan shows the locations of the various components of the CCSWDC including existing Phase I and future phases of the Class I landfill.

2.0 CLOSURE REQUIREMENTS

In accordance with the requirements of 62-701.600, F.A.C., the following describes the procedures that ~~will be followed and the information that is required for the closure of Phase I of the Class I Landfill at the CCSWDC.~~ were followed for Phase I and will be followed for future closures.

2.1 Schedule Requirements

This Closure and Long Term Care Plan is ~~being prepared~~ for the final closure of Phase I of the CCSWDC Class I landfill. ~~A permit application has been approved for the Phase II expansion of the Class I landfill which will be contiguous to the west slope of Phase I. It is anticipated that Phase II will be in operation at the time of Phase I closure.~~

2.2 Permit General Requirements

~~This Plan is part of a~~A closure construction permit application ~~for Phase I of the CCSWDC Class I landfill which is being~~shall be submitted to the FDEP at least 90 days before final receipt of waste ~~within Phase I~~ in accordance with FAC 62-701.600(3). Phase I was closed before final acceptance of waste at the CCSWDC, therefore the Phase I Closure is a close-as-you-go area, with current waste filling occurring in Phase II, adjacent, to the west of Phase I.

This Plan includes the following items:

- Closure report.
- Closure design plan.
- Closure operation plan.
- Closure procedures.
- Plan for long-term care.
- Demonstration of financial responsibility.

2.3 Closure Report Requirements

This Closure Report addresses closure of Phase I of the CCSWDC Class I landfill in accordance with 62-701.600(4), F.A.C.

2.3.1 General Information

~~The CCSWDC facility currently operates under FDEP permit number 130542-007-SO/01 dated November 18, 2008 which expires on November 18, 2013.~~

The CCSWDC site encompasses approximately 6,150 acres located two miles east of I-75 and three miles south of S.R. 72 in central Sarasota County. The Class I landfill is located within a 550 acre special exception area which is located at the approximate center of the site. Ultimately, the Class I landfill will consist of five phases encompassing approximately 295 acres. ~~A vicinity map showing the location of the CCSWDC site is provided on the cover sheet of the Closure Design Drawings contained in Appendix A of this permit application.~~

Permitting for Phase I of the CCSWDC Class I landfill began in the mid ~~1980's~~1990's and the facility began receiving waste in June 1998. Phase I consists of approximately 55 acres of

disposal area located within five cells. ~~Phase I is expected to reach its useable permitted capacity in approximately January 2011 assuming current disposal rates and in-place waste densities are maintained.~~

To ensure uninterrupted operation of the Class I landfill, a permit application for Phase II was initially submitted in February 2007. Phase II construction was completed on October 2009 and it was~~is~~ ~~anticipated to be~~ operational before the usable capacity of Phase I was~~is~~ exhausted. Phase II consists of approximately 54 acres of disposal area located directly west of Phase I.

A legal description of the property on which the Class I landfill is located was provided with the Phase II permit application. The legal description has not changed therefore this information is not being resubmitted.

Only wastes allowed by the operation permit are disposed within the CCSWDC Class I landfill. These include residential and commercial waste, C&D debris, shredded or cut tires, treated biomedical waste, yard trash, water treatment sludge, industrial waste, industrial sludge, agricultural waste, and domestic sludge.

2.3.2 Geotechnical Investigation Report

A geotechnical investigation report for Phase I was conducted as part of the original permit application for the CCSWDC site. Additional geotechnical analyses were performed when a permit modification was submitted to increase the waste side slopes to 3H:1V with a single 20-foot wide bench located approximately half way up the slope, which is the currently permitted configuration of the Phase I slopes. These analyses demonstrated that the foundation conditions beneath Phase I and the Phase I bottom liner were sufficient to support the waste mass at full build out. No additional geotechnical investigations were conducted for the Phase I closure construction permit application, however, final cover stability analyses were performed for the specific final cover design proposed for Phase I ~~and are included in Attachment O.1 of the Engineering Report.~~.

2.3.3 Water Quality Monitoring Plan

An addendum to the CCSWDC Water Quality Monitoring Plan (WQMP) was submitted with the Phase II Expansion Construction/Operation Permit Application that expanded the previously permitted monitoring system to include the Phase II expansion area. No changes to the amended water quality and leachate monitoring requirements ~~are anticipated~~were included for the Phase I closure aside from top of casing extension for two monitoring wells to the south of Phase I. These monitoring wells were extended to accommodate the construction of the south drainage ditch. The south drainage ditch increased capacity of the ditch to handle additional flow from the south slope of Phase I which was covered with TPO.

2.3.4 Land Use

~~Information on land use for the CCSWDC property and surrounding properties was provided with the Phase II Expansion Construction/Operation Permit Application. This information included identification of adjacent landowners; zoning; present land uses; and roads, highway~~

~~right-of-way, or easements. This information has not changed and therefore is not being resubmitted with the closure permit application.~~

The property surrounding the CCSWDC is zoned as government use, open use, and rural.

2.3.5 Landfill Gas Migration

The Phase I bottom liner system consists of a composite liner with a 60 mil High-Density Polyethylene (HDPE) geomembrane liner overlying 12 inches of compacted soil with a maximum hydraulic conductivity of $1x10^{-8}$ cm/sec. The bottom liner system serves as an effective barrier to prevent the migration of landfill gas into the surrounding soils as demonstrated by the absence of methane gas being observed within the gas probes surrounding Phase I during quarterly monitoring.

~~Currently, landfill gas is allowed to vent passively from Phase I to the atmosphere. Landfill gas accumulating in the leachate collection system is flared from one of eight solar powered candlestick flares located along the north and south sides of the Phase I landfill. Quarterly monitoring has indicated that combustible gases have not exceeded 25 percent of the Lower Explosive Limit (LEL) in on-site structures and 100 percent of the LEL at the property boundary.~~

~~An active landfill gas collection system is currently being constructed for Phase I. Please refer to the design and operations documents prepared for the Gas Collection and Control System for Phase I as part of the permit application (Reference 3 listed in Part A of the closure application). The active system will be installed and functioning prior to the closure of Phase I, which will further diminish the potential for landfill gas migration from the landfill.~~

Phase I has an active gas collection system. The Phase I Closure Record Drawings, including the active gas collection system, are provided in Appendix B.

Landfill gas probes will be monitored following Phase I closure to ensure that landfill gas migration is not occurring.

2.3.6 Effectiveness of Landfill Design

Phase I of the CCSWDC Class I landfill has effectively met Sarasota County's waste disposal needs since it began receiving waste in June 1998.

Geotechnical investigations conducted in the landfill area during Phase I and Phase II permitting did not indicate any subsurface conditions such as solution features or poor soils that could make the site unsuitable for use as a landfill. During Phase II permitting, however, FDEP became concerned that routine videotaping of the leachate collection pipes within Phase I indicated the camera would repeatedly become submerged as it traversed the length of the pipe. The apparent cause of this submergence is differential settlement of the foundation soils that caused "dips" to develop along the pipe which do not freely drain the leachate. The design slope of the Phase I leachate collection pipes of 0.2 percent was apparently inadequate to compensate for the differential settlement that occurred within the foundation soils. As a result, FDEP has indicated that a vertical expansion over the top of Phase I will not be allowed. FDEP ~~is also~~ requir~~ed~~ing a

side slope liner system consisting of a 60 mil HDPE geomembrane to be constructed on the west slope of Phase I where Phase II ~~will~~ abuts the existing landfill. ~~The minimum slope for the Phase II leachate collection pipes has been increased to 0.55 percent to avoid similar adverse effects from developing within Phase II.~~

~~Elevated arsenic concentrations in excess of FDEP's groundwater standards have been observed from samples obtained from detection wells MW-8A, MW-9, MW-10R, and MW-11R which are located along the south and west perimeter of Phase I. The County negotiated a consent agreement with FDEP that allowed the permitting of Phase II to continue while a site assessment takes place to evaluate the source of these elevated arsenic levels. Data obtained to date indicates that the elevated arsenic concentrations may not be due to a breach of the Phase I bottom liner system.~~

Stormwater runoff from Phase I that does not come into contact with waste is directed to a perimeter stormwater ditch where it flows to Stormwater Pond No. 1, located northwest of Phase I. Stormwater that comes in contact with waste is considered leachate and is contained for treatment. The clean runoff is detained in the pond to reduce turbidity and to reduce peak flows prior to discharge into Old Cow Pen Slough. The components of the CCSWDC stormwater control system were installed during Phase I construction. During Phase II permitting, jurisdiction over the CCSWDC stormwater control system was transferred from the Southwest Florida Water Management District to FDEP. The FDEP issued Environmental Resource Permit No. 58-0272622-001 on May 2, 2008 for the system. The stormwater control system at the site appears to be functioning as intended based on inspections by HDR and FDEP staff and results of surface water sampling which meet regulatory criteria.

The landfill gas controls employed within Phase I are effective in preventing gas migration as discussed in Section 2.3.5 of this Plan.

Initial cover consisting of a minimum of 6 inches of compacted soil or an approved alternate cover is placed daily over the active face of the landfill in accordance with the approved Operations Plan. A minimum of 1 foot of approved intermediate cover is placed in addition to the initial cover in areas that will not receive another lift of waste or final cover within 180 days. Intermediate covered areas that will not be landfilled or covered with final cover within 6 months are sodded (external slopes) or seeded and mulched (internal and top slopes) to avoid slope erosion. These cover methods have been effective in controlling erosion within Phase I and controlling leachate generation.

Only permitted wastes are disposed within Phase I of the Class I landfill. There is no evidence that the previously mentioned elevated levels of arsenic within the groundwater at the site are a result of the acceptance of any particular type of waste.

2.4 Closure Design Plan

The Closure ~~Design Plan for Phase I consists of the Closure Design~~Record Drawings are provided in ~~Appendix A~~Appendix B and the discussions provided within the following subsections.

2.4.1 Closure Phasing

~~Revised operational fill sequence plans were submitted to FDEP in January 2008 and subsequently approved. The purpose of the revised fill sequence plans was to recover airspace within the side slopes of Phase I which were constructed at slopes less than the maximum permitted slope of 3H:1V. The recovery of the airspace on the side slopes and the need to keep Phase I operational until Phase II was constructed made it impractical to close Phase I in stages. It is therefore anticipated that final closure of all of Phase I will occur after Phase II is operational, which is estimated to begin in January 2011.~~

The west and south sides of Phase I will eventually have additional waste placed against them when Phases II and IV are constructed and filled, respectively. Placement of final cover ~~will~~was therefore ~~be~~ limited to the top slope, and to the north and east sides of Phase I where no future lateral expansions are planned.

A temporary final cover consisting of a 60 mil TPO geomembrane ~~will be~~was installed on the south slope of Phase I. The temporary final cover ~~would~~will remain in place until Phase IV is operational. A side slope liner system consisting of a 60 mil HDPE geomembrane was constructed on the west slope of Phase I as part of Phase II construction. The FDEP required the side slope liner system for the west side of Phase I due to concerns about the functioning of the leachate collection system within Phase I.

~~The extent of the proposed closure of Phase I is shown on the Phase I Closure Cover Key Sheet, provided on Sheet C-06 of the Closure Design Drawings.~~

~~2.4.2 Drawings Showing Existing Topography and Final Grades~~

~~The most recent topographic information for the Phase I area was obtained on June 1, 2009. This information is shown on the Existing Site Conditions plan provided on Sheet C-04 of the Closure Design Drawings.~~

~~The proposed final closure grades are shown on Phase I Final Build-Out drawing provided on Sheet C-05 of the Closure Design Drawings.~~

~~2.4.3 Approved Design Dimensions~~

~~The proposed final closure dimensions shown on Sheet C-05 of the Closure Design Drawings are consistent with the FDEP approved design dimensions for Phase I. Closure construction will begin after Phase I is filled to approximate permitted capacity.~~

~~2.4.4 Final Elevations~~

~~Final elevations before settlement of the final cover for Phase I are shown on Sheet C-05. The maximum elevation of the final cover is 121 feet NGVD which is consistent with the maximum permitted elevation. Geotechnical studies conducted as part of the original Phase I permit application and a subsequent permit modification to increase the side slopes to 3H:1V demonstrated that the foundation soils were capable of supporting the weight of the landfill constructed to the proposed final elevations.~~

2.4.5 Side Slope Design

The proposed side slope design for the Phase I closure is provided on the Phase I Final Build-Out plan provided on Sheet C-05 of the Closure Design Drawings and detail sheets C-09 through C-12. The maximum side slope is 3H:1V which is consistent with FAC 62-701.600(5)(e). A 20-foot wide reverse sloping drainage terrace is provided approximately mid way up the side slope as a means of collecting stormwater from the slopes and directing it to a series of 24-inch diameter downdrains that discharge within the perimeter drainage channels. A berm will also be constructed along portions of the perimeter of the top slope of the landfill to direct runoff to the downdrains. Energy dissipation is provided by filter point fabric formed concrete and the backsplash in the swale at the discharge point of the downdrains to avoid scour within the perimeter drainage channels. Calculations demonstrating that the drainage terrace and downdrains are adequately sized for the 25-year storm are included in Attachment O.2 and Attachment O.3 of the Engineering Report.

Placement of final cover is limited to the top, and to the north and east sides of Phase I where no future lateral expansions are planned. These areas will be covered with sod immediately after construction of the final cover and will significantly reduce the amount of erosion that will occur on the side slopes as demonstrated by the soil loss calculations provided in Attachment O.2 of the Engineering Report. A temporary final cover will be placed on the south slope of Phase I providing stormwater and erosion control. Calculations are provided in Attachment O.3 of the Engineering Report. The temporary final cover is detailed in the Closure Design Drawings.

Access for maintenance of the Phase I final cover will be provided by a permanent access road that will be located on the south slope as shown on Sheet C-07 of the Closure Design Drawings. The drainage terrace will provide a means for vehicles to access the side slope for repairs and maintenance.

2.4.6 Final Cover Design

As previously indicated, placement of final cover will be limited to the top, and to the north and east sides of Phase I where no future lateral expansions are planned. The proposed Phase I final cover profiles are provided on Sheet C-12 of the Closure Design Drawings. The final cover (top, north side slope, and east side slope) includes, from the top down: sod, 6 inches of topsoil, 18 inches of protective cover soil, a double sided geocomposite drainage layer, a 40 mil Linear Low Density Polyethylene (LLDPE) geomembrane liner that is textured on both sides, and a minimum 12-inch thick intermediate cover layer to support the geosynthetics. The components of the final cover system shall meet the requirements of FAC 62-701.600(5)(g) as demonstrated by the technical specifications for the components contained in Appendix D of this permit application.

The interface stability of the final cover system is demonstrated by the Final Cover Stability Analysis provided in Attachment O.1 of the Engineering Report. Stability analyses evaluating the potential for deep seated rotational or translational failures through the waste and the final cover were previously provided with the permit modification to increase the side slopes of Phase I to 3H:1V.

A temporary final cover will be constructed on the south slope of Phase I and will remain in place until Phase IV is operational. The temporary final cover will improve the operations of Phase I by reducing leachate generation, providing better odor control, stormwater runoff control, erosion control, and landfill gas collection efficiency. The temporary final cover profile is provided on Sheet C-12 of the Closure Design Drawings and includes, from the top down, a 60 mil TPO (green) geomembrane cover and 12 inches of intermediate cover.

Several criteria were assessed to determine the most suitable material for an exposed geomembrane cover design including resistance to degradation due to exposure to direct sunlight, strength to handle wind uplift, durability to withstand walking or low ground pressure vehicles, birds, and falling debris. Temporary Final Cover design calculations are provided in Attachment O.3 of the Engineering Report.

Constructing the continuous exposed geomembrane of the temporary final cover under the south access road base presents several design difficulties. This includes proper road cushioning to prevent geomembrane damage and prevention of stormwater intrusion between the exposed geomembrane and road base. Therefore, the exposed geomembrane on the south side of Phase I was designed to incorporate the south access road as part of its anchoring system as shown in the Closure Design Drawings. The south access road has been designed to shed runoff to the stormwater interceptor swale located adjacent and north of the road, therefore, no hydraulic head on the liner system beneath the road is expected.

2.4.7 Final Cover Installation Plans

Final cover installation plans for Phase I are provided in the Closure Design Drawings. Final cover will be placed over all areas of Phase I that have received waste with the exception of the west slope, where a 60 mil HDPE side slope liner was installed as part of the Phase II expansion, and the south slope, where a 60 mil TPO geomembrane liner will be installed for temporary closure until Phase IV is operational. As previously discussed, the final cover and temporary final cover has been designed to minimize infiltration of rainfall and subsequent generation of leachate.

The final cover will be installed in accordance with the Construction Quality Assurance (CQA) Plan provided in Appendix C of the Closure Construction Permit Application. The CQA Plan meets the requirements of FAC 62-701.400(7) and (8).

The final cover will be vegetated with bahia sod (or equal) to control erosion and provide a moisture infiltration seal. The sod will be a native species of drought resistant grass that will have roots that will not penetrate the final cover.

The final cover has been designed to maximize runoff and minimize erosion considering total fill height and expected subsidence caused by decomposing waste, and has been designed to prevent ponding or low spots.

Borrow soil required for maintenance of the Phase I final cover during the remaining operational life of the CCSWDC Class I landfill and the post closure care period will be obtained from the borrow area located adjacent to the CCSWDC site. In the event that the borrow area is no longer

~~available, the County will make arrangements for material to be obtained from other off-site sources. The borrow soil will be used to repair erosion damage, filling areas of subsidence or other depressions, maintaining berms, and general maintenance of the facility.~~

2.4.2~~8~~ Stormwater Control

~~The constructed stormwater management and control system for the CCSWDC is shown on Sheet C-01, Overall Site Plan and Phasing Plan of the Closure Design Drawings. The design consists of perimeter drainage ditches bordering each phase that drain to one of several stormwater ponds located on site. Phase I drains entirely to Stormwater Pond No. 1 which is located northwest of Phase I. This stormwater system will be maintained throughout active operations at the landfill and will serve as the stormwater management system after final closure of the site. Details of the stormwater controls that will be installed during Phase I final cover and temporary final cover construction are provided on Sheets C-9 through C-12, C-18, and C-19 of the Closure Design Drawings.~~

During Phase II permitting, jurisdiction over the CCSWDC stormwater control system was transferred from the Southwest Florida Water Management District to FDEP. The FDEP issued Environmental Resource Permit (ERP) No. 58-0272622-001 on May 2, 2008 for the system. The ERP is valid for Phases I and II of the CCSWDC Class I landfill. The stormwater management and control system will be operated in accordance with the ERP requirements~~ during Phase I closure construction and after construction is completed.~~

2.4.3~~9~~ Access Control

The CCSWDC facility will remain in operation after Phase I closure is completed; therefore the current measures for limiting access to the facility will be maintained. Access to the Class I Landfill is controlled at the Knights Trail Road entrance with the use of gates. The entire facility is fenced.

2.4.4~~10~~ Proposed Final Use

Currently, there are no planned final uses identified for Phase I of the CCSWDC Class I Landfill except for the potential possibility of a landfill gas to energy facility. Any final uses will be permitted through FDEP prior to their implementation.

2.4.5~~11~~ Gas Management System

See Section 2.3.5 of this Closure and Long Term Care Plan for a description of the existing and proposed landfill gas management system for Phase I of the CCSWDC Class I landfill.

2.5 Closure Operation Plan

This Closure Operation Plan ~~is~~was provided as part of the closure permit application. ~~The information provided below is required by FAC 62-701.600(6).~~

~~2.5.1 Actions Required to Close Landfill~~

~~Phase I closure activities will begin after Phase I is filled to permitted capacity and landfill operations begin in Phase II. Construction will not begin until a closure construction permit is~~

obtained from FDEP. Prior to final cover construction, elements of the landfill gas collection and control system that are to be installed below the final cover and temporary final cover liner will be installed. These components include vertical extraction wells, headers and laterals. Sedimentation and erosion control measures will also be installed in accordance with the Closure Design Drawings. Grading of the side slopes will then take place to ensure that a minimum of 18 inches of soil exists above the waste (6 inches of initial cover and 12 inches of intermediate cover) and to provide a smooth surface suitable for placement of the 40 mil LLDPE (top, north, and east slopes) and 60 mil TPO (south slope) geomembrane liners. At this time, trenches of the 24 inch diameter downdrains will be excavated into the waste and backfilled with a minimum of 18 inches of compacted soil to support the geomembrane liner. Also the permanent access road shown on Sheet C-07 of the closure design drawings will be graded to the design elevations shown.

The 40 mil textured LLDPE geomembrane liner will be installed on the top of Phase I, the north side slope, and the east side slope and a 60 mil TPO geomembrane liner will be installed on the south slope after the grading of the subgrade is complete. The final covers and temporary final cover geomembranes will be tied into the overlay liner system geomembrane that would already be installed on the west slope of Phase I as shown in the closure design drawings. A detail of this tie-in is provided on Sheet C-17. The final cover Geocomposite Drainage Layer (GDL) will be installed over the final cover geomembrane with careful attention to daylight the GDL to allow drainage at the top of the landfill, drainage bench, and base of the landfill as shown on detail sheets C-09 and C-11. The final cover GDL will be kept hydraulically separate from the overlain liner system GDL in order to avoid the mixing of leachate with infiltrated stormwater.

The protective cover soil will be installed over the geosynthetic components of the final cover which have been already installed, inspected, and tested. At this time, final grading of the access road, drainage bench, and stormwater berms located at the top of the landfill will occur. Installation of the downdrain pipes and energy dissipaters will also take place. After all protective cover is installed; 6 inches of topsoil will be installed over the top, north, and east closure area. The access road will be paved with stone. Sod will be placed over the topsoil.

After the final cover is in place, the final elements of the landfill gas collection system and stormwater management system will be installed. Removal of the sedimentation and erosion control measures that were installed for Phase I closure construction will take place after it is evident that the Phase I closure side slopes have been stabilized. Any accumulated sediment resulting from the closure project will be removed from drainage benches, perimeter stormwater channels, and stormwater pond.

2.5.2 Preliminary Phase I Closure Schedule

Phase I closure construction is currently estimated to begin in January 2011 based on anticipated waste disposal rates, compacted waste densities, and remaining airspace estimates. Certification of closure completion is estimated to occur in July 2011. These dates may change due to fluctuations in any of the previously mentioned variables

~~Long term care of the Phase I closure is anticipated to extend through the remaining life of the CCSWDC Class I landfill (approximately 34 years) in addition to the 30 year regulatory post closure period that will begin after all phases of the landfill are closed.~~

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

The Closure of Phase I is completed. The Record Drawings are provided in Appendix C.

2.5.13 Supporting Documents

This Closure Operation Plan ~~is~~was prepared as part of the Central County Solid Waste Disposal Complex Class I Landfill Phase I Closure Construction Permit Application dated April 2010 and prepared by HDR Engineering, Inc.

Other supporting documents to this Closure Operation Plan include the current FDEP Operation Permit No. 130542-007-SO/01 for the CCSWDC Class I landfill, the current FDEP Environmental Resource Permit (ERP) No. 58-0272622-001 and associated documents supporting these permits.

2.5.24 Demonstration of Financial Responsibility

Sarasota County currently demonstrates financial responsibility for the closure and long term care of Phase I of the CCSWDC Class I landfill using a financial test.

2.5.53 Water Quality Monitoring Plan

Discussion of the Water Quality Monitoring Plan required by FAC 62-701.510 for the Phase I closure is provided in Section 2.3.3 of the Closure and Long Term Care Plan.

2.5.46 Gas Management System

Discussion of the gas management system required by FAC 62-701.530 for the Phase I closure is provided in Section 2.3.5 of the Closure and Long Term Care Plan.

2.5.57 Additional Equipment and Personnel Needed for Closure

Closure construction for installation of the landfill gas system and final cover for Phase I ~~will be~~was performed by qualified contractors selected through the County's procurement system. Sarasota County ~~will~~ also ~~retain~~retained the services of consulting engineering companies to perform Construction Quality Assurance (CQA) services and Engineer of Record (EOR) services which ~~will include~~ included construction oversight and certification.

~~The administration of the Phase I closure project is not anticipated to require the County to hire additional personnel or purchase additional construction equipment.~~

2.6 Temporary Final Cover

The temporary final cover ~~to be~~was constructed on the south slope of Phase I and ~~will provide~~provides positive drainage of all stormwater runoff and reduces erosion of cover soils, a reduction in leachate generation, odor control, and landfill gas collection efficiency. ~~The exposed geomembrane cover will be~~

~~installed when the south side has reached interim final grades and after permit has been issued. A 60 mil TPO geomembrane will be installed on the intermediate interim cover. A 1 foot minimum soil layer (on top of the 6 inches of initial cover) will be maintained between the waste and the exposed geomembrane cover. The intermediate cover will have a maximum permitted slope of 3H:1V except at the tack on berm road where slopes are 2H:1V.~~

In order to facilitate Phase I maintenance operations, the Phase I closure ~~will incorporate~~incorporated an access road located on the south slope ~~as shown on Sheet C-05 of the closure design drawings~~. An ~~12~~8-inch~~e~~ stabilized limerock road base material, in accordance with FDOT Specification 230, ~~will provide~~and a Superpave Asphalt course were installed to provide an all weather driving surface. The access road ~~will be~~was placed over additional compacted structural fill on top of the south slope interim final grade. The cross slope on the access road ~~will drain~~drains inwards to a TPO lined stormwater interceptor swale. The temporary final cover geomembrane ~~will be~~was placed on top of the slope of the south access road fill grade but ~~will~~was not ~~be~~ placed underneath the access road.

Temporary final cover system design included evaluation of the following components: geomembrane material, anchors, emergency gas venting, maintenance access, and stormwater management.

~~2.6.1 Geomembrane Material~~

~~Several criteria were assessed to determine the most suitable material for an exposed geomembrane cover design including:~~

- ~~Resistance to degradation due to exposure to direct sunlight,~~
- ~~Strength to handle wind uplift,~~
- ~~Minimize expansion and contraction due to atmospheric temperature changes and~~
- ~~Durability to withstand walking birds and falling debris.~~

~~Based on the evaluation criteria, a 60 mil TPO geomembrane is suitable for this purpose. In general, material will be field seamed during construction. The exposed surface of the geomembrane will be patina green color in order to avoid excessive solar heating and to reduce negative visual impacts.~~

~~2.6.2 Anchor Design~~

~~The temporary final cover anchor design considerations include material properties and wind uplift forces. Physical variables used in the anchor trench design include effective suction, velocity of wind, distances between anchor trenches, thickness of the material, percent strain at yield, stress at yield, geomembrane stiffness coefficient, interface friction between geomembrane and 16 oz/sy geotextile and seam strength.~~

~~HDR reviewed storm events and high wind events published by National Climatic Data Center (NCDC) for Sarasota County from October 1960 to October 2008. The highest reported wind velocity within Sarasota County is 82 mph in 1993. According to Florida Building Code 2008, the basic wind speed to be used to calculate wind loads is 130 mph for Sarasota County. The temporary final cover for Phase I has been designed for an 130 mph wind event.~~

~~In addition to the wind, the other important parameter that causes expansion and contraction of the material is the temperature variation. The highest reported temperature within the State of Florida is 109 degrees F in June 1931. The lowest reported temperature within the State of Florida is -2 degrees F in February 1899. HDR conservatively assumed these extreme events when calculating maximum initial stresses and strains due to change in temperature.~~

~~A geomembrane can resist uplift under the influence of gravity if its weight per unit area and depth of anchor trench backfill is at least equal to the suction pressure for a given wind velocity. Calculations, provided in Attachment O.3 of the Engineering Report, show that a 60 mil, TPO geomembrane provides adequate resistance to uplift caused by an 130 mph wind event. Vertical intermediate anchor trenches are required at a maximum of 50 FT intervals. In addition, horizontal anchors are provided at grade change locations and liner terminations to provide additional support. These are secondary anchor trenches provided to accommodate site configuration and calculations were not performed to verify wind uplift. It should be noted that no vertical anchors will be installed within the 2H:1V slopes. Instead horizontal anchors are designed at 25 FT interval for the top 1/3 of the temporary final cover side slope and 32 FT interval outside the top 1/3 of the side slope.~~

2.6.3 Landfill Gas

There are 12 gas extraction wells that ~~will be~~are located within the ~~proposed~~ temporary final cover area. The proposed extraction wells ~~will~~ penetrate the temporary final cover. All temporary final cover penetrations ~~will be~~are booted to the pipe and will allow for waste settlement over time. The extraction wells will avoid build up of gas pressure below the geomembrane. Furthermore, emergency gas vents will be located at each geomembrane panel to avoid build up of gas pressure below the geomembrane. These vents are generally closed with a removable end cap which will be opened manually in the event of pressure buildup. If during inspection of the temporary final cover, an area of the geomembrane is observed lifting, bubbling, or trampolining, the emergency gas vents may be opened to relieve the pressure built-up under the geomembrane. The gas vents are operated by opening the cap and are subsequently closed by re-securing the cap in place. The active gas collection system may be connected to these vents if deemed necessary in the future for continuous gas extraction.

2.6.4 Maintenance Access Road

The south access road ~~will provide~~provides the primary means of access to Phase I and the temporary final cover area. It will be difficult for individuals to walk on top of the exposed geomembrane installed on 3:1 or 2:1 slopes. Precaution shall be taken if walking on top of the slopes greater than 5% at all times. This is extremely important during rain events when the slick surface and runoff can lead to hazardous conditions. The temporary final cover ~~will~~was not ~~be~~ installed underneath the south access road. The stabilized rock base material and asphalt surface used for the road construction will minimize infiltration of stormwater into the landfill.

2.6.5 Stormwater Management

~~There will be 2 stormwater downdrain access points along the south terrace. The terrace is longitudinally sloped at 2% along the slope to facilitate the flow of stormwater to the~~

~~downdrains. At the toe of the slope, stormwater will run along the lined south perimeter swale. Two 24" RCP will connect the south perimeter swale to the east perimeter swale allowing continuous flow to Pond 1 located northwest of Phase I.~~

~~The south perimeter swale was redesigned to accommodate a 25yr-24hr storm up to a maximum elevation of 32 ft which corresponds to the lowest elevation of the existing road located south of Phase I. The total area contributing to the south swale is 7.5 acres which will create a peak flow of 41.2 cfs. The maximum stage of flow within the south perimeter swale based on the design storm is 31.98 ft, therefore, the swale will be able to hold 25yr-24hr storm. The south perimeter swale will be lined with 60 mil TPO geomembrane to eliminate soil erosion. Stone size of 4" to 8" will be installed above 16 OZ/SY geotextile at all downdrain exits as energy dissipators.~~ Please refer to the Phase I Closure Record Drawings provided in Appendix C for details regarding the stormwater management systems.

2.6.6 Inspection and Material Testing

Detailed routine inspections will be conducted monthly to assess exposed geomembrane quality, geomembrane interface with other landfill areas, and damage. The goal is to inspect the entire geomembrane and surface and seams at least every 3 to 4 months. The temporary final cover geomembrane will be visually monitored for stretching, sagging, or wrinkling (not due to temperature variations) to evaluate the movement of the geomembrane due to creep and/or settlement. Inspections will also be conducted after extreme weather conditions, such as high wind events, heavy rain events, and hail storms. In addition to visual inspections, routine testing for degradation of original material properties may be conducted annually. During construction of the temporary final cover, material samples (coupons) are~~will be~~ seamed on top the geomembrane for testing the effects of exposure on the material properties. Coupons will be sent to a qualified laboratory to test material properties, including thickness and tensile strength.

Evaluation of the temporary final cover will be performed annually for the total time the temporary final cover is used. ~~The criteria used to evaluate geomembrane performance will be taken into three categories:~~

- ~~Material strength (tensile);~~
- ~~Material thickness, and~~
- ~~Resin test.~~

~~Coupons will be sent to a qualified laboratory to test these material properties.~~ It is important to note that the coupons will not be directly cut from the geomembrane covering the south slope but will be obtained from the coupons seamed on top of the geomembrane. It should be noted that these tests will be conducted to evaluate the material for Owner's information only since this is a temporary closure. The test methods to be used in the evaluation of the geomembrane are as follows:

- Breaking strength ASTM D4885;

- Elongation at break ASTM D4885
- Material thickness ASTM D5994
- Ozone resistance ASTM D1149

A copy of the annual evaluation results will be submitted to FDEP, however, the report and associated results are not required by the permit.

2.6.7 Repair Procedure

All repairs will be done in accordance with the original material specifications~~, provided in Appendix D~~. Surplus liner material will be maintained on site for potential damage repair allowing the site personnel to repair damage as quickly as possible. However, liner contractor contact information will also be kept on file. If geomembrane tears, seam failures, or similar damage is found during inspection, site personnel will immediately place sandbags, tires or similar items to completely cover the damage and prevent propagation of the problem. If appropriate, small sheets of geomembrane will be placed over the damaged area before placing sandbags. This temporary repair will be completed within 48 hours of detection. The County will contact a certified liner contractor to permanently repair the damaged area.

3.0 CLOSURE PROCEDURES

The following section describes the procedures that ~~will be~~were followed in accordance with 62-701.610, F.A.C., for closure of Phase I of the CCSWDC Class I Landfill.

3.1 Survey Monuments

Survey monuments ~~are~~were not required for Phase I of the CCSWDC Class I landfill since the final elevation of the landfill will be more than 20 feet above the natural land surface.

3.2 Final Survey Report

A final survey report ~~or aerial map~~ of the constructed Phase I closure ~~will be~~was conducted in compliance with 62-701.610(3), F.A.C. The final survey report ~~or aerial map will be~~was prepared by a registered land surveyor and ~~will be~~was submitted to the FDEP to verify that the final contours and elevations ~~are~~were in accordance with the plans approved in the closure permit. The contours in the final survey ~~will be~~were shown at no greater than 5-foot intervals.

3.3 Closure Construction Certifications

In accordance with 62-701.610(4), F.A.C., a signed, dated, and sealed Certificate of Closure Construction Completion by the engineer of record ~~will be~~was submitted to the FDEP upon completion of Phase I closure construction. ~~This certificate will indicate any deviations~~ Deviations from the permitted closure plans were noted in the report. The FDEP approved the closure construction certification report in June 2013.

3.4 Declaration to the public

After final closure operations are inspected and approved for the entire CCSWDC Class I landfill by the FDEP, the Sarasota County Solid Waste Department will file a declaration to the public in the deed records of Sarasota County. The declaration will include a legal description of the property and a site plan specifying the area actually filled with solid waste. The declaration was~~will~~ not be submitted after closure of Phase I since the landfill will remain in operation.

3.5 Official date of closing

The requirements identified in Sections 3.2 and 3.3 will be submitted to the FDEP after closure of each phase. The declaration to the public described in Section 3.4 will be completed when all phases are closed and the CCSWDC ceases waste disposal operations. Upon receipt, the FDEP will notify the Sarasota County Solid Waste Department in writing that the notice of termination of operations and closure of the facility has been received. The official date of the landfill closing will be the date of the FDEP letter.

3.6 Closed Landfill use

No use has been designated for the closed Phase I landfill area. In accordance with 62-701.610(7), F.A.C., Sarasota County will consult with the FDEP before conducting activities at the closed landfill. Sarasota County acknowledges that the FDEP retains regulatory control over any activities that may affect the integrity of the environmental protection measures of the landfill.

3.7 Relocation of Wastes

If at any time after closure the Sarasota County Solid Waste Department intends to relocate waste within the footprint of the landfill, a permit modification application will be submitted to the FDEP for approval.

4.0 LONG-TERM CARE REQUIREMENTS

The Sarasota County Solid Waste Department will be responsible for monitoring and maintaining the Phase I closure area in accordance with the FDEP-approved closure plan for a minimum of 30 years from the date of closing of the entire Class I landfill. The long-term-care period may be extended by FDEP to be consistent with 62-701.620(1), F.A.C.

If the landfill site is sold or leased to another authority, Sarasota County will ensure that the long-term care requirements of the permit are adhered to by contractual agreement or by retention of access rights. Any lease or transfer of property will include specific conditions to delineate the following responsibilities:

- Sarasota County is responsible for closure and shall maintain any required proof of financial responsibility until the person acquiring ownership, possession, or operation of the landfill establishes the required proof of financial responsibility with FDEP.
- Responsibility for the continuance of monitoring, maintenance, and correction of deficiencies or problems.
- Mineral rights attached to the property and the rights to any recoverable materials that may be buried on the property or landfill gases that may be produced. An FDEP permit shall be required if any onsite operations subsequent to closing of a landfill involve disturbing the landfill.

Sarasota County is obligated to retain the right of entry and to make provisions for access to the landfill property and the closed area of the landfill for the long-term-care period for inspection, monitoring, and maintenance of the site. Supervising the closed landfill is the responsibility of a person experienced in the closure requirements of a solid waste management facility.

Closed landfill areas, if disturbed, are a potential hazard to public health, groundwater, and the environment. Therefore, FDEP retains regulatory control over any activities that may affect the integrity of the environmental protection measures, such as the landfill cover, drainage, monitoring system, or stormwater controls. Consultation with the FDEP is required before conducting activities at the closed landfill.

The closure permit will be renewed every 10 years until the groundwater monitoring well analyses have stabilized along with gas production, settlement and leachate production, and the FDEP notifies the applicant in writing that renewal is not required. Sarasota County, in accordance with 62-701.620(3)(a) through (d), F.A.C., will demonstrate the required stabilization criteria.

An inspection checklist that Sarasota County proposes to use monthly is included in Appendix B~~Attachment 1~~. The checklist is used to ensure compliance with the long-term-care requirements and provide a log of landfill inspection activities including inspection and maintenance of the stormwater management system, landfill cap, groundwater and gas monitoring systems, gas vents, and other site structures. It is intended that this form will also be used during the interim period after Phase I is closed and before the 30-year long-term care period begins after closure of the entire Class I landfill. The checklist form is completed and signed by the individual conducting the monthly inspection. Items

requiring attention are noted on the form and brought to the attention of the Sarasota County landfill manager.

4.1 Maintenance and Repair of Final and Temporary Final Cover System.

The Sarasota County Solid Waste Department will inspect and maintain the Phase I closure area to minimize impacts to the function and/or integrity of the final cover system. The County will provide for site access control, erosion control, grass cover maintenance, and prevention of ponding. Primary focus during the inspection will be the condition of the surface vegetation, landfill cap, gas collection and monitoring system, stormwater system, and monitoring devices. Monitoring of groundwater and landfill gas is addressed in ~~Part L~~additional detail in the CCSWDC Operations Plan and ~~Part N, respectively, of the Phase I Closure Construction Permit Application~~Water Quality Monitoring Plan.

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

Table 1 Schedule for Notification and Corrective Actions

Activity	Initial Notification	Written Notification/Corrective Action Plan	Corrective Action
Sinkhole within 500 ft	Within 24 hours of discovery	Within 7 days of discovery, including description, location, size shown on plan sheet, corrective action plan	Based on proposed schedule
Fire/Explosion	Within 24 hours of discovery	Within 7 days of discovery, including remedial measures and schedule of activities	Based on proposed schedule
Damage to Facilities/Failure of Systems	Within 24 hours of discovery with explanation	Within 7 days of discovery, including details of damage/failure, remedial measures, schedule of repairs	Based on proposed schedule
Damage to Groundwater Monitoring System	Within 24 hours of discovery with explanation	Within 7 days of discovery, including details of damage/failure, remedial measures, schedule of repairs	Based on proposed schedule
Damage to Stormwater Ssystem	Within 24 hours of discovery with explanation	Within 7 days of discovery, including details of damage/failure, remedial measures, schedule of repairs	Within 30 days of written notification
Erosion of Final Cover System> 12~~6~~-inches in depth	N/A	Description on Inspection Log	Within 72 hours of discovery
Leachate not accepted by Disposal Facility	Same as Written Notification	Within 3 days of cessation of leachate acceptance, including explanation of contingency measures and schedule of disposal	Within 7 days of cessation of acceptance

4.2 Grass

Grass cover maintenance will include mowing, fertilizing, seeding, mulching, and filling areas of subsidence. Mowing, fertilizing, seeding, mulching, and filling will continue to be performed as needed. The following is a general schedule and description of grass maintenance activities.

4.2.1 Mowing

The height of the grass will also be observed during monthly inspections. If the grass is found to be ~~approximately 18 inches high~~reaching a height that would be difficult to mow, mowing will be scheduled before the next inspection. In general, the site will be mowed every 6 weeks during the wet season (May to October) and as needed during the dry season (November to April) Caution will be exercised while mowing to keep heavy equipment away from the gas vents and monitoring devices and exposed geomembrane cover.

4.2.2 Fertilizing

The vegetative cover will be fertilized as needed to maintain growth and coverage. The general recommendations for commercial fertilizer are 12-8-2 formulation (nitrogen-potassium-phosphorus), of which 60% of the nitrogen is to be in the urea-formaldehyde form and in conformance with state laws. It should be applied in the early spring (March) and mid-summer (July) on an as-needed basis. The spread rate should be 8 to10 pounds per 1,000 square feet, or as instructed on the package. The local USDA extension office should be called to verify these recommendations.

4.2.3 Seed and Sod

Damaged areas or other areas where grass cover is sparse must be reseeded or sodded. Sod is generally recommended for use in all areas such as on steep slopes and in highly eroded or bare spots. Sod should be staked in place with sod pegs where necessary. Sod pegs shall extend no more than 12 inches into the ground to avoid damage to the final cover geomembrane liner.

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

Early spring

- Scarified bahia with 20% bermuda seed.
- Minimum percent pure seed - 95
- Minimum percent germination and hard seed - 80
- Bahia seed will not germinate until overnight temperatures stay above 70° Fahrenheit.

Late fall - Italian rye

- Minimum percent pure—95
- Minimum percent germination and hard seed—90
- Seed will not germinate until overnight temperatures stay below 70° Fahrenheit and above 40° Fahrenheit.
- Bahia Sod—16-inch-by-24-inch slabs with 1-1/2-inch root bed

4.2.4 Seed Rates

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

~~Maintenance Seed Rates~~

- ~~Spring ½ pound per 1,000 square feet~~
- ~~Fall ½ pound per 1,000 square feet~~

~~Replacement Seed Rates~~

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

Grass seed will be applied at the rates recommended by the seed supplier.

4.2.5 Watering

Sarasota County ~~should~~will water newly established grass as required to maintain the health of the grass until it matures; daily watering should never be necessary. If the blades of the grass begin to wilt and loose resiliency when walked on, water needs to be applied. ~~The water that is applied should be clean.~~ Water shall be from the onsite stormwater ponds or water wells.

4.3 Erosion Control

Avoiding erosion is probably the most cost-effective means of protecting the closure cap. A relatively minor eroded area combined with a severe storm event can cause degradation of the final cover. The best way to avoid erosion is to maintain a healthy stand of grass and keep drainage swales free of silt and sediment. Cleaning the drainage swales will prevent overflow and backflow and reduce the risk of erosion from these causes. Large amounts of silt or sediment removed from the drainage swales may indicate damage to the closure cap. Soil for erosion control and maintenance of the cap system will be obtained from the on-site borrow area.

4.4 Stormwater Structures

All stormwater structures should be clean of all silt or soil deposits. All soil settlement surrounding these items should be brought to the attention of the Solid Waste Operations Manager and then repaired in a manner consistent with the surrounding area. Grass should be maintained, replaced, reseeded, and mowed as indicated in the section on grassing. The drainage swales will be cleaned ~~annually~~ as ~~needed~~required in accordance with the CCSWDC Stormwater Pollution Prevention Plan and Permits.

4.5 Landfill ~~Cap~~Cover

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

closure subsiding or settling faster than the surrounding area. Differential level checks will be performed if evidence of settlement is detected during routine site inspections. Differential level check information will be kept on file and will be made available for FDEP review.

If the final cover requires replacement, repair will follow the original design specifications. Repairs to the final cover will be under the supervision of a professional engineer. Accounts of all repairs to the final cover system and test results will be documented in Daily Observation Reports and maintained by the Sarasota County Solid Waste Department. ~~Repairs to any layer of the final cap system shall be in accordance with the Construction Quality Assurance (CQA) Plan and specifications for landfill cover construction included in Appendices C and D, respectively, of the closure permit application. FDEP will be notified of any damage to cover system that requires repairs~~Repairs will be performed in accordance with industry standard practices. Soil repairs will include backfill placed in loose lifts and compacted with machinery. Soil shall be free of deleterious materials and rocks shall not exceed 3 inches in size. In addition the soils shall be classified as SP, SW, SM, SC, SP-SM, or SP-SC in accordance with ASTM 2487 and the fines content shall be a maximum of 50% passing the #200 sieve.

Machine compaction will typically achieve sufficient density that will not damage the underlying soils. Soil repairs greater than 10,000 square feet and greater 1 foot deep will require soil testing to ensure compaction to 90% of maximum dry density using a Standard Proctor Test. FDEP will be notified of any damage to cover system that requires soil repairs greater than 10,000 square feet and greater than 1 foot deep or liner repairs of any size for the final cover system, and greater than 100 square feet for the TPO temporary final cover.

Borrow soil required for maintenance of the Phase I final cover during the remaining operational life of the CCSWDC Class I landfill and the post closure care period will be obtained from the borrow area located adjacent to the CCSWDC site. In the event that the borrow area is no longer available, the County will make arrangements for material to be obtained from other off site sources. The borrow soil will be used to repair erosion damage, filling areas of subsidence or other depressions, maintaining berms, and general maintenance of the facility.

4.6 Landfill Access and Landfill Signs

The boundary of the landfill property is fenced. Access to the site is to be restricted to prevent unauthorized entry and dumping. As part of the routine check-list procedure, all of the fencing and signage is inspected for damage and repaired, repainted, and replaced if necessary to maintain the integrity of these items.

~~If any of the landfill monuments are severely damaged or destroyed, corrective actions will be taken.~~

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

4.7 Management of Monitoring Devices

This section includes descriptions of procedures for maintaining and repairing groundwater and gas monitoring devices. ~~The locations of the monitoring devices are shown on Figure 1 of the Water Quality~~

~~Monitoring Plan Addendum, Revised April 2009, provided in Appendix C of the Phase II permit application (Permit No. 130542-007-SO/01, submitted April 2009). No changes to the Water Quality Monitoring Plan are requested for the Phase I closure. Groundwater monitoring is to continue at the Facility with the potential for periodic revisions following evaluation of the laboratory reports.~~

4.7.1 Groundwater Monitoring Wells

Please refer to the current Water Quality Monitoring Plan for the CCSWDC. ~~If a monitoring well becomes inoperable, Sarasota County will notify the FDEP within 24 hours and follow up with written notice within 7 days, as shown in Table 2. The written notice will provide a detailed description of the problem that has occurred and what remedial actions will be taken. If deemed necessary, the damaged monitor well will be properly abandoned and a new well will be constructed close to the abandoned well. Monitoring well design and replacement will be approved by the FDEP before abandonment and installation. Copies of the well abandonment permit and site inspection prepared by the Southwest Florida Water Management District (SWFWMD) will be provided to FDEP for abandoned wells. Upon completion of the construction of the monitoring well, the following information will be provided to the FDEP.~~

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

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

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

4.7.2 Ambient and Migration Gas Monitoring

~~Gas monitoring is to continue at the Class I landfill in accordance with the Water Quality Monitoring Plan Addendum, Revised April 2009, and provided in Appendix C of the Phase II permit application, which is incorporated into this document by reference. Soil monitoring probes will be replaced and repaired in accordance with 62-701.530, F.A.C. FDEP will be notified of maintenance repair activities.~~ Please refer to the current Operations Plan for the CCSWDC.

4.8 Record-Keeping Requirements

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

~~4.8.1 Records of Monitoring~~

~~Records of water quality monitoring information are to include the following:~~

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

~~Water quality monitoring reporting and evaluations, including routine sampling events, will be consistent with the pertinent requirements of 62-701.510(9), F.A.C.~~

~~Biennial reporting will be performed by a professional engineer or hydrogeologist experienced in hydrogeologic investigations. The biennial report will be updated at the time of permit renewals. The biennial report will meet requirements of 62-701.510(a), F.A.C., and will include the following:~~

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

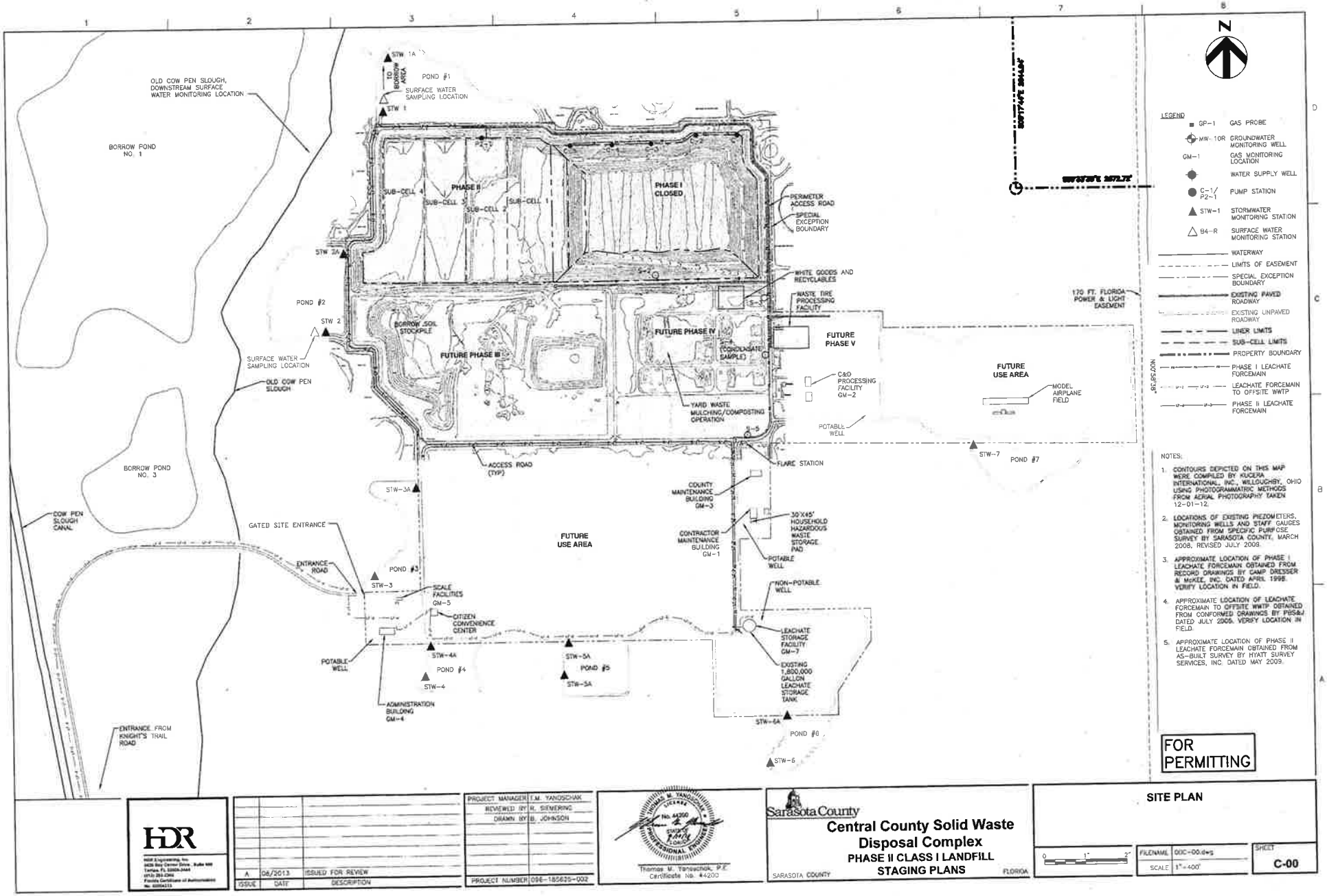
~~4.8.2 Inspection Forms~~

Inspections of the final cover and stormwater system will be documented and kept on file at the Sarasota County Solid Waste Operations Office. An example inspection form is provided in Appendix C.

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

APPENDIX A

SITE PLAN



HDR

ISSUE	DATE	DESCRIPTION
A	06/2013	ISSUED FOR REVIEW

PROJECT MANAGER	T.M. YANOSCHAK
REVIEWED BY	K. SIEMERING
DRAWN BY	B. JOHNSON
PROJECT NUMBER	096-185625-002

Thomas M. Yanoschak, P.E.
Certificate No. 44200

Sarasota County

Central County Solid Waste Disposal Complex

PHASE II CLASS I LANDFILL STAGING PLANS

SARASOTA COUNTY FLORIDA

SITE PLAN

0 1" 2"

FILENAME 00C-00.dwg

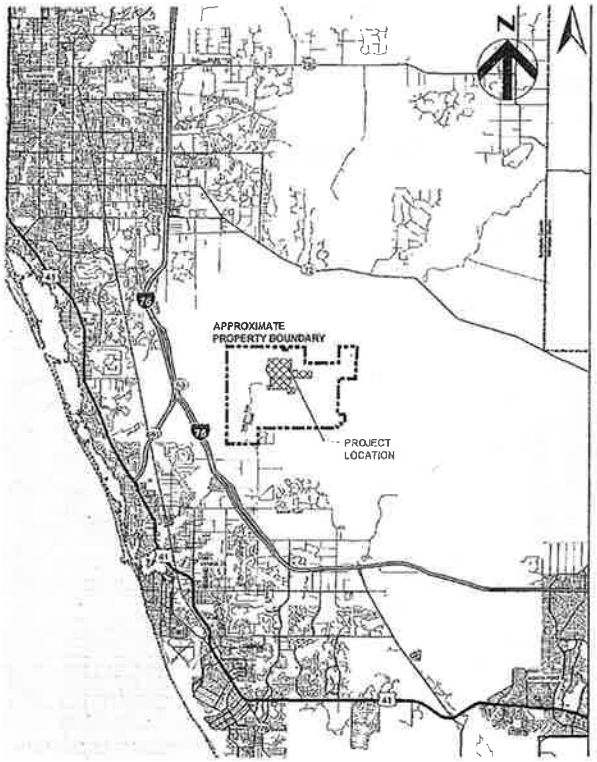
SCALE 1"=400'

SHEET C-00

APPENDIX B

PHASE I CLOSURE RECORD DRAWINGS

Sarasota County



sunshine state ONE CALL of florida

Always call 811 before you dig.
www.callsunshine.com

RECORD DRAWING

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THOMAS M. MACGOWAN, P.E.
FLORIDA P.E. NO. 44206
HDR ENGINEERING, INC.

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION AND CONTROL SYSTEM

ADDRESS: 4000 KNIGHTS TRAIL ROAD
NOKOMIS, FLORIDA 34275

PROJECT NO. 00096-130530-005

SARASOTA COUNTY, FLORIDA

CIP NO. 95206

BID NO. 111383CS

RECORD DRAWINGS

MARCH 2013

HDR

HDR Engineering, Inc.
2601 Cattlemen Road, Suite 106
Sarasota, FL 34232-6231
(941) 342-2700
CA00006213

INDEX OF DRAWINGS
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM DRAWINGS

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G-02	GENERAL NOTES LEGEND AND ABBREVIATIONS
C-01	OVERALL SITE PLAN
C-02	BORROW AREA MAP
C-03	BORROW AREA MAP (2 OF 2)
C-04A	INTERMEDIATE COVER GRADES AND EXISTING GAS COLLECTION SYSTEM
C-05A	PHASE I FINAL BUILDOUT GRADING PLAN
C-05B	PHASE I CLOSURE FINAL SITE PLAN
C-06	PHASE I CLOSURE COVER KEY SHEET
C-07	PLAN AND PROFILE PHASE I ACCESS ROAD
C-08	FULL BUILDOUT SECTIONS
C-09	PHASE I CLOSURE DETAILS
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LFG-06	CENTRAL LFG DETAILS
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CCSWDC BORROW FACILITY PHASE IV AND V DRAWINGS

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2	GENERAL NOTES
3	OVERALL SITE PLAN
4	SITE/DRAINAGE PLAN - PHASE IV AREA D&E PHASE V AREA D RECORD DRAWING
5	SITE/DRAINAGE PLAN - PHASE V AREA A RECORD DRAWING
6	SITE/DRAINAGE PLAN - PHASE V AREA C RECORD DRAWING
7	SITE/DRAINAGE PLAN - PHASE V AREA B & PHASE II AREA EAST
8	CROSS SECTIONS RECORD DRAWING
9	EROSION AND SEDIMENT CONTROL RECORD DRAWING

SHEET G-01

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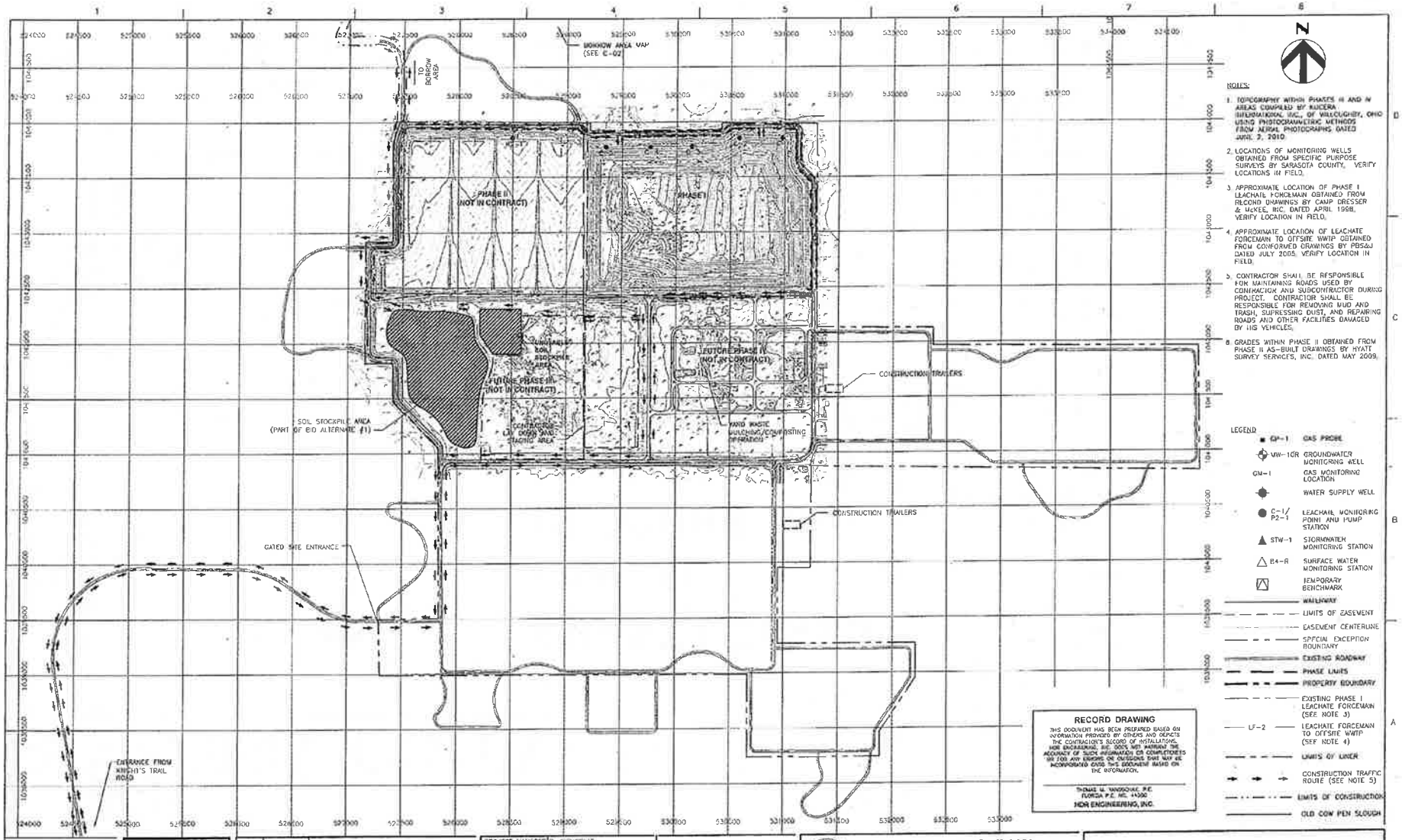

HDR

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEWERING
REVIEWED BY	J. TIMMONS, R. SIEWERING
CIVIL DESIGN	C. RESTREPO, T. YANOSCHACK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	60095-130530-005

THOMAS M. YANOSCHAK, P.E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

FLORIDA

OVERALL SITE PLAN

0 1" 2"

FILENAME: 00C-01.DWG
SCALE: 1"=400'

SHEET: C-01

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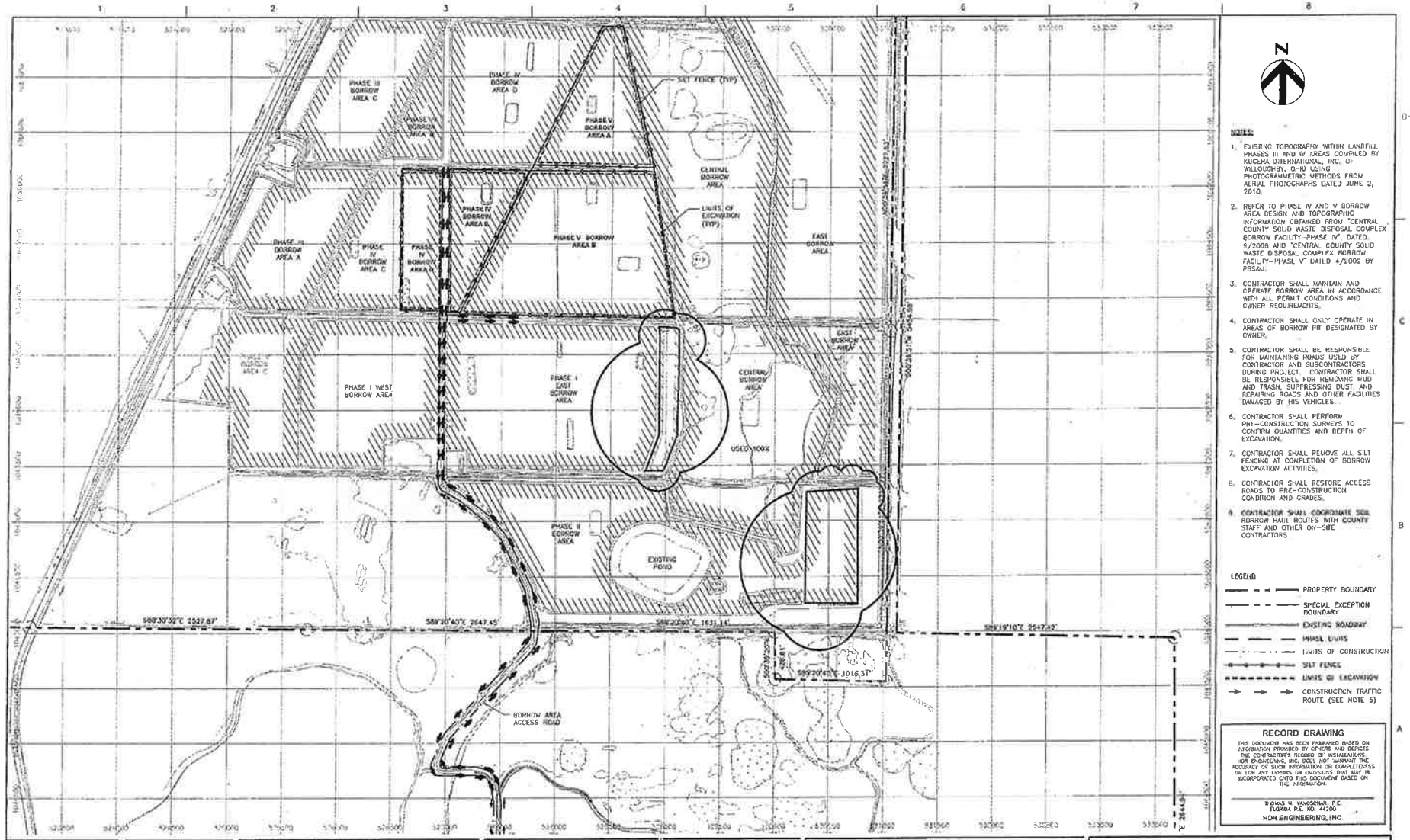

N

NOTES:

1. EXISTING TOPOGRAPHY WITHIN LANDFILL PHASES III AND IV AREAS COMPILED BY KUCERA INTERNATIONAL, INC. OF WILLOUGHBY, OHIO USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED JUNE 2, 2010.
2. REFER TO PHASE IV AND V BORROW AREA DESIGN AND TOPOGRAPHIC INFORMATION OBTAINED FROM "CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX BORROW FACILITY-PHASE IV", DATED 5/2008 AND "CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX BORROW FACILITY-PHASE V" DATED 4/2009 BY PBS&J.
3. CONTRACTOR SHALL MAINTAIN AND OPERATE BORROW AREA IN ACCORDANCE WITH ALL PERMIT CONDITIONS AND OWNER REQUIREMENTS.
4. CONTRACTOR SHALL ONLY OPERATE IN AREAS OF BORROW PIT DESIGNATED BY OWNER.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ROADS USED BY CONTRACTOR AND SUBCONTRACTORS DURING PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING MUD AND TRASH, SUPPRESSING DUST, AND REPAIRING ROADS AND OTHER FACILITIES DAMAGED BY HIS VEHICLES.
6. CONTRACTOR SHALL PERFORM PRE-CONSTRUCTION SURVEYS TO CONFIRM QUANTITIES AND DEPTH OF EXCAVATION.
7. CONTRACTOR SHALL REMOVE ALL SILT FENCING AT COMPLETION OF BORROW EXCAVATION ACTIVITIES.
8. CONTRACTOR SHALL RESTORE ACCESS ROADS TO PRE-CONSTRUCTION CONDITION AND GRADES.
9. CONTRACTOR SHALL COORDINATE SOIL BORROW HAUL ROUTES WITH COUNTY STAFF AND OTHER ON-SITE CONTRACTORS.

LEGEND

- PROPERTY BOUNDARY
- SPECIAL EXCEPTION BOUNDARY
- EXISTING ROADWAY
- PHASE LIMITS
- LIMITS OF CONSTRUCTION
- SILT FENCE
- LIMITS OF EXCAVATION
- CONSTRUCTION TRAFFIC ROUTE (SEE NOTE 5)

RECORD DRAWING

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THOMAS W. YANOSCHAK, P.E.
FLORIDA P.E. NO. 44200
HDR ENGINEERING, INC.

HDR

HDR Engineering, Inc.
3631 Cortez Rd. W., Ste 106
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(941) 448 1810
CA0006113

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER R. SIEMERING
REVIEWED BY J. TIMMONS, R. SIEMERING
CIVIL DESIGN C. REISHLEIN, T. YANOSCHAK
DRAWN BY D. JOHNSON

PROJECT NUMBER 00098-130530-005

THOMAS W. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

SARASOTA COUNTY FLORIDA

BORROW AREA MAP

0 1" 2"

FILENAME C-02 AS-BLT.DWG
SCALE 1"=400'

SHEET C-02

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HDR ENGINEERING, INC.

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1	10/2013	RECORD DRAWINGS
0	04/2013	ISSUED FOR CONSTRUCTION
NO.	DATE	DESCRIPTION

THOMAS W. NADOLNIK, P.E.
FLORIDA LICENSE NO. 44200

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

BORROW AREA MAP (2 OF 2)

C-03

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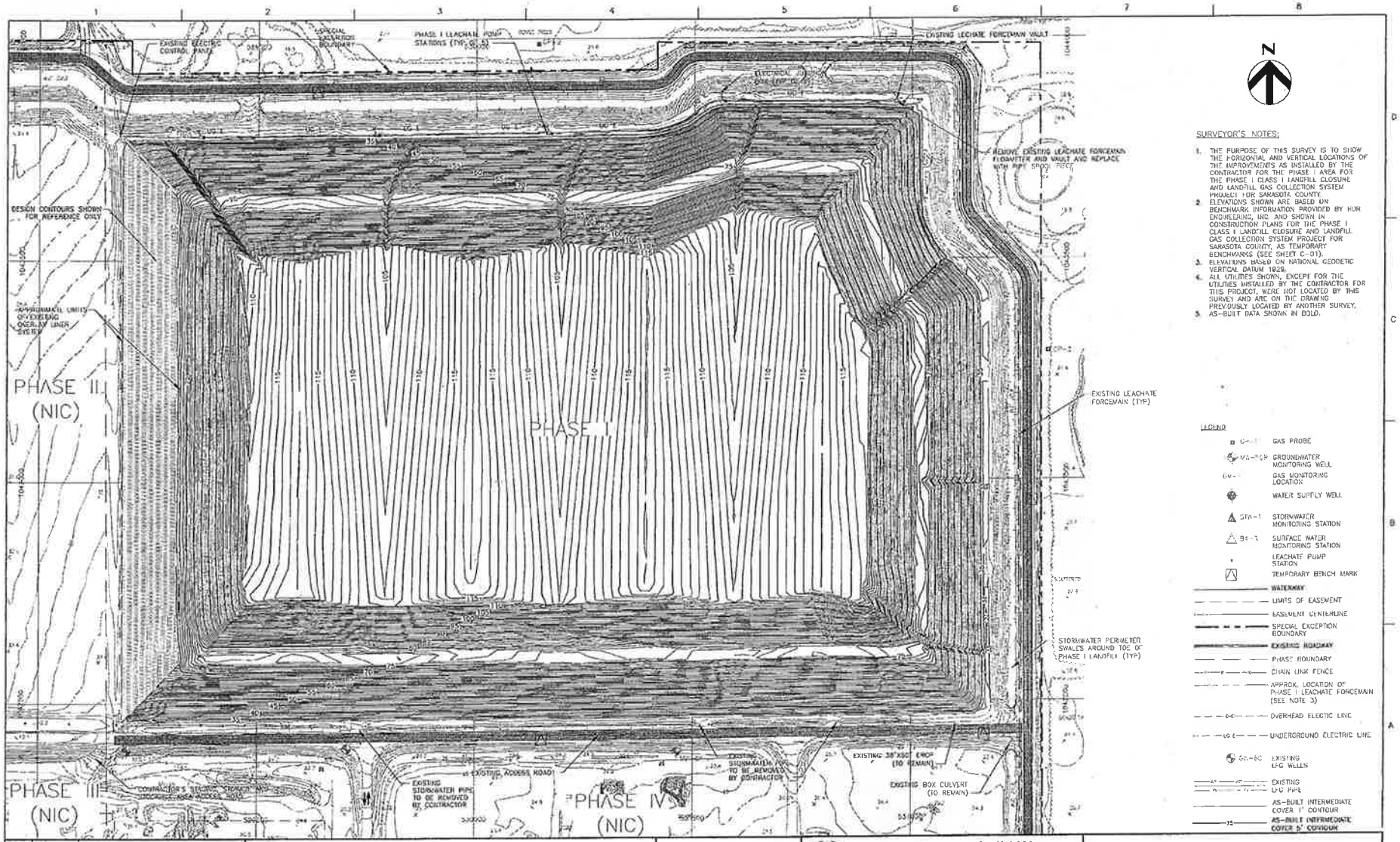

ISSUE	DATE	DESCRIPTION
2	12/21/12	REVISED PER COMMENTS
1	11/9/12	AS-BUILT SURVEY

I hereby certify that the survey shown hereon is true and correct to the best of my knowledge and belief, based on actual measurements taken in the field. This survey meets the minimum technical standards as set forth by the Florida Board of Professional Land Surveyors in Chapter 5J-17, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes.

UNLESS IT BEARS THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER, THIS DRAWING AND/OR COPY THEREOF IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT VALID.

LAYOUT SERVICES, INC.
5300 E PARK AVE, STE F (941) 756-6419
TITUSVILLE, FL 32780 (321) 268-5744 (FAX)

James Zimmerman
Professional Land Surveyor No. 6343
State of Florida

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM AS-BUILT SURVEY

SARASOTA COUNTY FLORIDA

INTERMEDIATE COVER GRADES AS-BUILT SURVEY

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FILENAME 00C-04A AS-BUILT.DWG
SCALE 1"=100'
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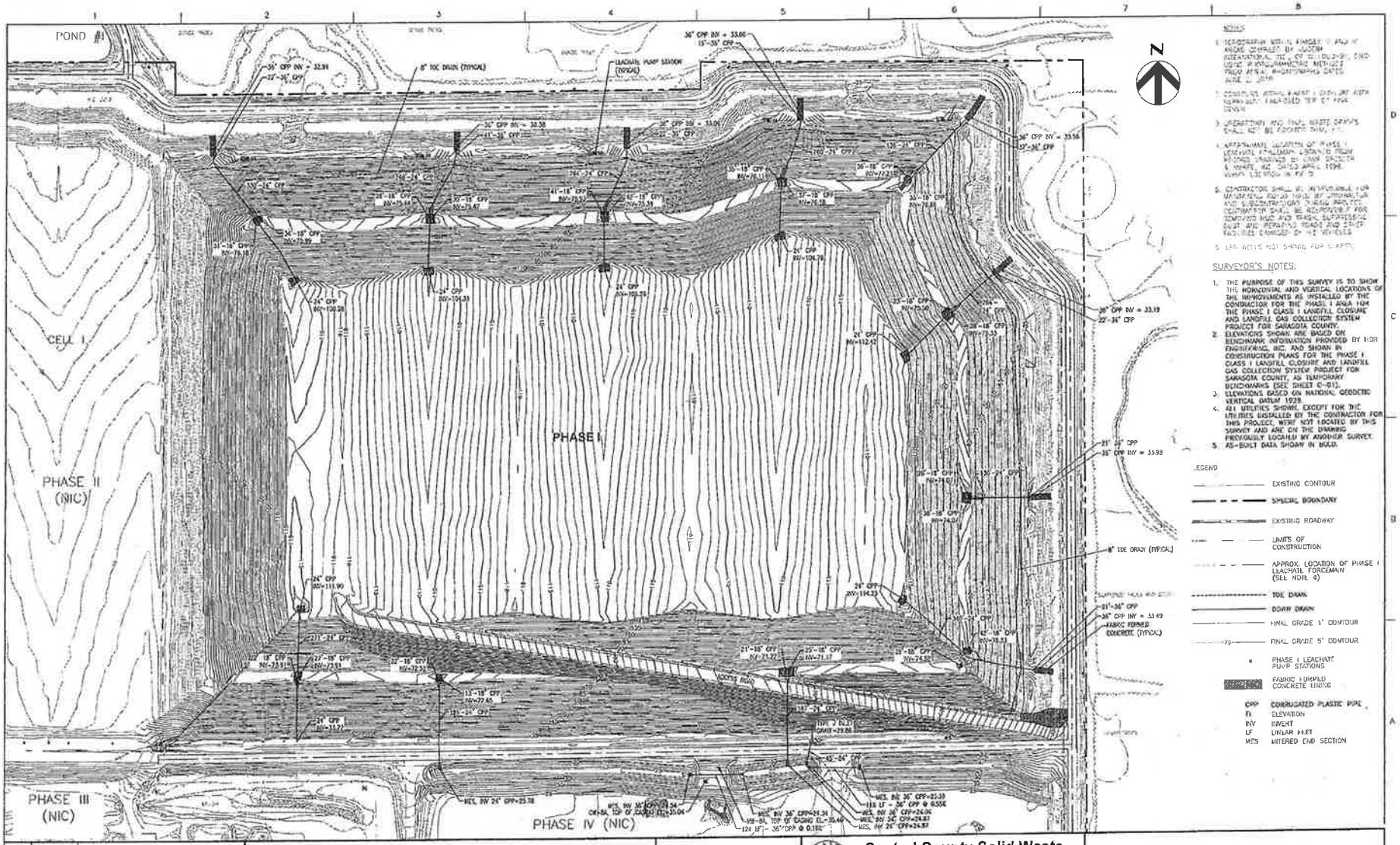


ISSUE	DATE	DESCRIPTION
3	1/21/13	REVISED PER COMMENTS
2	12/21/12	REVISED PER COMMENTS
1	11/14/12	AS-BUILT SURVEY

I hereby certify that the survey shown hereon is true and correct to the best of my knowledge and belief, based on actual measurements taken in the field. This survey meets the Minimum Technical Standards as set forth by the Florida Board of Professional Land Surveyors in Chapter 5J-17, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes.

UNLESS BEARS THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER THIS DRAWING SKETCH, PLAT OR MAP IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT VALID.

LAYOUT SERVICES, INC.
5400 S. PARK AVE. SUITE 7 (941) 739-2778
TITUSVILLE, FL. 32780 (941) 264-9748 (FAX)

James Zimmerman
Professional Land Surveyor No. 6545
State of Florida

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM AS-BUILT SURVEY

SARASOTA COUNTY FLORIDA

PHASE I FINAL BUILDOUT GRADING PLAN AS-BUILT SURVEY

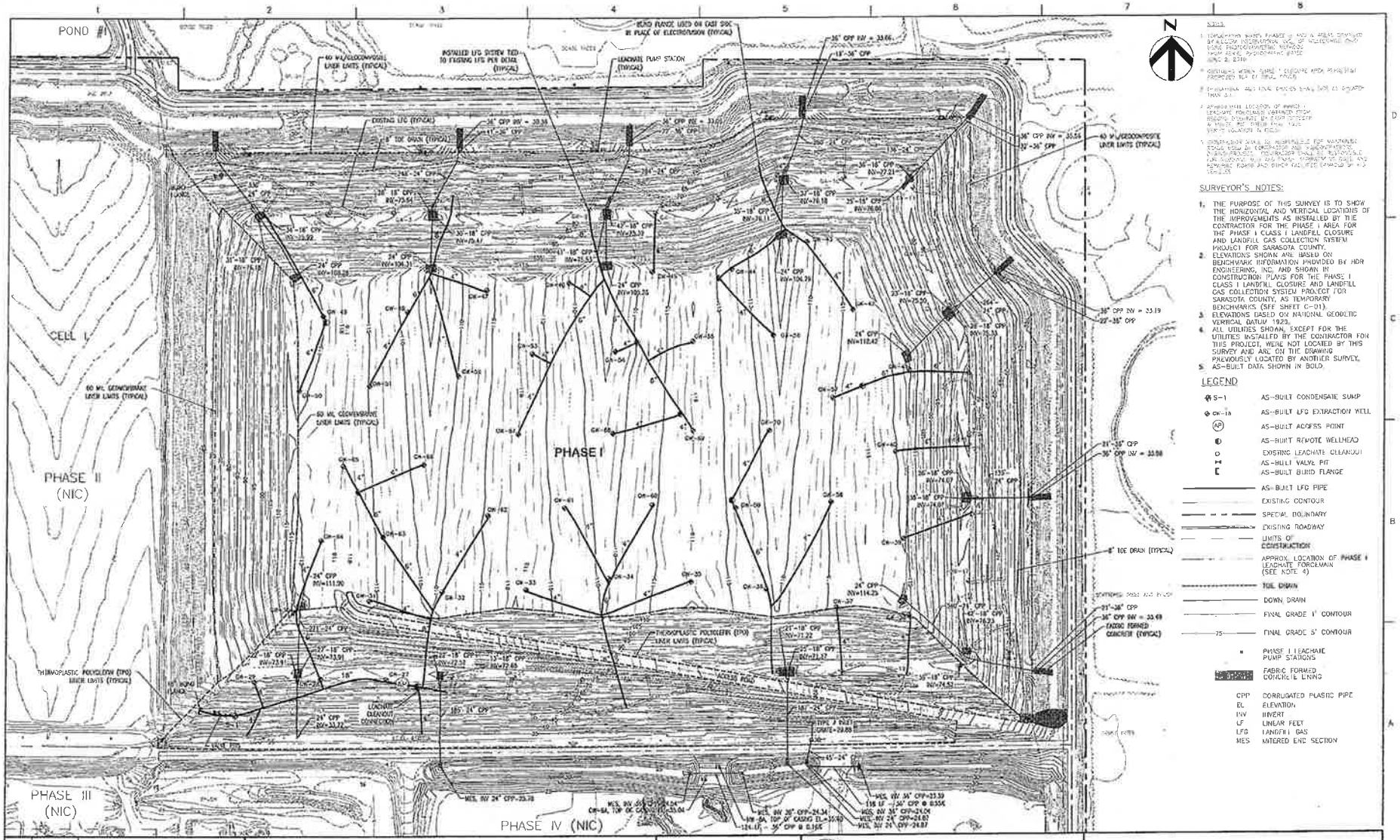
PROJECT NUMBER 00086-139530-003

0 1" 2"

FILENAME 00C-05A AS-BUILT.DWG

SCALE 1"=100'

SHEET C-05A



ISSUE	DATE	DESCRIPTION
3	1/21/13	REVISED PER COMMENTS
2	12/21/12	REVISED PER COMMENTS
1	11/14/12	AS-BUILT SURVEY

LAYOUT SERVICES, INC.
3560 S PARK AVE STE F (321) 269-4774
TITUSVILLE, FL 32780 (321) 504-9749 (FAX)

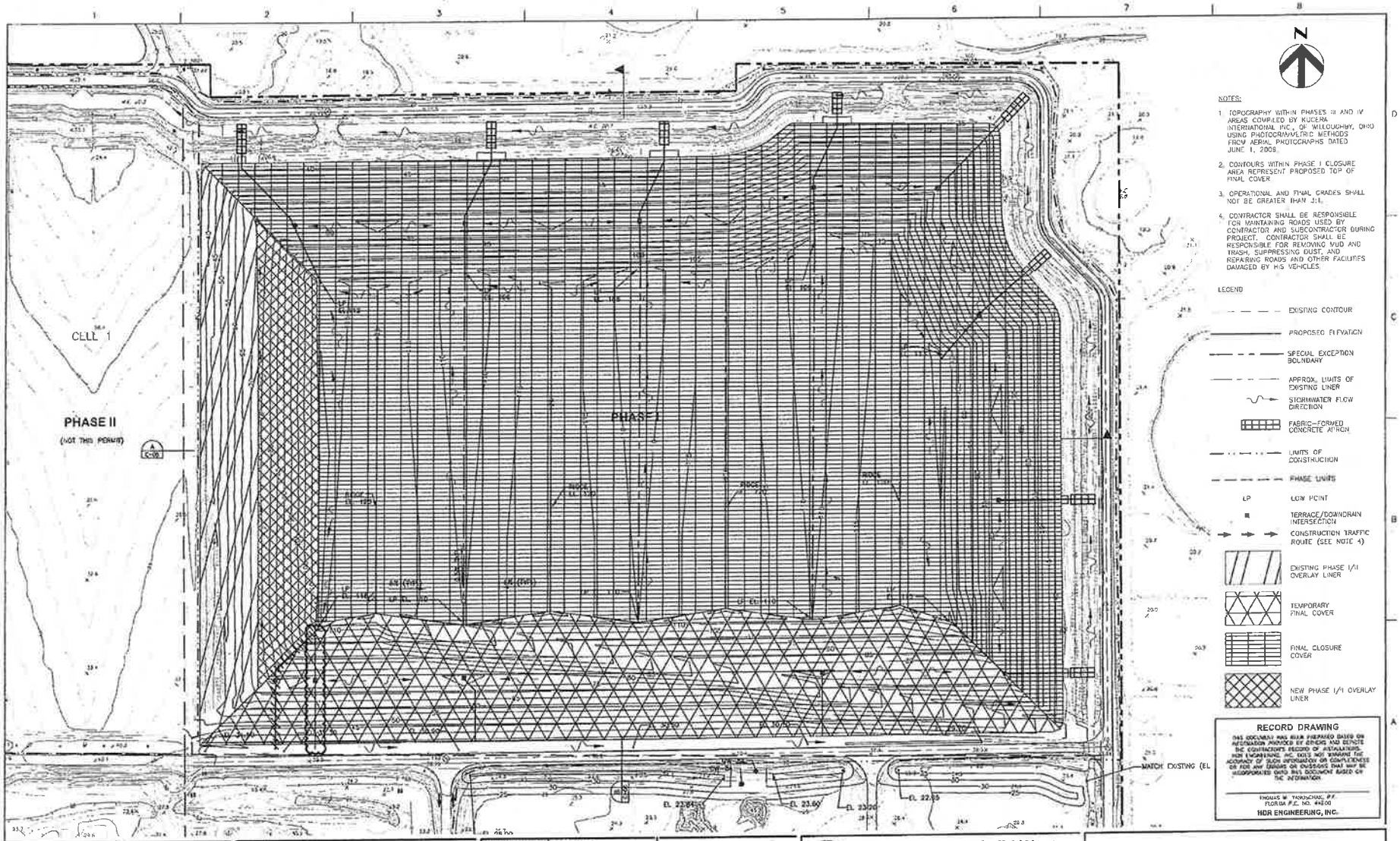
James Zimmerman
Professional Land Surveyor No. 6545
State of Florida

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM AS-BUILT SURVEY
SARASOTA COUNTY FLORIDA

PHASE I CLOSURE FINAL SITE PLAN AS-BUILT SURVEY

PROJECT NUMBER 60096-130130-003
0 1" 2"
FILENAME 60C-03B AS-BUILT.DWG
SCALE 1"=100'
SHEET C-05B



HDR

HDR Engineering, Inc.
2211 Celebration Blvd., Ste. 106
Sarasota, FL 34237-4910
(941) 342-2200
CA#0004215

ISSUE	DATE	DESCRIPTION
2	03/2013	RECORD DRAWINGS
1	12/2011	ISSUED FOR IFCA NO. 1
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEVERING
REVIEWED BY	J. TIMMONS, R. SIEVERING
CIVIL DESIGN	C. RESTREPO, T. YANOSCHAK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	00095-130530-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY FLORIDA

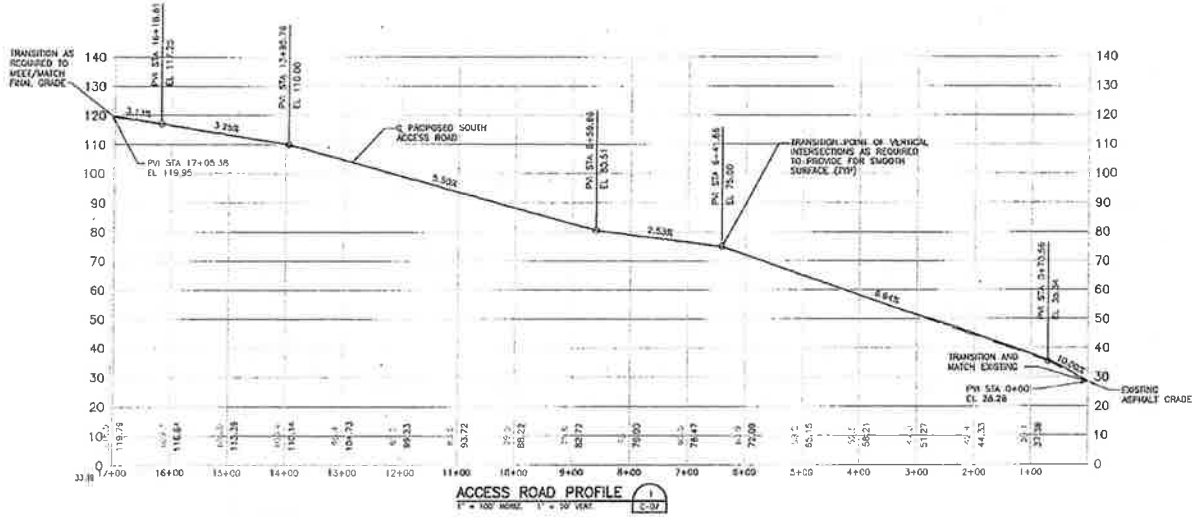
Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

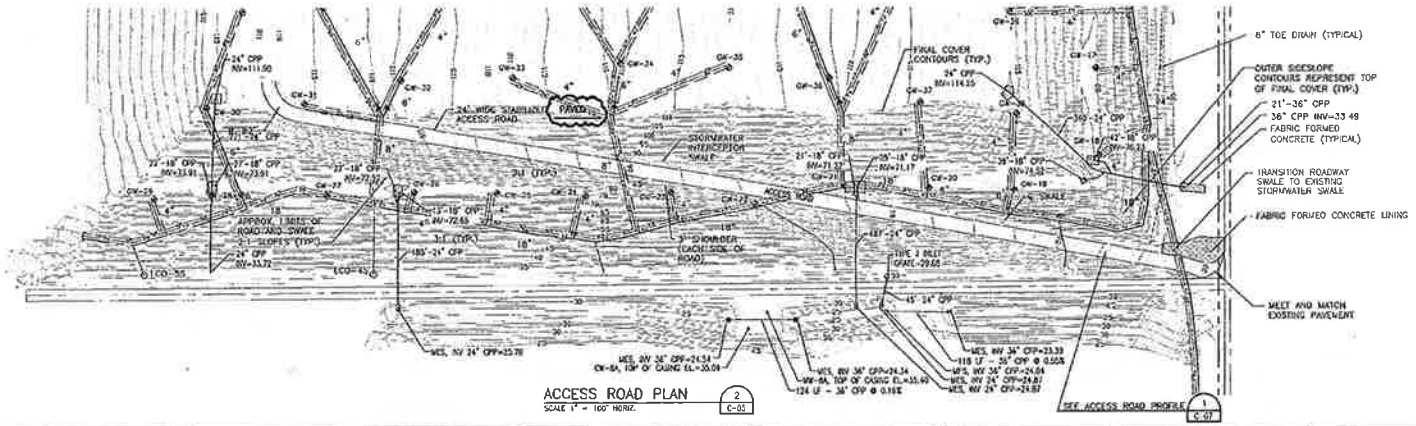
PHASE I CLOSURE COVER KEY SHEET

0 1" 2"

FILENAME	CCC-05_KEY-REV1.DWG
SCALE	1"=100'
SHEET	C-06



ACCESS ROAD PROFILE (1 / C-07)
1" = 100' HORIZ. 1" = 20' VERT



ACCESS ROAD PLAN (2 / C-05)
SCALE 1" = 100' HORIZ.

N

GRAPHIC SCALE
0 50 100 200
SCALE IN FEET
1" = 100'
AND AS SHOWN

NOTE
1. LANDFILL GAS COLLECTION SYSTEM AND STORMWATER FEATURES SHOWN TO PROVIDE CLARITY FOR CONSTRUCTION OF ROADWAY.

RECORD DRAWING
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THOMAS M. YANOSCHAK, P.E.
FLORIDA P.E. NO. 44200
HDR ENGINEERING, INC.

HDR
HDR Engineering, Inc.
3925 Castleton Rd., Ste. 106
Sarasota, FL 34242-3313
(941) 342-2189
CA 00026313

ISSUE	DATE	DESCRIPTION
2	03/2013	RECORD DRAWINGS
1	12/2011	ISSUED FOR RCA NO. 1
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER R. SIEWERING
REVIEWED BY J. TIMMONS, R. SIEWERING
CIVIL DESIGN C. RESTREPO, T. YANOSCHAK
DRAWN BY B. JOHNSON
PROJECT NUMBER 00098-130530-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

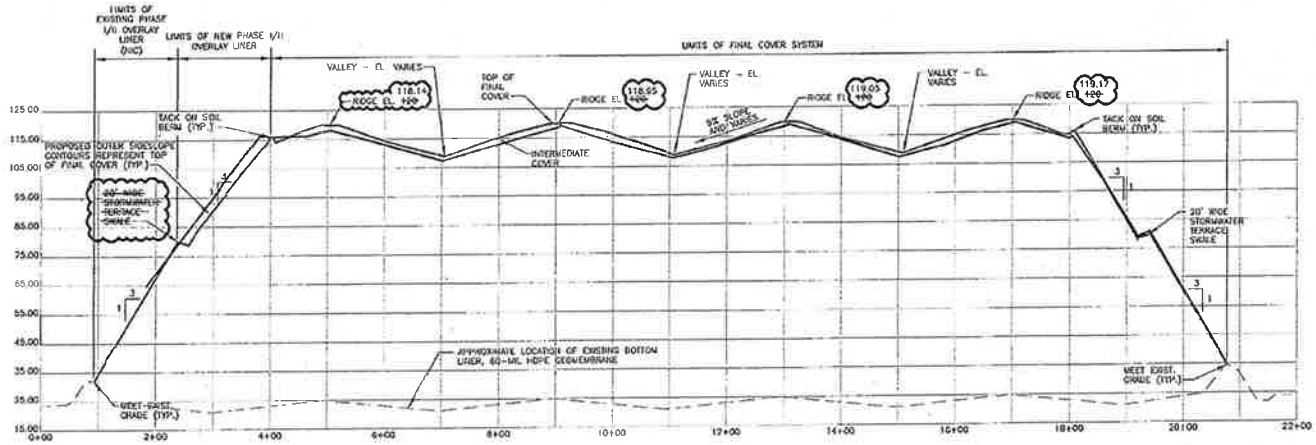
SARASOTA COUNTY

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS
FLORIDA

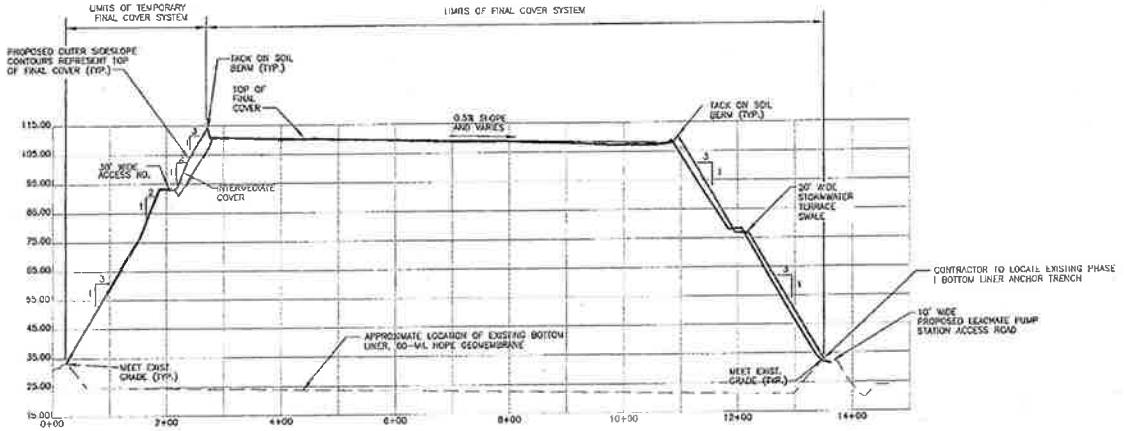
PLAN AND PROFILE PHASE I ACCESS ROAD

0 1" 2"
FILENAME C-7 AS-BLT.DWG
SCALE AS SHOWN
SHEET C-07

C:\pwworking\tpa\d0429254\C-7 AS-BLT.dwg, Plot, 2/7/2013 11:33:05 AM, rivera



SECTION A
1" = 100' HORIZ. 1" = 10' VERT. (A / C-05)



SECTION B
1" = 100' HORIZ. 1" = 10' VERT. (B / C-05)

NOTES

1. FILLING GRADES AND ELEVATIONS ARE APPROXIMATE, SEE PERMITTED FILLING PLAN PREPARE BY HDR ENGINEERING, INC DATED JANUARY 2008, FOR GRADES AND ELEVATIONS.
2. OPERATIONAL AND FINAL WASTE GRADES SHALL NOT BE GREATER THAN 3:1.
3. MAINTAIN OPERATION BERMS AT ALL ACTIVE WORKING FACES TO CONTAIN ALL STORMWATER COMMINGLED WITH WASTE.
4. MAINTAIN POSITIVE DRAINAGE AT ALL TIMES.

RECORD DRAWING

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Sarasota, FL 34231-6113
(941) 342-2700
CA 00004119

ISSUE	DATE	DESCRIPTION
2	03/2013	RECORD DRAWINGS
1	12/2011	ISSUED FOR BCA NO. 1
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	J. TIMMONS, R. SIEMERING
CIVIL DESIGN	C. RESTREPO, T. YANOSCHAK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	00096-130530-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

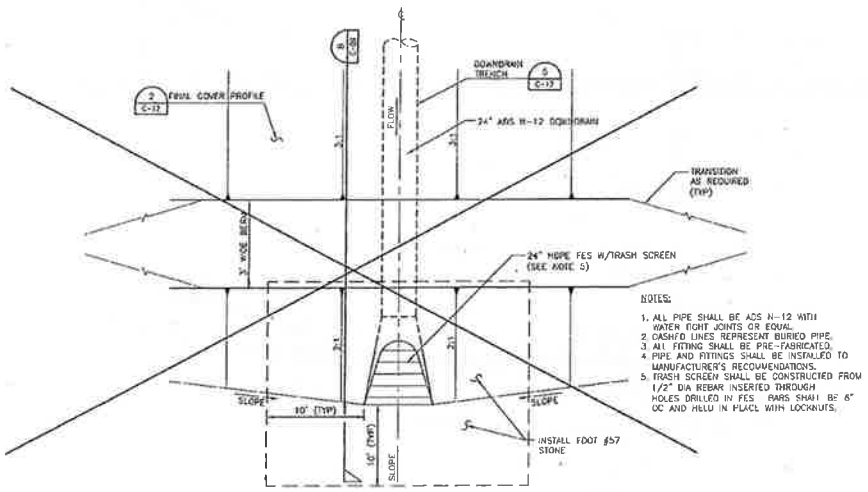
Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL
CLOSURE AND LANDFILL GAS COLLECTION SYSTEM
CONSTRUCTION DRAWINGS
FLORIDA

FULL BUILDOUT SECTIONS

0 1" 2"

FILENAME	C-8 AS-BLT.DWG
SCALE	AS SHOWN
SHEET	C-08

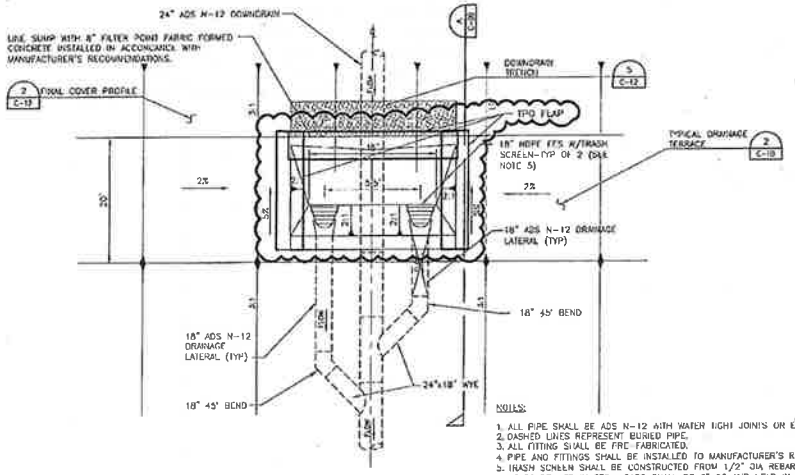
C:\pw\working\tpa\d0422254\C-8 AS-BLT.dwg, FULL BUILDOUT SECTIONS, 2/7/2013 11:37:02 AM, invers



NOTES:

1. ALL PIPE SHALL BE ADS N-12 WITH WATER TIGHT JOINTS OR EQUAL.
2. DASHED LINES REPRESENT BURIED PIPE.
3. ALL FITTING SHALL BE PRE-FABRICATED.
4. PIPE AND FITTINGS SHALL BE INSTALLED TO MANUFACTURER'S RECOMMENDATIONS.
5. TRASH SCREEN SHALL BE CONSTRUCTED FROM 1/2" DIA REBAR INSERTED THROUGH HOLES DRILLED IN FES. BARS SHALL BE 6" OC AND HELD IN PLACE WITH LOCKNUTS.

PLAN VIEW



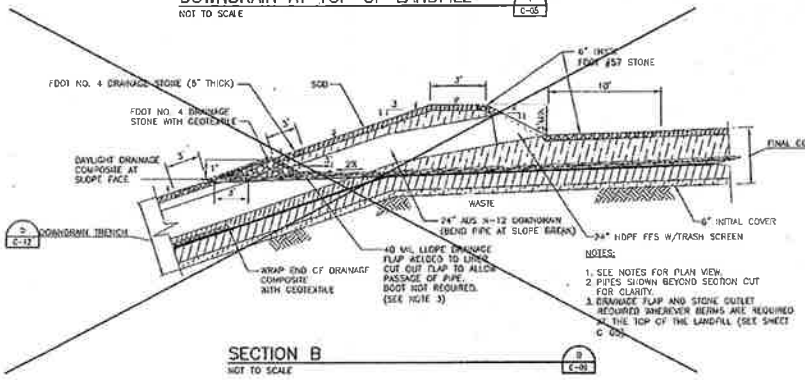
NOTES:

1. ALL PIPE SHALL BE ADS N-12 WITH WATER TIGHT JOINTS OR EQUAL.
2. DASHED LINES REPRESENT BURIED PIPE.
3. ALL FITTING SHALL BE PRE-FABRICATED.
4. PIPE AND FITTINGS SHALL BE INSTALLED TO MANUFACTURER'S RECOMMENDATIONS.
5. TRASH SCREEN SHALL BE CONSTRUCTED FROM 1/2" DIA REBAR INSERTED THROUGH HOLES DRILLED IN FES. BARS SHALL BE 6" OC AND HELD IN PLACE WITH LOCKNUTS.
6. SEE DETAIL 1, SHEET C-18 FOR TYPICAL TEMPORARY FINAL COVER INSTALLATION FOR SQUIDL SLOPE.
7. TPO FLAPS ANCHORED TO FABRIC FORMED CONCRETE.

PLAN VIEW

DOWNDRAIN AT TOP OF LANDFILL

NOT TO SCALE



NOTES:

1. SEE NOTES FOR PLAN VIEW.
2. PIPES SHOWN BEYOND SECTION CUT FOR CLARITY.
3. DRAINAGE FLAP AND STONE OUTLET REQUIRED WHEREVER BERMS ARE REQUIRED AT THE TOP OF THE LANDFILL (SEE SHEET C-09).

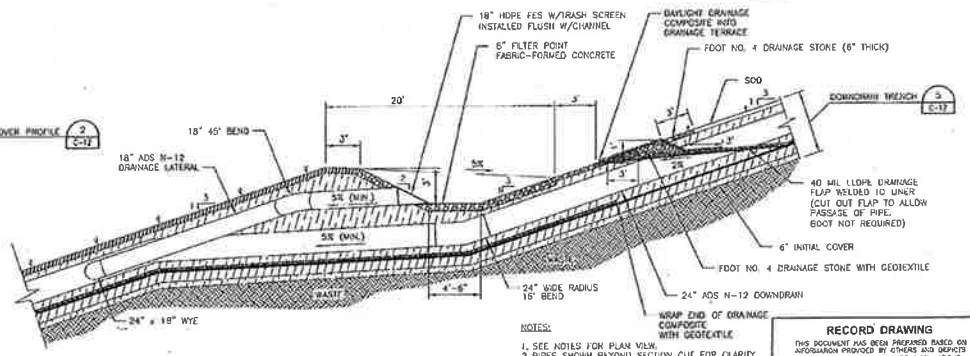
SECTION B

NOT TO SCALE

SEE SHEET C-09A FOR REVISIONS

TERRACE / DOWNDRAIN INTERSECTION (NORTH AND EAST SLOPES)

NOT TO SCALE



NOTES:

1. SEE NOTES FOR PLAN VIEW.
2. PIPES SHOWN BEYOND SECTION CUT FOR CLARITY.
3. EXCAVATE WASTE AS NEEDED TO ALLOW PLACEMENT OF 24" DOWNDRAIN.

SECTION A

NOT TO SCALE

RECORD DRAWING

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THOMAS M. YANOSCHAK, P.E.
FLORIDA P.E. NO. 44200
HDR ENGINEERING, INC.

HDR

HDR Engineering, Inc.
2601 Cattlemen Rd., Ste 100
Sarasota, FL 34232-6312
(941) 365-3780
CA 00004172

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER: R. SIEMERING
REVIEWED BY: J. HAWKINS, R. SIEMERING
CIVIL DESIGN: C. RESTREPO, T. YANOSCHAK
DRAWN BY: B. JOHNSON
PROJECT NUMBER: 00016-130530-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY FLORIDA

Central County Solid Waste Disposal Complex

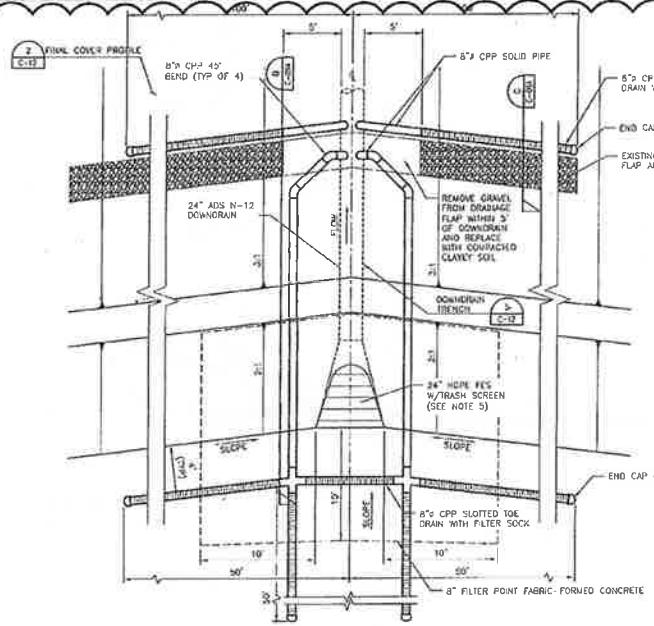
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

PHASE I CLOSURE DETAILS

0 1" 2"

FILENAME: C-9 AS-BLT.DWG
SCALE: AS SHOWN
SHEET: C-09

C:\pwworking\tpa\d0429254\C-9 AS-BLT.dwg, Plot: 2/1/2013 11:28:41 AM, rivera

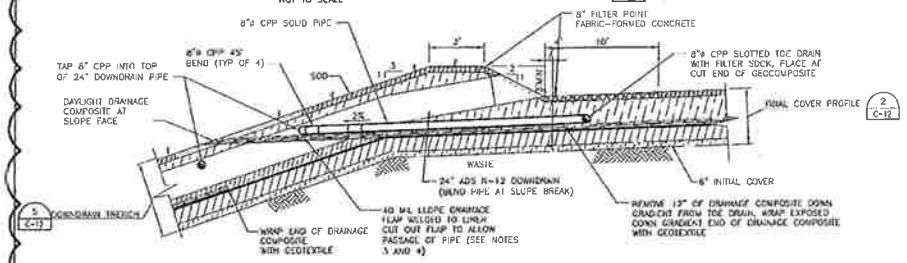


DOWNDRAIN AT TOP OF LANDFILL

NOT TO SCALE

NOTES:

1. ALL PIPE SHALL BE ADS N-12 WITH WATER TIGHT JOINTS OR EQUAL.
2. DASHED LINES REPRESENT BURIED PIPE.
3. ALL FITTING SHALL BE PRE-FABRICATED.
4. PIPE AND FITTINGS SHALL BE INSTALLED TO MANUFACTURER'S RECOMMENDATIONS.
5. TRASH SCREEN SHALL BE CONSTRUCTED FROM 1/2" DIA REBAR INSERTED THROUGH HOLES DRILLED IN FES. BARS SHALL BE 6" CC AND HELD IN PLACE WITH LOCKNUTS.

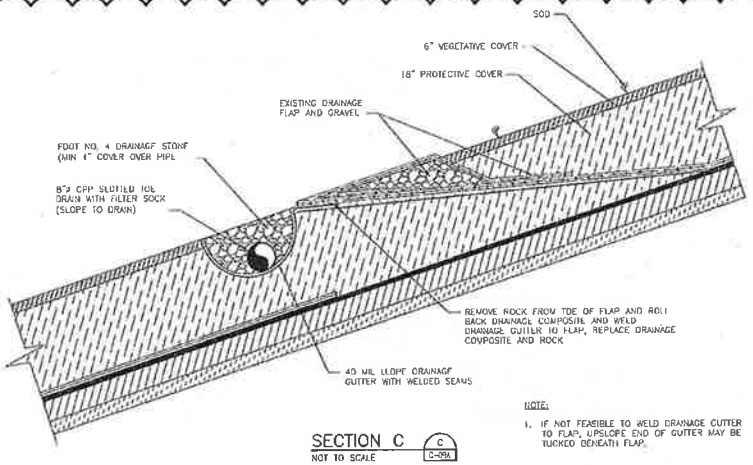


SECTION B

NOT TO SCALE

NOTES:

1. SEE NOTES FOR PLAN VIEW.
2. PIPES SHOWN BEYOND SECTION CUT FOR CLARITY.
3. DRAINAGE FLAP AND STONE OUTLET REQUIRED WHEREVER BERMS ARE REQUIRED AT THE TOP OF THE LANDFILL (SEE SHEET C-05).
4. FABRICATE 40 MIL LLDPE BOOT AROUND 24" DOWNDRAIN PIPE, CLAMP BOOT TO PIPE AND SEAL WITH SILICONE CAULK.



SECTION C

NOT TO SCALE

NOTE:

1. IF NOT FEASIBLE TO WELD DRAINAGE CUTTER TO FLAP, UPSLOPE END OF GUTTER MAY BE TUCKED BENEATH FLAP.

RECORD DRAWING

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THOMAS M. YANOSCHAK, P.E.
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HDR ENGINEERING, INC.

HDR

HDR Engineering, Inc.
3809 Clark Road, Ste 108
Sarasota, FL 34233-2713
(941) 342-8790
CA0000613

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	N. SIEMERING
REVIEWED BY	J. SIMMONS, N. SIEMERING
CIVIL DESIGN	C. RESTREPO, T. YANOSCHAK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	00096-130530-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

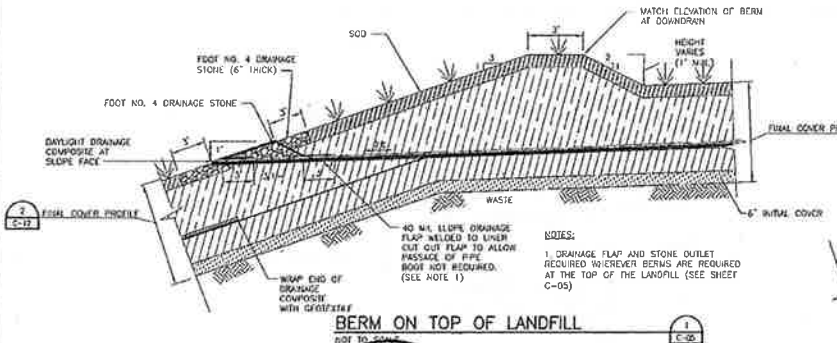
SARASOTA COUNTY FLORIDA

PHASE I CLOSURE DETAILS
DOWNDRAIN IMPROVEMENTS

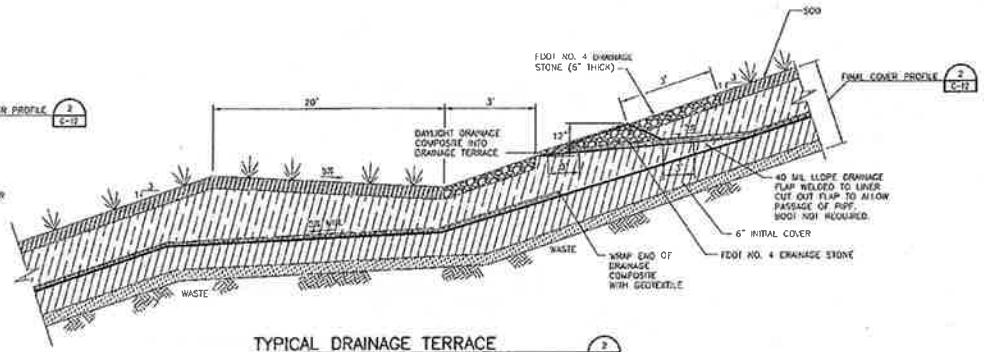
0 1" 2"

FILENAME	C-9A AS-BLT.DWG
SCALE	AS SHOWN
SHEET	C-09A

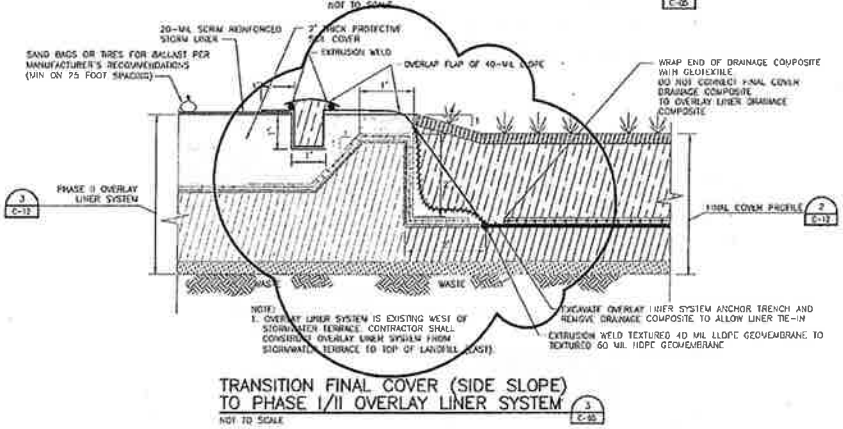
C:\pwworking\tpad\04282541\C-9A AS-BLT.dwg, 22x34 Plan, 2/7/2013 11:41:57 AM, rivera



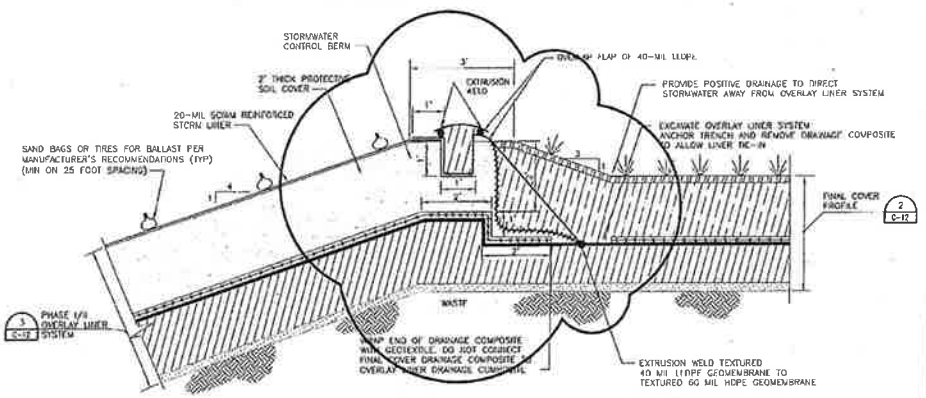
BERM ON TOP OF LANDFILL
NOT TO SCALE



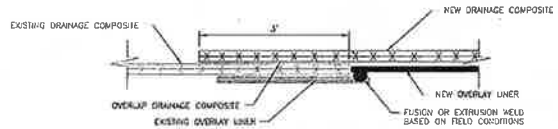
TYPICAL DRAINAGE TERRACE
NOT TO SCALE



TRANSITION FINAL COVER (SIDE SLOPE) TO PHASE I/II OVERLAY LINER SYSTEM
NOT TO SCALE



TRANSITION FINAL COVER (TOP SLOPE) TO PHASE I/II OVERLAY LINER SYSTEM
NOT TO SCALE



EXISTING OVERLAY LINER TO NEW OVERLAY LINER TIE-IN
NOT TO SCALE

RECORD DRAWING

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2415 Cattlemen Rd., Ste. 108
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(813) 343-8750
CA0000178

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEVERING
REVIEWED BY	J. TIMMONS, R. SIEVERING
CIVIL DESIGN	C. RESTREPO, T. YANOSCHAK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	00098-120530-005

THOMAS M. YANOSCHAK, P.E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

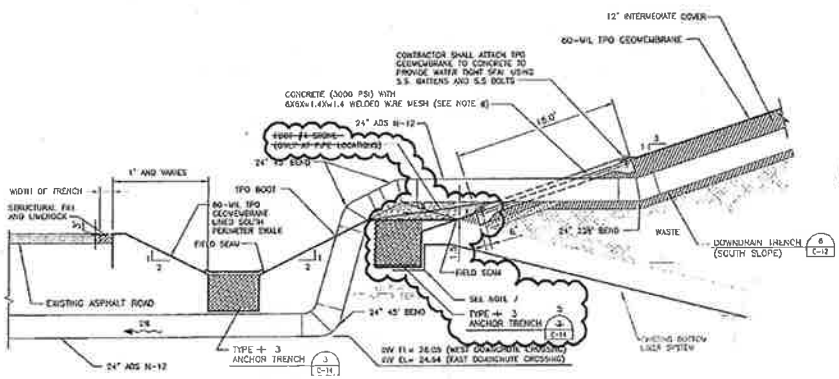
FLORIDA

PHASE I CLOSURE DETAILS

0 1" 2"

FILENAME	C-10 AS-BLT.DWG
SCALE	AS SHOWN
SHEET	C-10

C:\pw\working\tpa\d0429254\C-10 AS-BLT.dwg, Plot, 2/7/2013 10:44:39 AM, rivera

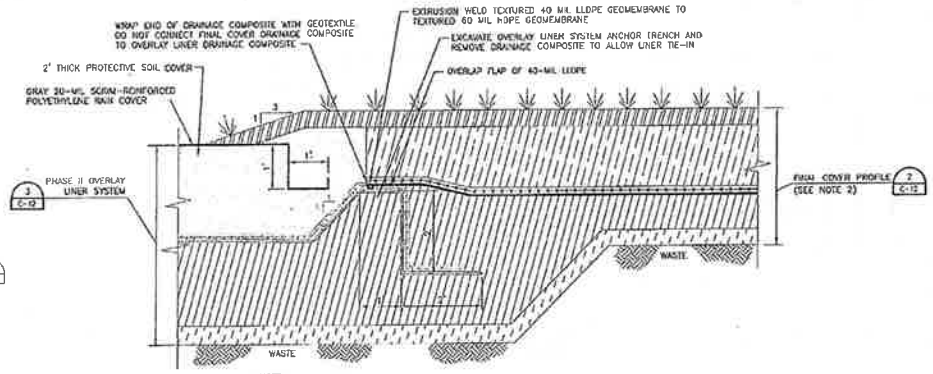


STORMWATER DOWNDRAIN DISCHARGE AT ROAD CROSSING

NOT TO SCALE

NOTES:

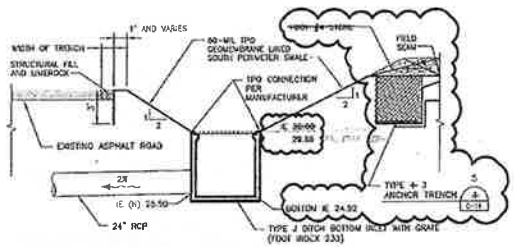
1. ALL PIPE SHALL BE ADS N-12 WITH WATER TIGHT JOINTS OR EQUAL.
2. ALL PIPE FITTINGS SHALL BE PREFABRICATED AND SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
3. CAREFULLY EXPOSE EXISTING BOTTOM LINER AND PLACE TPO GEOMEMBRANE ON TOP.
4. DO NOT WELD TPO GEOMEMBRANE TO EXISTING BOTTOM LINER.
5. ANNULAR SPACE BETWEEN CONCRETE AND PIPE SHALL BE FILLED WITH WEATHER RESISTANT SEALANT OR APPROVED EQUAL.
6. CONCRETE PAD SHALL BE LENGTH SHOWN AND WIDTH BASED ON FDOT INDEX 273 FOR MITERED END SECTION FOR 24" HDPE.
7. CONTRACTOR TO LOCATE EXISTING PHASE I BOTTOM LINER ANCHOR TRENCH.



NOTE:
1. OVERLAY LINER SYSTEM IS EXISTING WEST OF STORMWATER TERRACE. CONTRACTOR SHALL CONSTRUCT OVERLAY LINER SYSTEM FROM STORMWATER TERRACE TO TOP OF LANDFILL (EAST).
2. THICKNESS OF INTERMEDIATE COVER VARIES. MINIMUM 1 FOOT.

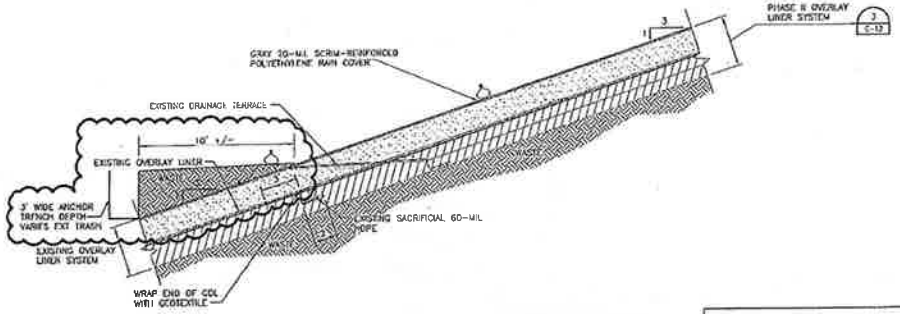
TRANSITION FINAL COVER (SIDE SLOPE) TO PHASE I/II OVERLAY LINER SYSTEM

NOT TO SCALE



TPO CONNECTION TO DITCH BOTTOM INLET

NOT TO SCALE



TRANSITION EXISTING OVERLAY LINER TO PROPOSED OVERLAY LINER

NOT TO SCALE

RECORD DRAWING

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HDR

HDR Engineering, Inc.
3631 Cortez Rd., Ste. 108
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(941) 907-2200
Certificate #

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	J. TAMONS, R. SIEMERING
CIVIL DESIGN	C. RESTREPO, T. YANOSCHAK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	00006-130330-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

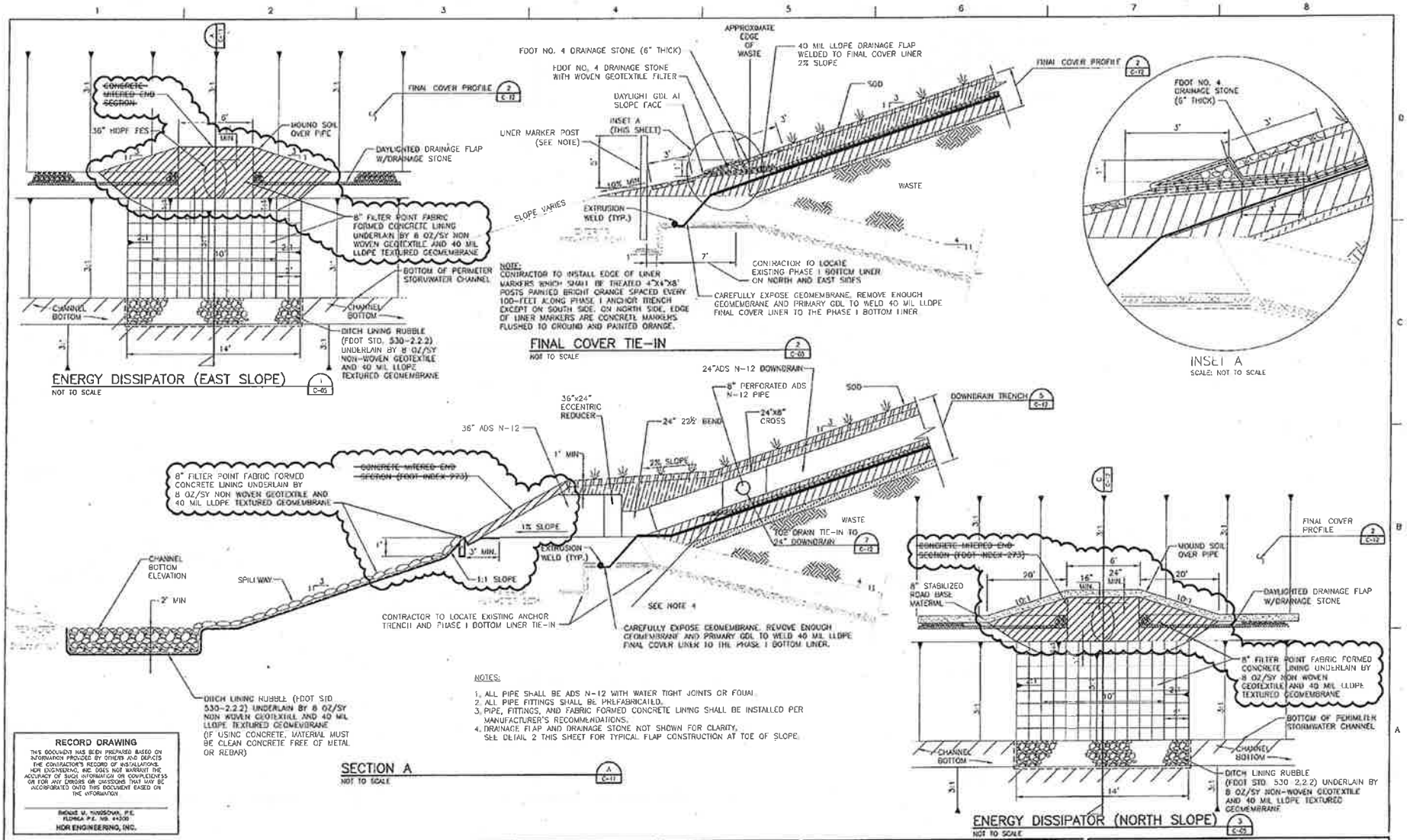
FLORIDA

PHASE I CLOSURE DETAILS

0 1" 2"

FILENAME	C-10A AS-BLT.DWG
SCALE	AS SHOWN
SHEET	C-10A

C:\pwworking\tpa\d0428254\C-10A AS-BLT.dwg, Plot, 2/7/2013 10:46:07 AM, irvora



RECORD DRAWING

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RHONDA M. YANOSCHAK, P.E.
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COA000313

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEVERING
REVIEWED BY	J. TIMMONS, R. SIEVERING
CML DESIGN	C. RESTREPO, T. YANOSCHAK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	00096-130530-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL
CLOSURE AND LANDFILL GAS
COLLECTION SYSTEM
CONSTRUCTION DRAWINGS

FLORIDA

PHASE I CLOSURE DETAILS

0 1" 2"

FILENAME C-11 AS-BLT.DWG
SCALE AS SHOWN

SHEET C-11

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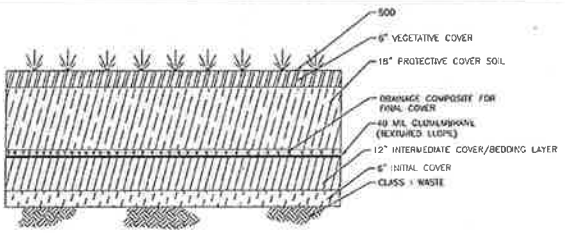
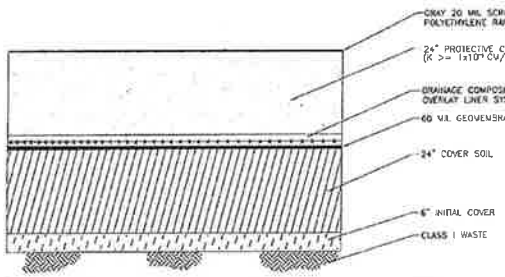
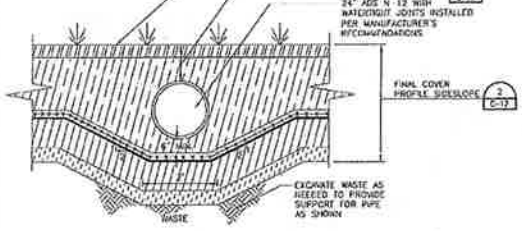


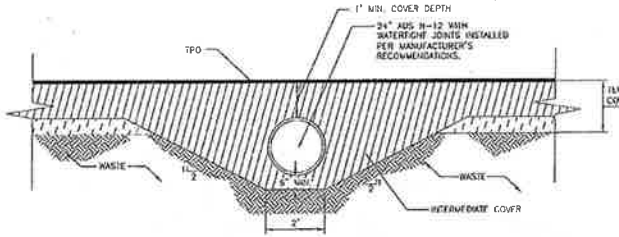


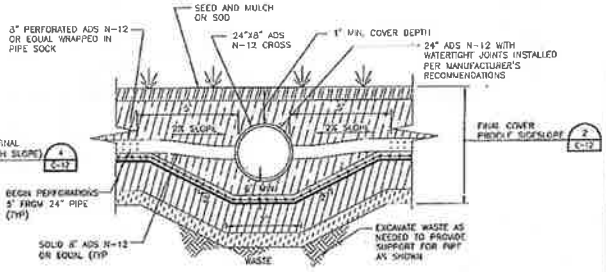
TEMPORARY FINAL COVER (SOUTH SLOPE)
NOT TO SCALE
4 C-14 C-15 C-17 C-18

FINAL COVER PROFILE
NOT TO SCALE
2 C-05 C-09 C-10 C-11 C-17



PHASE I/II OVERLAY LINER SYSTEM
NOT TO SCALE
3 C-08 C-10 C-17



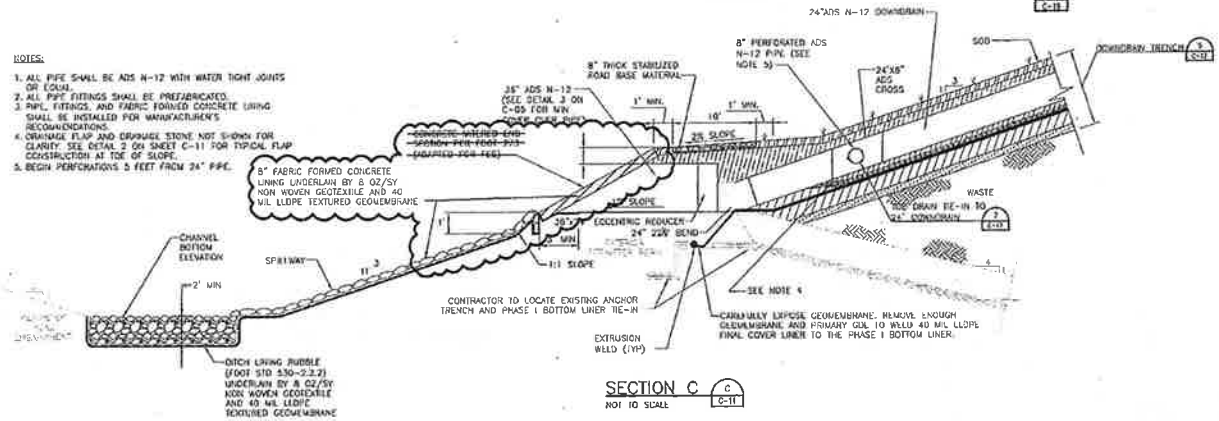


DOWN DRAIN TRENCH (NORTH, EAST SLOPES)
NOT TO SCALE
5 C-10 C-11

DOWNDRAIN TRENCH (SOUTH SLOPE)
NOT TO SCALE
6 C-08 C-10 C-18

TOE DRAIN TIE-IN TO 24" DOWNDRAIN
NOT TO SCALE
7 C-08 C-11

NOTES:
1. ALL PIPE SHALL BE ADS N-12 WITH WATER TIGHT JOINTS OR EQUAL.
2. ALL PIPE FITTINGS SHALL BE PREFABRICATED.
3. PIPE, FITTINGS, AND FABRIC FORMED CONCRETE LINING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
4. DRAINAGE FLAP AND DRAINAGE STONE NOT SHOWN FOR CLARITY. SEE DETAIL 2 ON SHEET C-11 FOR TYPICAL FLAP CONSTRUCTION AT TOE OF SLOPE.
5. BEGIN PERFORATIONS 5 FEET FROM 24" PIPE.



SECTION C
NOT TO SCALE
C C-11

RECORD DRAWING

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THOMAS M. YANOSCHAK, P.E.
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CA 00001717

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	N. SIEMERING
REVIEWED BY	J. IANNOTIS, N. SIEMERING
CIVIL DESIGN	C. RESTREPO, T. YANOSCHACK
DRAWN BY	D. JOHNSON
PROJECT NUMBER	00065-130550-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY FLORIDA

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

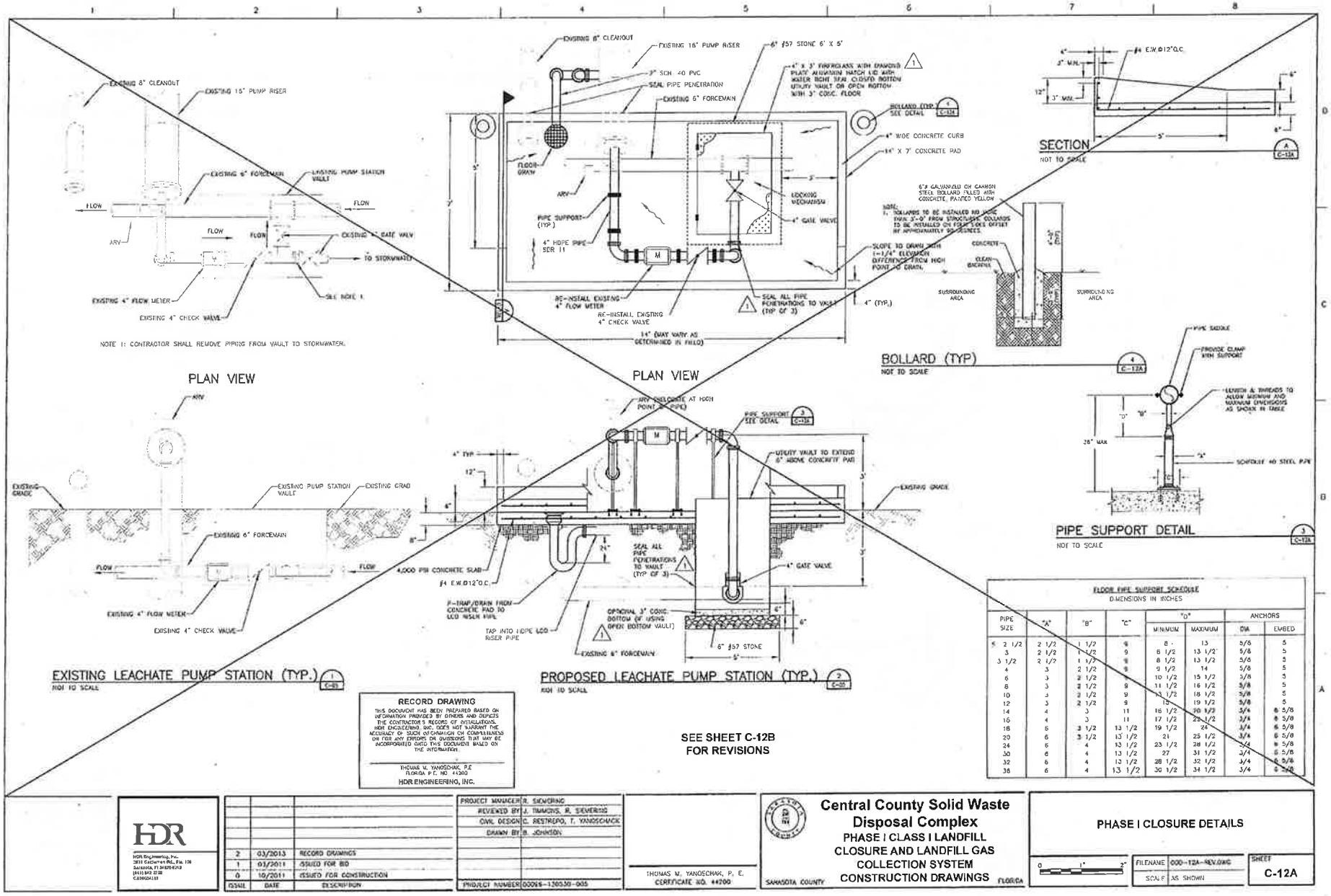
PHASE I CLOSURE DETAILS

0 1" 2"

FILENAME C-12A AS-BLT.DWG
SCALE AS SHOWN

SHEET C-12

C:\pwworking\tpaid\0429254\C-12A AS-BLT.dwg, Plot, 2/7/2013 10:49:32 AM, invera



FLOOR PIPE SUPPORT SCHEDULE
DIMENSIONS IN INCHES

PIPE SIZE	"A"	"B"	"C"	"D" MINIMUM	"D" MAXIMUM	ANCHORS DIA	ANCHORS EMBED
≤ 2 1/2	2 1/2	1 1/2	9	8	13	5/8	5
3	2 1/2	1 1/2	9	8 1/2	13 1/2	5/8	5
3 1/2	2 1/2	1 1/2	9	8 1/2	13 1/2	5/8	5
4	3	2 1/2	9	9 1/2	14	5/8	5
6	3	2 1/2	9	10 1/2	15 1/2	5/8	5
8	3	2 1/2	9	11 1/2	16 1/2	5/8	5
10	3	2 1/2	9	13 1/2	18 1/2	5/8	5
12	3	2 1/2	9	15	19 1/2	5/8	5
14	4	3	11	16 1/2	20 1/2	3/4	6 5/8
16	4	3	11	17 1/2	22 1/2	3/4	6 5/8
18	6	3 1/2	13 1/2	19 1/2	24	3/4	6 5/8
20	6	3 1/2	13 1/2	21	25 1/2	3/4	6 5/8
24	6	4	13 1/2	23 1/2	28 1/2	3/4	6 5/8
30	6	4	13 1/2	27	31 1/2	3/4	6 5/8
32	6	4	13 1/2	28 1/2	32 1/2	3/4	6 5/8
36	6	4	13 1/2	30 1/2	34 1/2	3/4	6 5/8

RECORD DRAWING

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THOMAS M. YANOSCHAK, P.E.
FLORIDA P.E. NO. 44300
HDR ENGINEERING, INC.

SEE SHEET C-12B
FOR REVISIONS

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2833 Cattlemen Rd., Ste. 106
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C.A. #00004119

ISSUE	DATE	DESCRIPTION
2	03/2013	RECORD DRAWINGS
1	01/2011	ISSUED FOR BID
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER R. SIEVERING
#REVIEWED BY J. TIMMONS, R. SIEVERING
CIVIL DESIGN C. RESTREPO, T. YANOSCHACK
DRAWN BY B. JOHNSON
PROJECT NUMBER 00095-120030-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44700

SARASOTA COUNTY

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL
CLOSURE AND LANDFILL GAS
COLLECTION SYSTEM
CONSTRUCTION DRAWINGS FLORIDA

PHASE I CLOSURE DETAILS

0 1" 2"

FILENAME 000-12A-REV.DWG
SCALE AS SHOWN

SHEET C-12A

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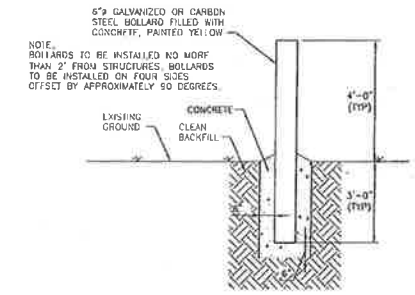
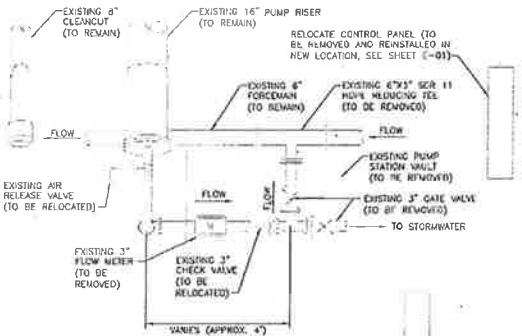
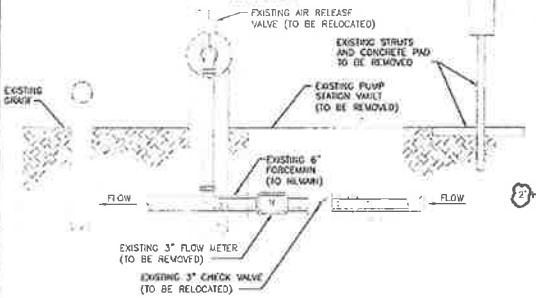


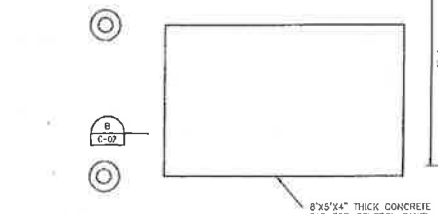
BOLLARD DETAIL 2 C-05
NOT TO SCALE

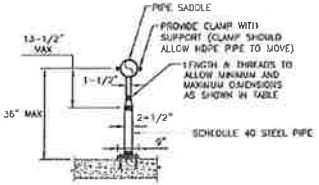


PLAN VIEW
NOT TO SCALE

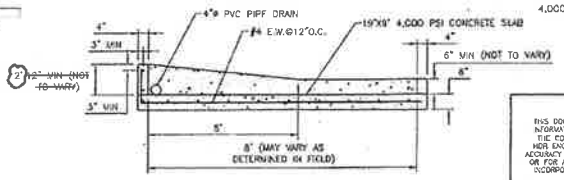


EXISTING LEACHATE PUMP STATION
NOT TO SCALE

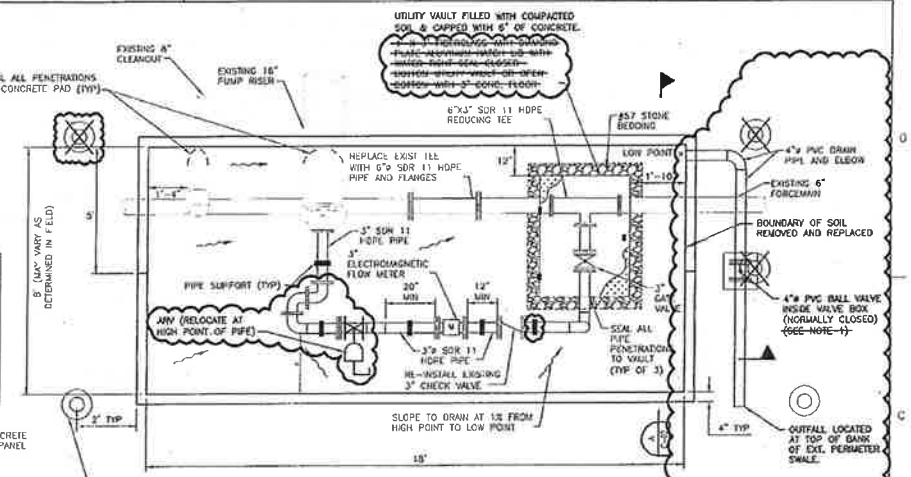




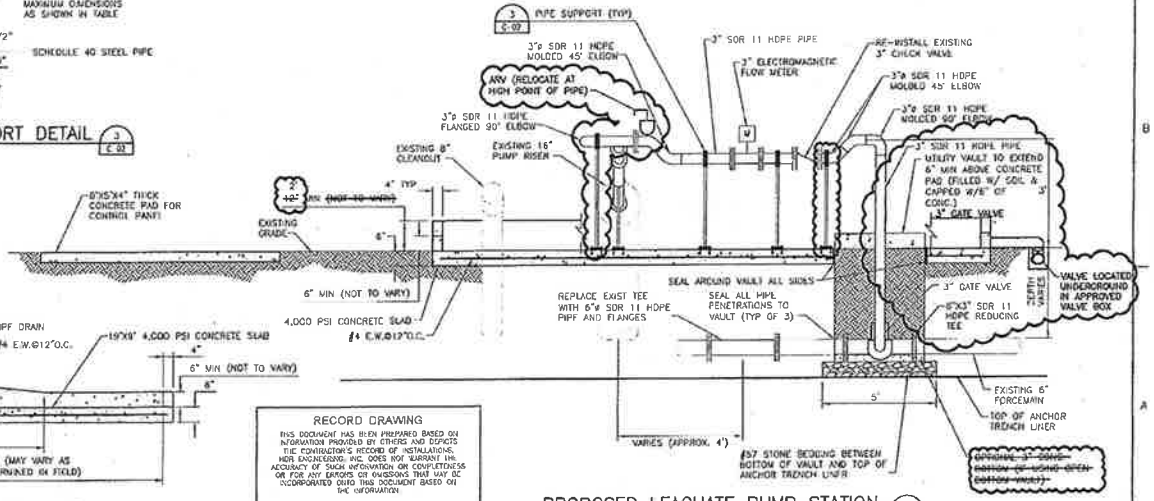
PIPE SUPPORT DETAIL 3 C-03
NOT TO SCALE



SECTION A C-02
NOT TO SCALE



PLAN VIEW
NOT TO SCALE



PROPOSED LEACHATE PUMP STATION a C-02
NOT TO SCALE

RECORD DRAWING

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CA#00004113

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER R. SIEMERING
REVIEWED BY J. TIMMONS, R. SIEMERING
CIVIL DESIGN C. RESTREPO, T. YANOSCHACK
DRAWN BY D. JOHNSON

PROJECT NUMBER 60090-130530-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY FLORIDA

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL
CLOSURE AND LANDFILL GAS
COLLECTION SYSTEM
CONSTRUCTION DRAWINGS

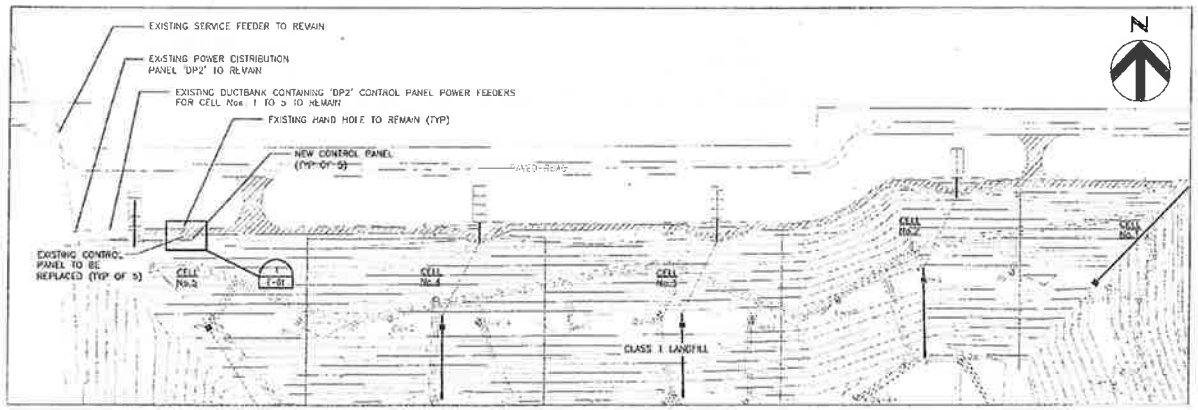
LEACHATE PUMP STATION CIVIL DETAILS

0 1" 2"

FILENAME C-12B AS-BLT.DWG
SCALE AS SHOWN

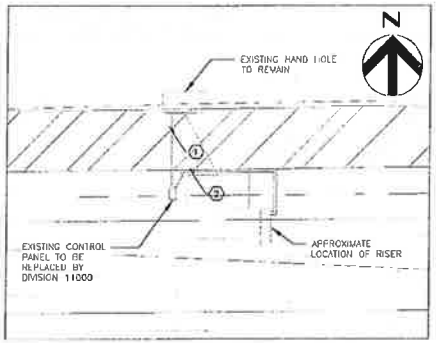
SHEET C-12B

C:\pwworking\tpaldl428254\C-12B AS-BLT.dwg, 22x34 Plan, 2/7/2013 10:51:17 AM, trivere



ELECTRICAL SITE PLAN

SCALE: 1"=100'-0"



EXISTING CELL PLAN VIEW (TYP. OF 5)

SCALE: 1"=10'-0"

GENERAL NOTES:

1. VERIFY ALL MEASUREMENTS AND CONDITIONS IN FIELD PRIOR TO BID SUBMITTAL.
2. CONTRACTOR TO PROVIDE CONDUIT SUPPORTS WHERE REQUIRED BY FIELD CONDITIONS IN ACCORDANCE WITH THE SPECIFICATIONS AND THE LATEST EDITION OF NFPA 70, NATIONAL ELECTRICAL CODE.
3. ALL UNDERGROUND RACEWAY SYSTEMS SHALL BE PVC SCHEDULE 40 UNTIL THE LAST ELBOW BEFORE THE TRANSITION TO ABOVE GROUND, THERE THE CONDUIT SHALL BE RIGID ALUMINUM CONDUIT (RAC). ALL ALUMINUM CONDUIT IN CONTACT WITH EARTH SHALL BE PAINTED WITH AT LEAST TWO COATS OF AN ASPHALT BASE PAINT.

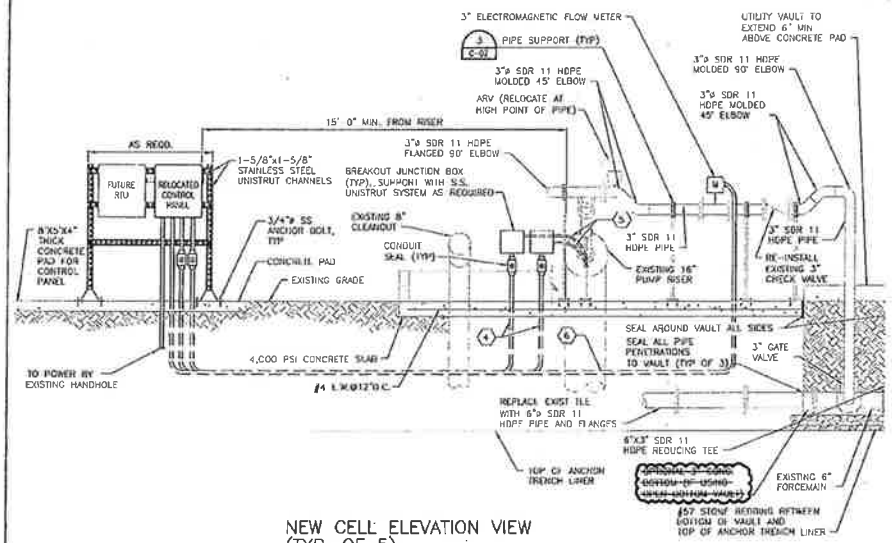
KEYED NOTES:

1. EXISTING CONTROL PANEL POWER FEEDER FROM PANEL 'DP2' TO BE REMOVED FROM EXISTING CONTROL PANEL TO ADJACENT HAND HOLE, LEAVING 5 FEET OF SLACK FOR SPLICING WITHOUT DAMAGING AND REWIRED FROM THE NEW BREAKOUT JUNCTION BOX TO THE PUMP AND CONTROL ELEMENTS. ANY DAMAGED WIRE SHALL BE REPLACED IN KIND WITH EXISTING AT THE CONTRACTORS EXPENSE.
2. EXISTING PUMP POWER FEEDERS AND CONTROL WIRING TO BE REMOVED.
3. NEW CONTROL PANEL POWER FEEDER TO MATCH EXISTING POWER FEEDER CABLES IN TYPE, SIZE, AND QUANTITY, AND SPLICED WITH EXISTING FEEDER FROM EXISTING POWER PANEL 'DP2'. MAKE ALL SPLICES WITH APPROVED AND UL LISTED WATER PROOF SPLICE KITS AND ALLOW ENOUGH SLACK ON THE CABLES TO PULL OUT OF PULLBOX. MARK ALL CABLES WITH THE APPROPRIATE CABLE NUMBER.
4. EXISTING PUMP AND LEVEL ELEMENT NEW POWER AND CONTROL RACEWAY SYSTEM AND WIRING. FIELD VERIFY EXISTING AND PROVIDE NEW RACEWAY SYSTEM AND WIRING FROM THE CONTROL PANEL TO THE NEW BREAKOUT JUNCTION BOX MATCHING THE EXISTING IN SIZE AND QUANTITY.
5. NEW PUMP AND LEVEL ELEMENT POWER AND CONTROL RACEWAY SYSTEM COORDINATE IN THE FIELD WITH OWNER AND EXISTING CONTROL PANEL TO PROVIDE THE NECESSARY RACEWAY SYSTEM AND REWIRE MANUFACTURER PROVIDED CABLES FROM BREAKOUT JUNCTION BOX TO THE PUMP MOTOR AND LEVEL ELEMENT.
6. NEW FLOW METER POWER AND CONTROL CABLES AND RACEWAY SYSTEM:
   - POWER – 3/4" CONDUIT CONTAINING 3#12 AWG.
   - CONTROL CABLE – 1/2" CONDUIT CONTAINING 18 GAGE WITH SHIELD PVC.

LEGEND:

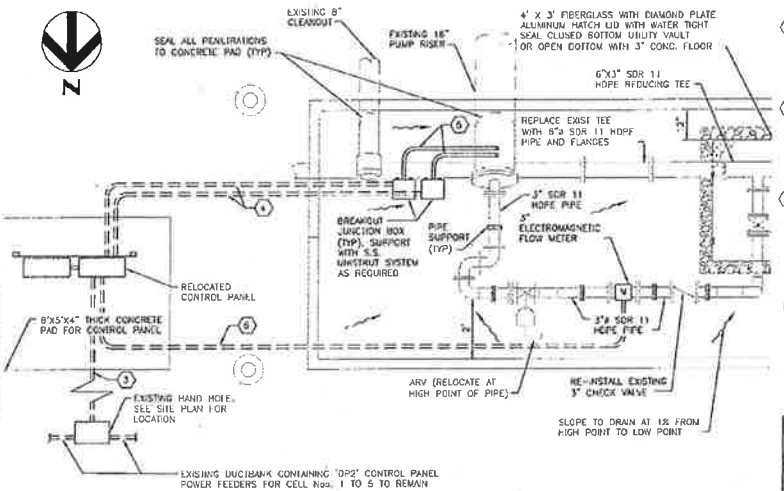
— — — CONDUIT RUN UNDERGROUND.

——— CONDUIT RUN ABOVE GROUND.



NEW CELL ELEVATION VIEW (TYP. OF 5)

SCALE: NOT TO SCALE



NEW CELL PLAN VIEW (TYP. OF 5)

SCALE: NOT TO SCALE

RECORD DRAWING

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THOMAS M. YANOSCHAK, P.E.
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HDR

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2601 Cattlemen Rd., Ste. 126
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CA0000435

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	JULY/2012	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEVERING
REVIEWED BY	J. TIMMONS
CIVIL DESIGN	I. RIVERA
DRAWN BY	J. GONZOLEZ
	O. WESSON
	B. JOHNSON
PROJECT NUMBER	096-153175-009

THOMAS M. YANOSCHAK, P.E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

FLORIDA

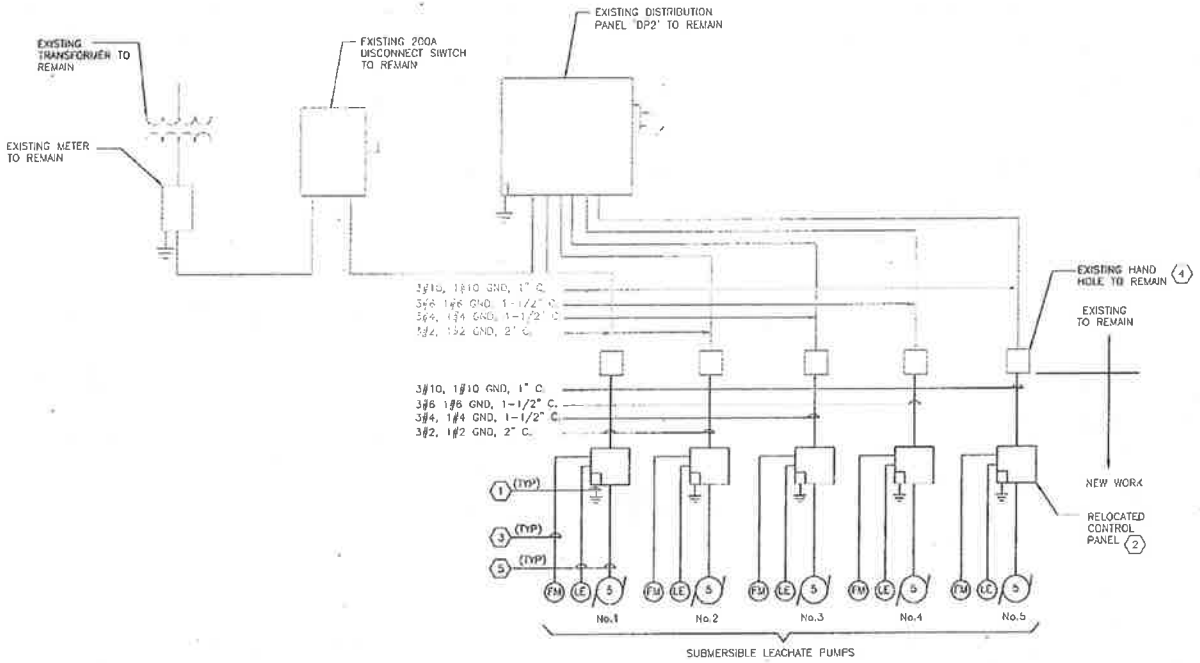
ELECTRICAL SITE PLAN AND DETAILS

0 1" 2"

FILENAME: C-12C AS-BLT.DWG
SCALE: AS SHOWN

SHEET: C-12C

C:\pw\working\paid\0429254\C-12C AS-BLT.dwg, 22x34 Plan, 2/7/2013 10:52:51 AM, rivera



ONE LINE DIAGRAM

SCALE: NTS

GENERAL NOTES:

1. VERIFY ALL MEASUREMENTS AND CONDITIONS IN FIELD PRIOR TO BID SUBMITTAL.

KEYED NOTES:

(1) 3/4" CONDUIT GROUNDING ELECTRODE CONDUCTOR TO MATCH FEEDER GROUND CONDUCTOR SIZE.

(2) NEW CONTROL PANEL TO BE RELOCATED.

(3) NEW FLOW METER POWER AND CONTROL CABLES AND RACEWAY SYSTEM:
- POWER – 3/4" CONDUIT CONTAINING 3#12 AWG.
- CONTROL CABLE 1/2" CONDUIT CONTAINING 18 GAGE WITH SHIELD PVC.

(4) SPLICE EXISTING FEEDER WITH NEW FEEDER USING APPROVED AND UL LISTED WATER PROOF SPLICE KITS AND ALLOW ENOUGH SLACK ON THE CABLES TO PULL OUT OF PULLBOX.

(5) CONDUIT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR. MANUFACTURER FURNISHED WIRING TO BE INSTALLED AND TERMINATED BY THE CONTRACTOR (TYP)

LEGEND:

(5) MOTOR WITH DESIGN HORSEPOWER

(LE) LEVEL ELEMENT

(FM) FLOW METER

GROUND

RECORD DRAWING

THIS DOCUMENT HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTS THE CONTRACTOR'S RECORD OF INSTALLATIONS. HDR ENGINEERING, INC. DOES NOT WARRANT THE ACCURACY OF SUCH INFORMATION OR COMPLETENESS OR FOR ANY ERRORS OR OMISSIONS THAT MAY BE INCORPORATED ONTO THIS DOCUMENT BASED ON THE INFORMATION.

THOMAS M. YANOSCHAK, P.E.
FLORIDA P.E. NO. 44200
HDR ENGINEERING, INC.

HDR

HDR Engineering, Inc.
2483 Castleman Rd. Ste. 100
Sarasota, FL 34232-5919
(941) 342-2700
CA#00213

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	JULY/2012	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEVERING
REVIEWED BY	J. TIMMONS
CIVIL DESIGN	L. RIVERA
DRAWN BY	J. GONZALEZ
	G. WESTCOTT
	B. JOHNSON
PROJECT NUMBER	096-153175-009

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS
FLORIDA

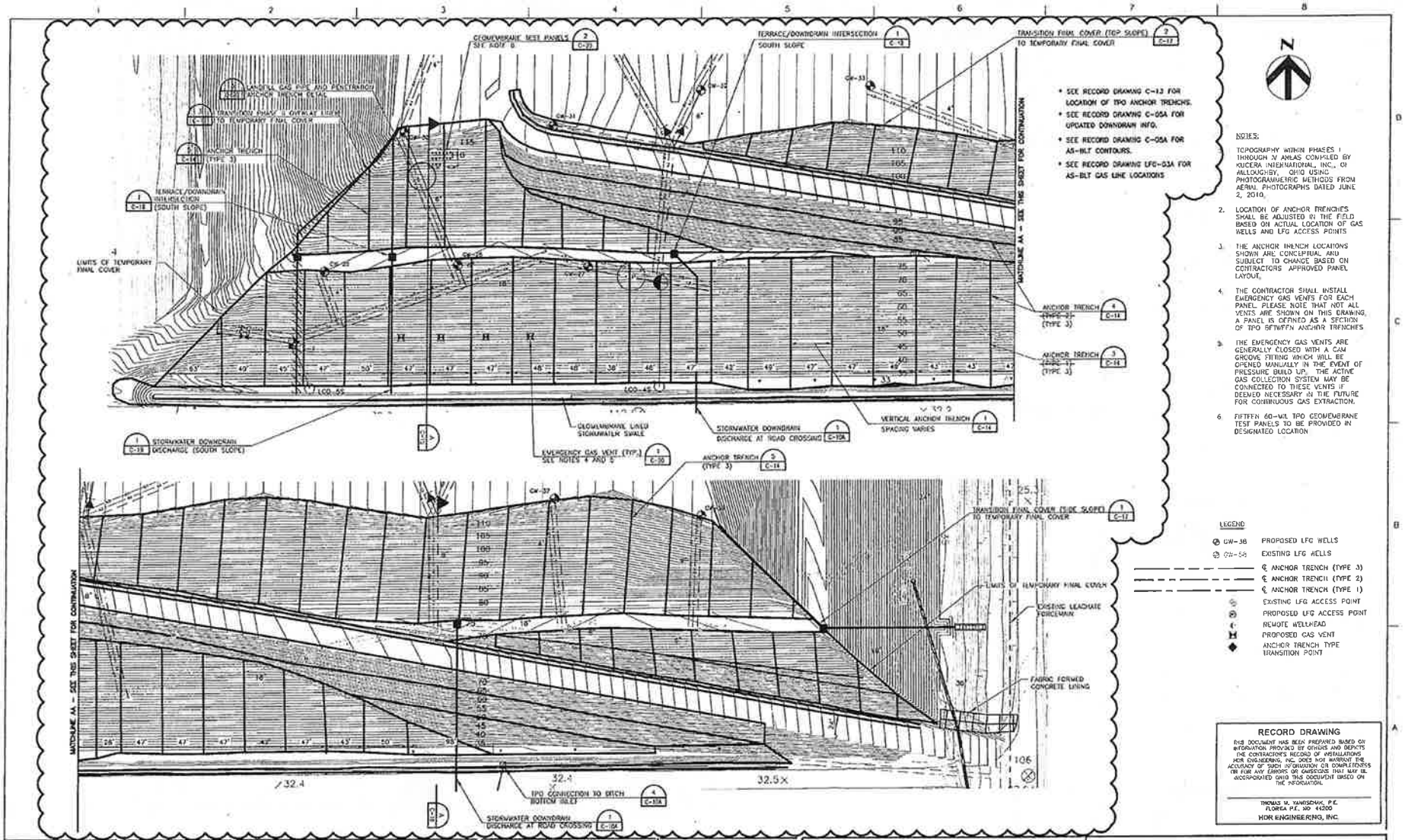
ELECTRICAL ONE LINE DIAGRAM

0 1" 2"

FILENAME C-12D AS BLT.DWG
SCALE AS SHOWN

SHEET C-12D

C:\pwworking\tpeld\d0428254\C-12D AS-BLT.dwg, 22x34 Plan, 2/7/2013 10:54:32 AM, rivera



HDR

ISSUE	DATE	DESCRIPTION
2	03/2013	RECORD DRAWINGS
1	12/2011	ISSUED FOR IFCA NO. 1
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER M. SIEWERING
REVIEWED BY M. ROBERTS
CAD DESIGN K. PERERA
DRAWN BY L. KARSHNER
PROJECT NUMBER 00096-130530-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

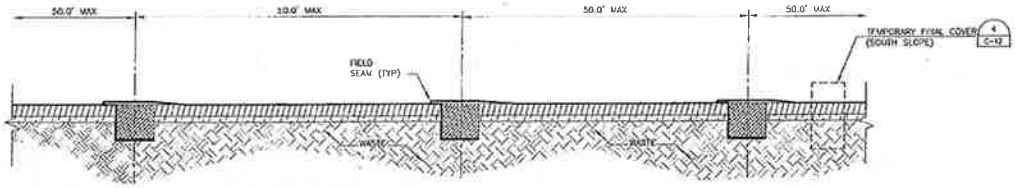
FLORIDA

PHASE I TEMPORARY FINAL COVER LAYOUT AND ANCHOR TRENCH PLAN

0 1" 2"

FILENAME C-13 AS-BLT.DWG
SCALE 1"=50'
SHEET C-13

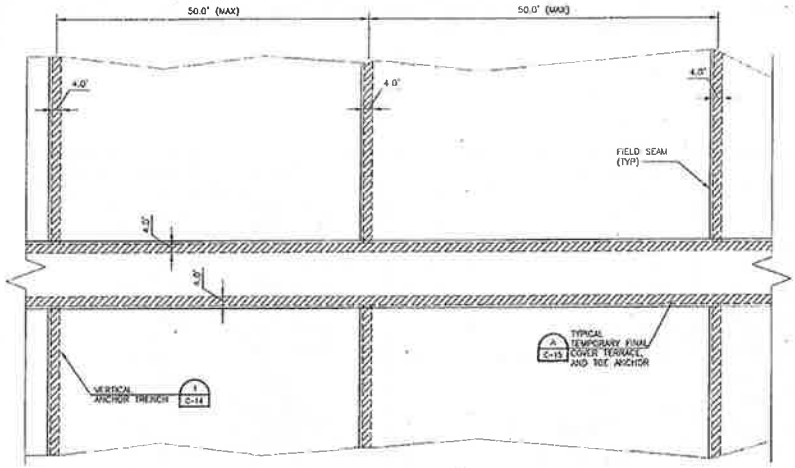
C:\pw working\tpa\d0042525\C-13 AS-BLT.dwg, Plot, 2/7/2013 10:56:36 AM, invera



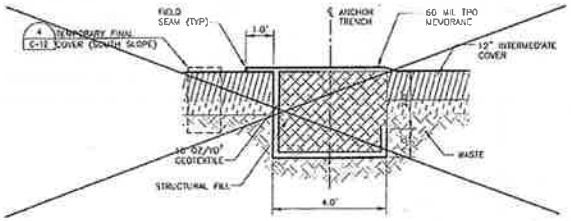
VERTICAL ANCHOR TRENCH SPACING
NOT TO SCALE
1 C-13 C-14

NOTES:

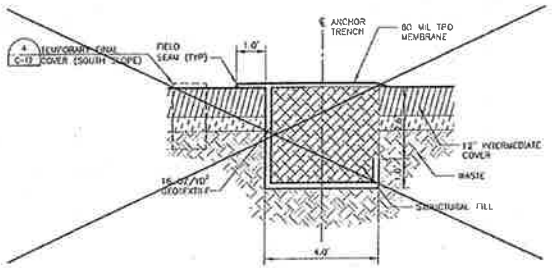
1. MAXIMUM CENTER TO CENTER DISTANCE OF VERTICAL ANCHOR TRENCHES SHALL NOT EXCEED 50 FT, ON 3:1 SIDESLOPES. HORIZONTAL ANCHOR TRENCHES SHOWN IN THE 2:1 SIDESLOPES SHALL NOT EXCEED 25 FT IN THE UPPER 1/3 OF SIDESLOPE AND 32 FT BELOW THE UPPER 1/3 OF THE SIDESLOPE.
2. THE CENTER TO CENTER DIMENSIONS SHOWN ARE CONCEPTUAL AND SUBJECT TO CHANGE BASED ON CONTRACTORS APPROVED PANEL LAYOUT.
3. DURING INSTALLATION OF TEMPORARY FINAL COVER (INCLUDING HORIZONTAL AND VERTICAL TRENCHES) THE CONTRACTOR SHALL MINIMIZE THE AMOUNT OF OPEN TRENCHES FOR ODOR AND STORMWATER CONTROL.
4. CONSTRUCTION ACTIVITIES SHALL BE SEQUENCED TO ALLOW GEOMEMBRANE TO BE PLACED IN THE ANCHOR TRENCH IMMEDIATELY FOLLOWING THE EXCAVATION OF THE ANCHOR TRENCH.
5. AS SOON AS CONSTRUCTION QUALITY ASSURANCE (CQA) PERSONNEL HAVE APPROVED THE DIMENSIONS, ALL OPEN TRENCHES SHALL BE BACKFILLED WITH SOIL AT THE END OF THE DAY.
6. CONTRACTOR SHALL USE CLEAN BACKFILL FOR ANCHORS. ANY SOLID WASTE RECEIVED DURING EXCAVATION MUST BE PROPERLY DISPOSED OF IN ADJACENT ACTIVE LANDFILL CELL.
7. WEDGE WELD END OF GEOMEMBRANE PANEL TO BEGINNING OF NEW GEOMEMBRANE PANEL AND CONTINUE DOWNSLOPE. FLAP OF WEDGE WELD TO BE ON TOP IN THE DOWNSLOPE DIRECTION.
8. WELDS CONNECTING DOWNSLOPE SHEETS SHALL BE DOUBLE WEDGE WELDS, AND SHALL HAVE A MINIMUM 10 FT. VERTICAL OFFSET BETWEEN ADJACENT PANEL WELDS.
9. HOT ARC WELDS SHALL BE USED ONLY WHEN WEDGE WELDS ARE NOT FEASIBLE.
10. SEE SHEET 005-13 FOR PLACEMENT OF TYPE 1, 2, AND 3 ANCHOR TRENCHES FOR VERTICAL ANCHOR TRENCHES.



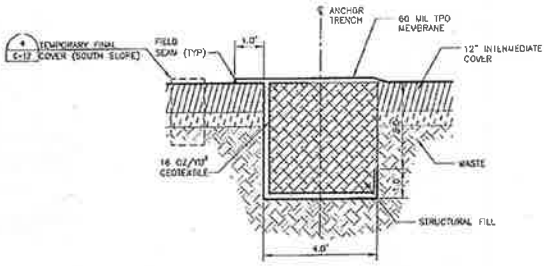
TYPICAL ANCHORING PLAN
NOT TO SCALE
2 C-14



ANCHOR TRENCH (TYPE 1) – 3-FT DEPTH
NOT TO SCALE
3 C-13 C-15 C-16 C-17 C-18



ANCHOR TRENCH (TYPE 2) – 3.5-FT DEPTH
NOT TO SCALE
4 C-13



ANCHOR TRENCH (TYPE 3) – 4-FT DEPTH
NOT TO SCALE
5 C-13 C-16

RECORD DRAWING

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Bradenton, FL 34210-4712
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CA0000318

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SEVERINO
REVIEWED BY	M. ROBERTS
CIVIL DESIGN	K. PEREIRA
DRAWN BY	L. KARSHNER
PROJECT NUMBER	00006-130030-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS
FLORIDA

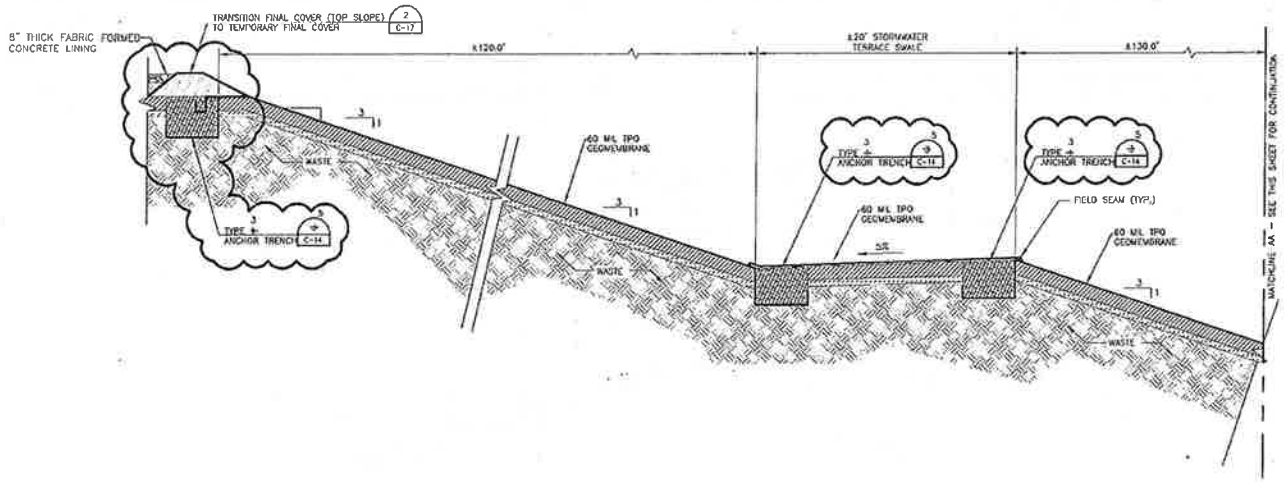
PHASE I TEMPORARY FINAL COVER ANCHOR TRENCH SECTIONS AND DETAILS

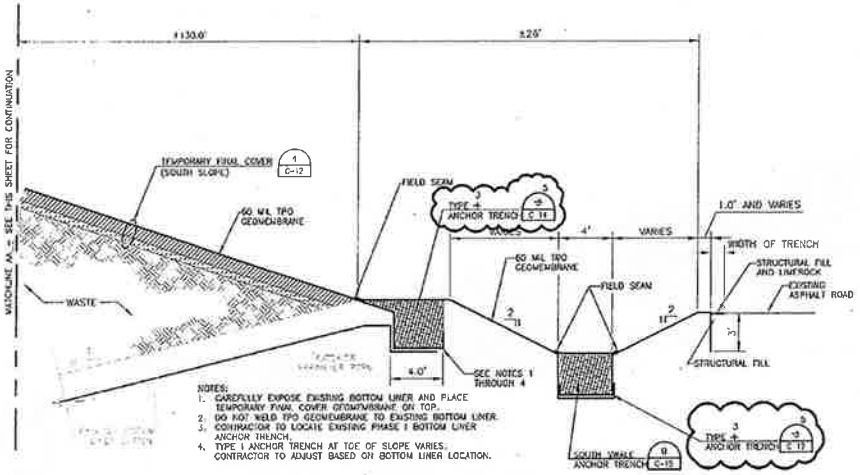
0 1" 2"

FILENAME: C-14 AS-BLT.DWG
SCALE: AS SHOWN

SHEET C-14

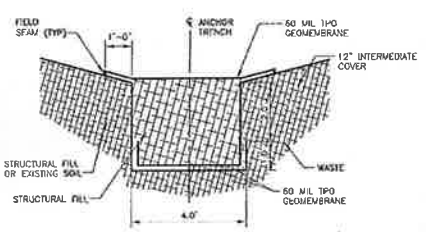
C:\pwworking\tpeld0429254\C-14 AS-BLT.dwg, Plot, 2/7/2013 10:58:22 AM, rivera





NOTES:
1. CAREFULLY EXPOSE EXISTING BOTTOM LINER AND PLACE TEMPORARY FINAL COVER GEOMEMBRANE ON TOP.
2. DO NOT WELD TPO GEOMEMBRANE TO EXISTING BOTTOM LINER.
3. CONTRACTOR TO LOCATE EXISTING PHASE I BOTTOM LINER ANCHOR TRENCH.
4. TYPE I ANCHOR TRENCH AT TOE OF SLOPE VARIES. CONTRACTOR TO ADJUST BASED ON BOTTOM LINER LOCATION.

TYPICAL TEMPORARY FINAL COVER
TERRACE AND TOE ANCHOR
NOT TO SCALE
A C-13



SOUTH SWALE
ANCHOR TRENCH
NOT TO SCALE
B C-15 C-16

RECORD DRAWING
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THOMAS M. YANOSCHAK, P.E.
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HDR ENGINEERING, INC.

HDR
HDR Engineering, Inc.
2601 Cattlemen Rd., Ste. 300
Sarasota, FL 34232-6313
(941) 907-7700
CA#00004213

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	M. ROBERTS
CAD/ DESIGN	K. PEREIRA
DRAWN BY	L. KARSHNER
PROJECT NUMBER	00096-130530-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

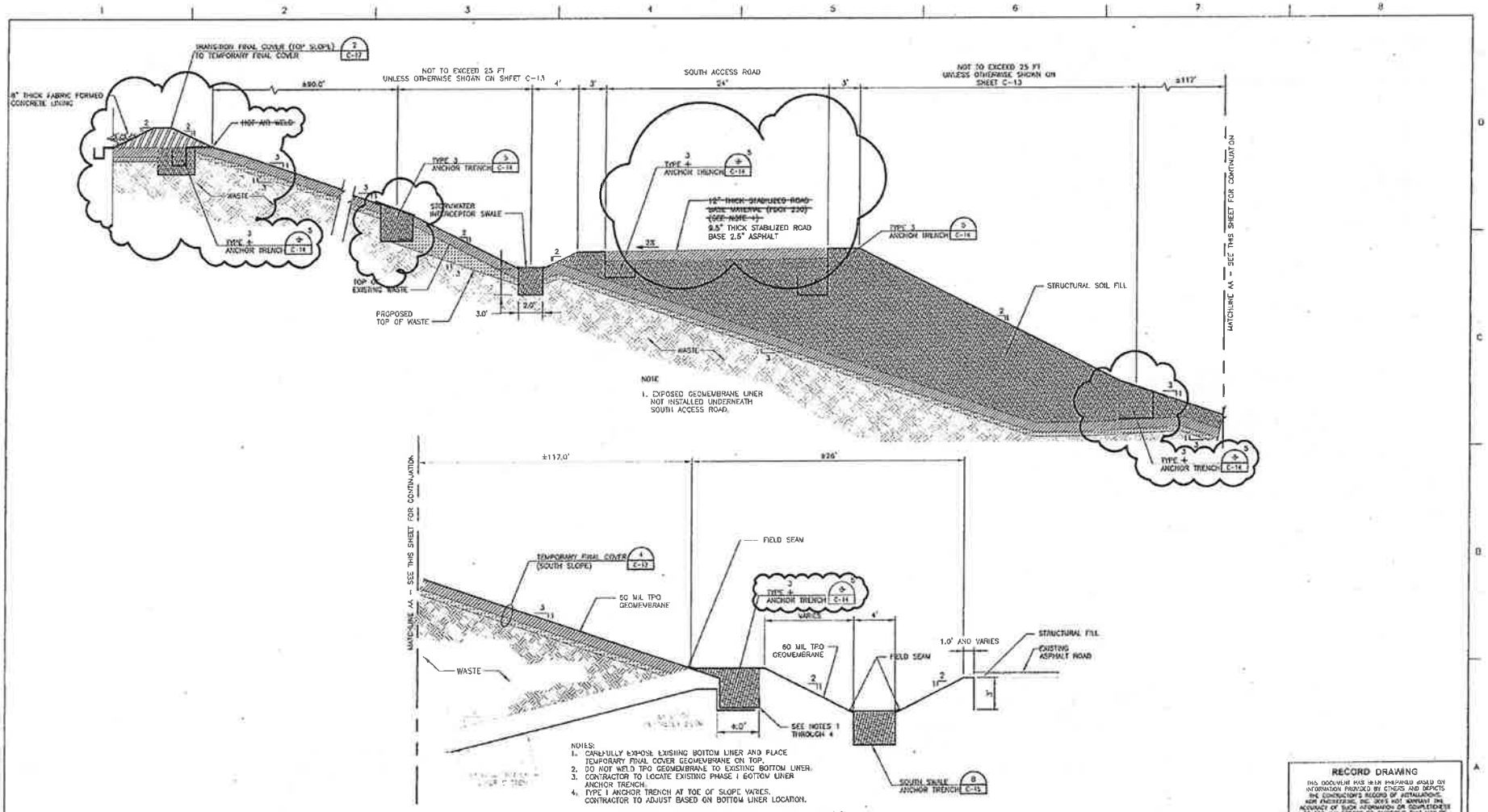
Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS FLORIDA

PHASE I TEMPORARY FINAL COVER ANCHOR TRENCH SECTIONS AND DETAILS

0 1" 2"

FILENAME C-15 AS-BLT.DWG
SCALE AS SHOWN
SHEET C-15

C:\cpworking\tpaid\6429254\C-15 AS-BLT.dwg, Plot: 2/7/2013 - 11:01:30 AM, invera



TYPICAL TEMPORARY FINAL COVER ALONG SOUTH ROAD SIDE SLOPE
N.T.S.

RECORD DRAWING
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THOMAS M. YANOSCHAK, P.E. FLORIDA P.E. NO. 44200
HDR ENGINEERING, INC.

HDR
HDR Engineering, Inc. 2639 Cleveland Rd., Ste. 104 Ballwing, MO 63122-5922 (314) 849-2220 Certificate #18

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	M. SIEMERING
REVIEWED BY	M. ROBERTS
CIVIL DESIGN	M. PEREIRA
DRAWN BY	L. KARSHNER
PROJECT NUMBER	00065-130520-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY FLORIDA

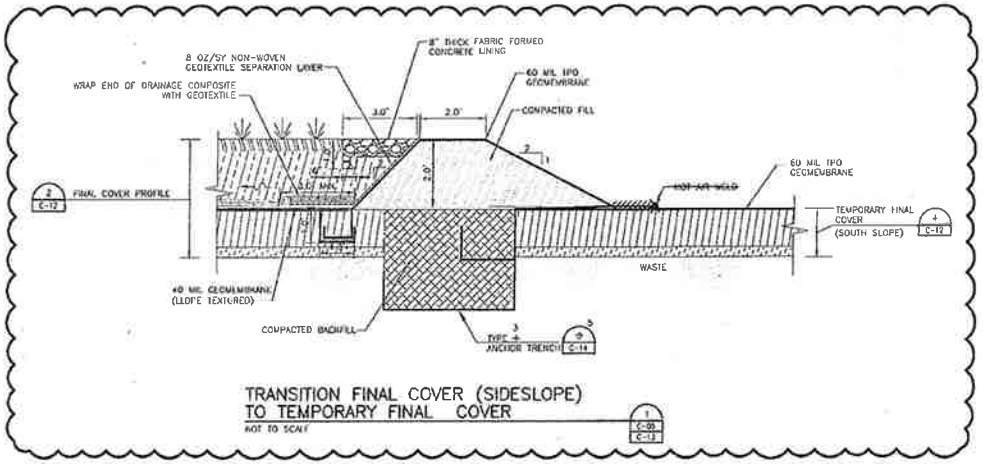
Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL
CLOSURE AND LANDFILL GAS COLLECTION SYSTEM
CONSTRUCTION DRAWINGS

PHASE I TEMPORARY FINAL COVER ANCHOR TRENCH SECTIONS AND DETAILS

0 1" 2"

FILENAME C-16 AS-BLT.DAC
SCALE AS SHOWN
SHEET C-16

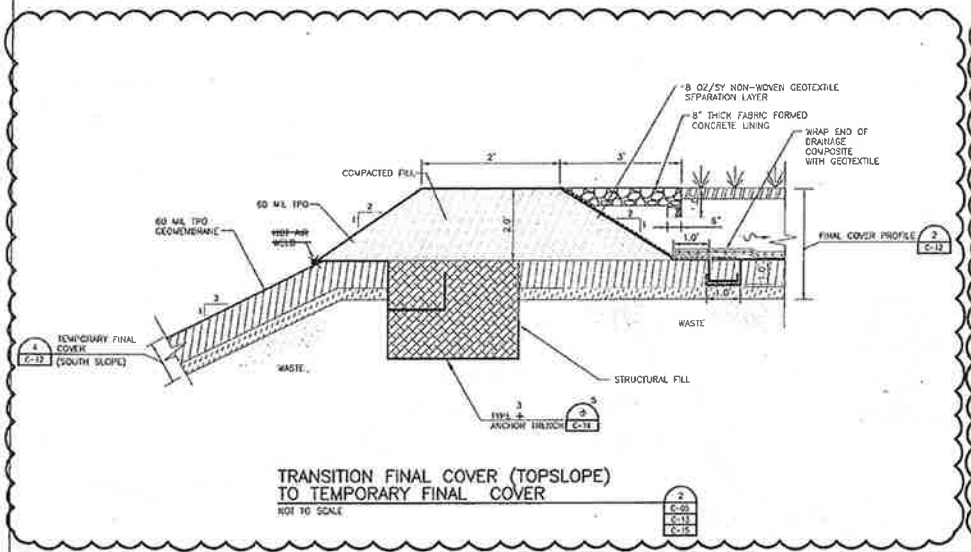
C:\pw\working\tpa\d0429254\C-16 AS-BLT.dwg, Plot, 2/7/2013 11:03:40 AM, invara



TRANSITION FINAL COVER (SIDESLOPE) TO TEMPORARY FINAL COVER

NOT TO SCALE

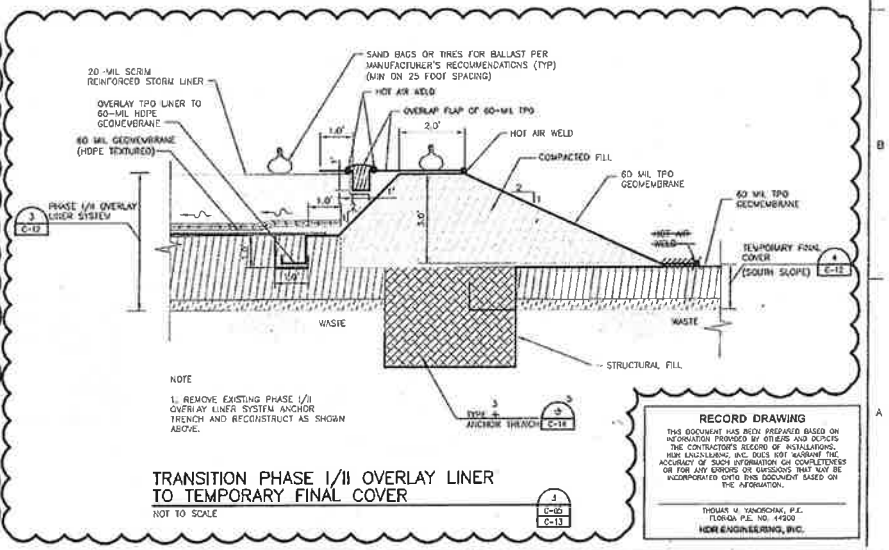
1 C-05 C-13



TRANSITION FINAL COVER (TOPSLOPE) TO TEMPORARY FINAL COVER

NOT TO SCALE

2 C-05 C-13 C-15



NOTE

1. REMOVE EXISTING PHASE I/II OVERLAY LINER SYSTEM ANCHOR TRENCH AND RECONSTRUCT AS SHOWN ABOVE.

TRANSITION PHASE I/II OVERLAY LINER TO TEMPORARY FINAL COVER

NOT TO SCALE

3 C-05 C-13

RECORD DRAWING

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THOMAS M. YANOSCHAK, P.E. FLORIDA P.E. NO. 44200

HDR ENGINEERING, INC.

HDR Engineering, Inc. 2601 Cattlemen Rd., Ste. 104 Sarasota, FL 34232-6313 (941) 349-3700 CA 00005213

ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	
REVIEWED BY	
CIVIL DESIGN	
DRAWN BY	
PROJECT NUMBER	

THOMAS M. YANOSCHAK, P. E. CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS FLORIDA

PHASE I TEMPORARY FINAL COVER CLOSURE DETAILS RECORD DRAWINGS

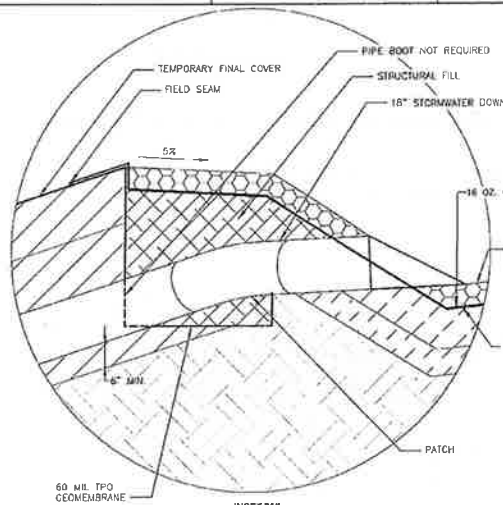
0 1" 2"

FILENAME C-17 AS-BLT.DWG

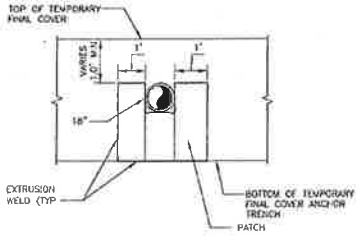
SCALE AS SHOWN

SHEET C-17

C:\cswork\dlg\paid\04292541\C-17 AS-BLT.dwg, Plot, 2/7/2013 11:12:12 AM, jrivera



INSET "A" FRONT VIEW



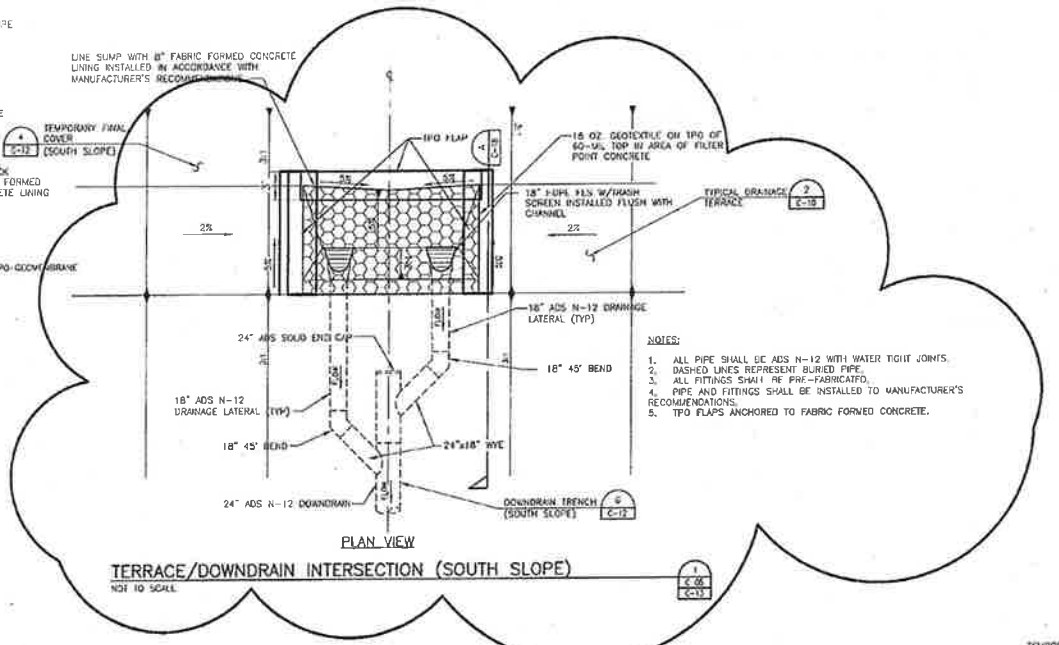
SIDE

NOTES:

1. CONTRACTOR TO USE CAUTION WHEN EXCAVATING AROUND EXISTING UNDERGROUND PIPING SYSTEM.
2. CUT GEOMEMBRANE AROUND EXISTING PIPE.
3. PLACE GEOMEMBRANE PATCH AROUND PIPE PENETRATION, OVERLAP MIN. 1' ON EACH SIDE AND EXTRUSION WELD ALL SEAMS.

TYPICAL TEMPORARY FINAL COVER ANCHOR TRENCH PENETRATION DETAIL

NOT TO SCALE



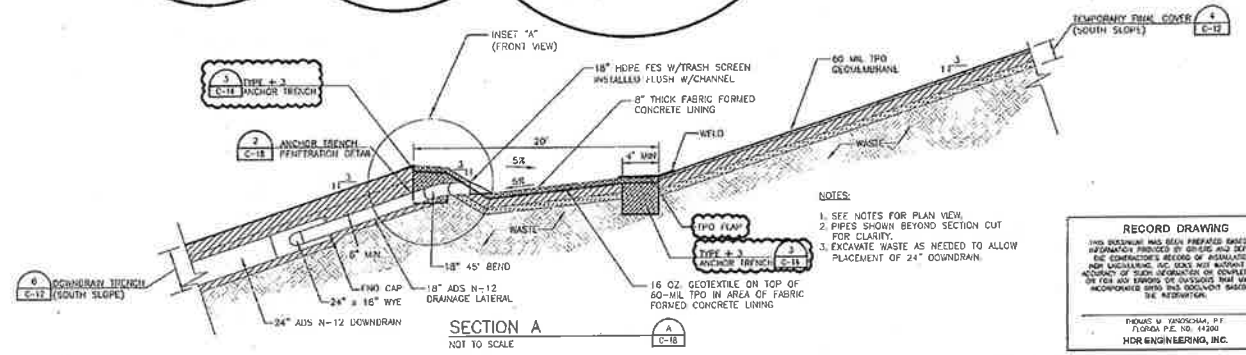
PLAN VIEW

NOTES:

1. ALL PIPE SHALL BE ADS N-12 WITH WATER TIGHT JOINTS.
2. DASHED LINES REPRESENT BURIED PIPE.
3. ALL FITTINGS SHALL BE PRE-FABRICATED.
4. PIPE AND FITTINGS SHALL BE INSTALLED TO MANUFACTURER'S RECOMMENDATIONS.
5. TPO FLAPS ANCHORED TO FABRIC FORMED CONCRETE.

TERRACE/DOWNDRAIN INTERSECTION (SOUTH SLOPE)

NOT TO SCALE



NOTES:

1. SEE NOTES FOR PLAN VIEW.
2. PIPES SHOWN BEYOND SECTION CUT FOR CLARITY.
3. EXCAVATE WASTE AS NEEDED TO ALLOW PLACEMENT OF 24" DOWNDRAIN.

SECTION A

NOT TO SCALE

RECORD DRAWING

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THOMAS M. YANOSCHAK, P.E.
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3601 Clubhouse Rd., Ste. 109
Sarasota, FL 34232-6014
(941) 342-2500
CA#00004518

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	M. ROBERTS
CIVIL DESIGN	X. FERERA
DRAWN BY	L. KARSHNER
PROJECT NUMBER	00095-130530-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44700

SARASOTA COUNTY

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

FLORIDA

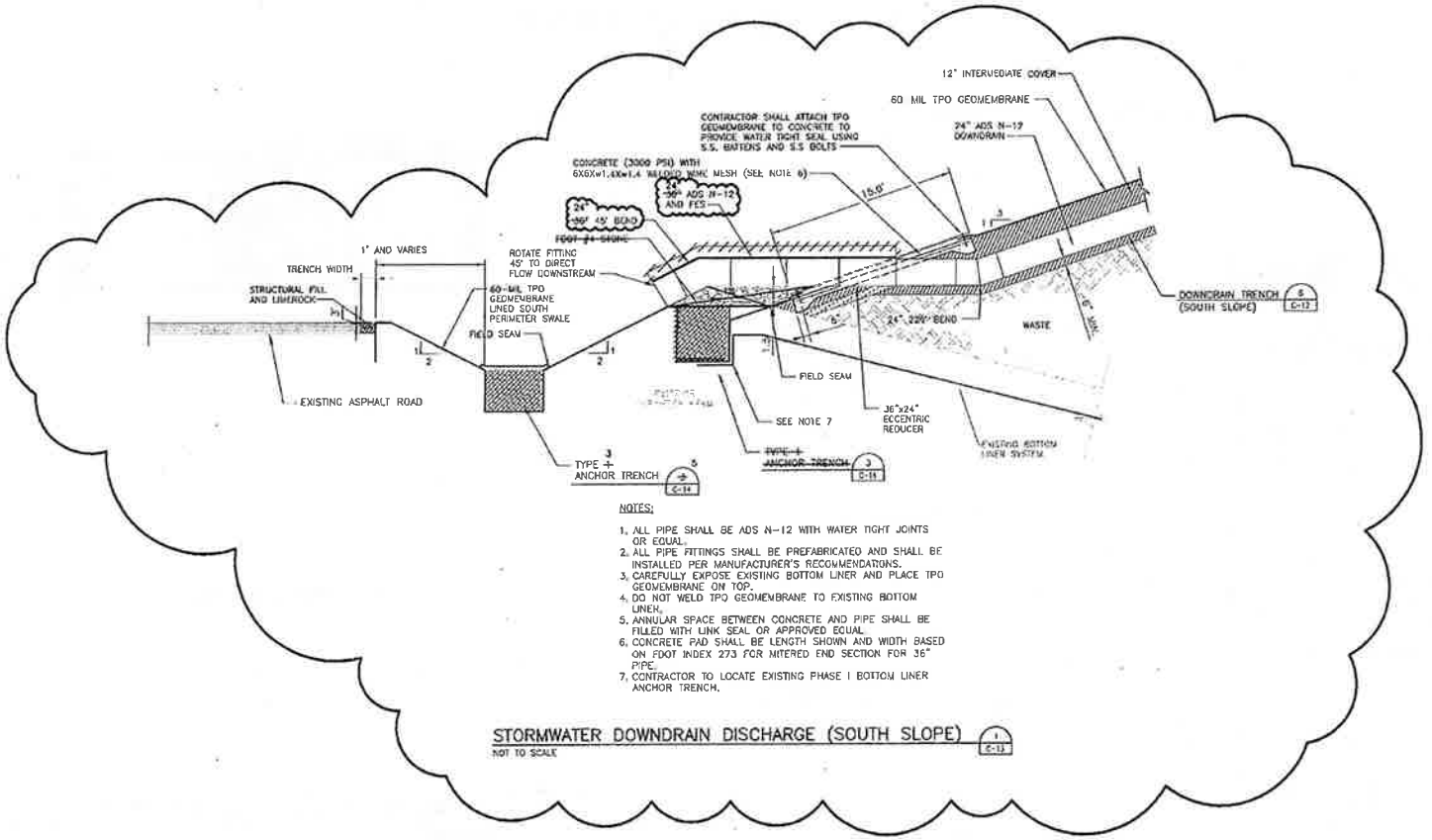
PHASE I TEMPORARY FINAL COVER CLOSURE DETAILS

0 1" 2"

FILENAME: C-18 AS-BLT.DWG
SCALE: AS SHOWN

SHEET C-18

C:\pw\working\tpal\d0\28254\C-18 AS-BLT.dwg, Plot, 2/7/2013 11:14:26 AM, rivera



NOTES:

1. ALL PIPE SHALL BE ADS N-12 WITH WATER TIGHT JOINTS OR EQUAL.
2. ALL PIPE FITTINGS SHALL BE PREFABRICATED AND SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
3. CAREFULLY EXPOSE EXISTING BOTTOM LINER AND PLACE TPO GEOMEMBRANE ON TOP.
4. DO NOT WELD TPO GEOMEMBRANE TO EXISTING BOTTOM LINER.
5. ANNULAR SPACE BETWEEN CONCRETE AND PIPE SHALL BE FILLED WITH LINK SEAL OR APPROVED EQUAL.
6. CONCRETE PAD SHALL BE LENGTH SHOWN AND WIDTH BASED ON FDOT INDEX 273 FOR MITERED END SECTION FOR 36" PIPE.
7. CONTRACTOR TO LOCATE EXISTING PHASE I BOTTOM LINER ANCHOR TRENCH.

STORMWATER DOWNDRAIN DISCHARGE (SOUTH SLOPE) 1 C-13

NOT TO SCALE

RECORD DRAWING

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THOMAS M. YANOSCHAK, P.E.
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HDR ENGINEERING, INC.

HDR

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2601 Cattlemen Rd., Ste. 100
Sarasota, FL 34232-6212
(941) 487-2700
CA 00004119

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER: R. SIEWERING
REVIEWED BY: M. ROGERS
CIVIL DESIGNER: PEREIRA
DRAWN BY: L. KARSHNER
PROJECT NUMBER: 00006-120530-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS FLORIDA

PHASE I TEMPORARY FINAL COVER CLOSURE DETAILS

0 1" 2"

FILENAME: C-19 AS-BLT.DWG
SCALE: AS SHOWN
SHEET: C-19

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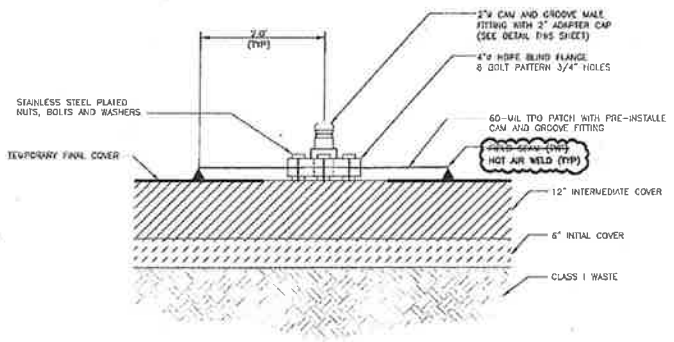
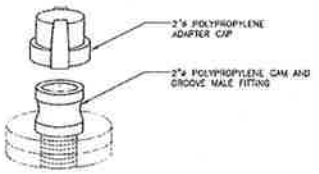
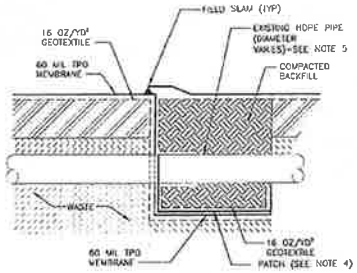


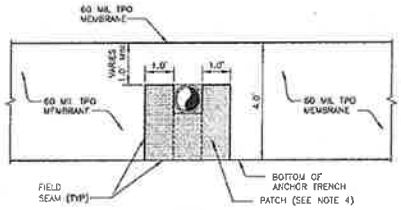
EMERGENCY GAS VENT
NOT TO SCALE



CAM AND GROOVE FITTING DETAIL
NOT TO SCALE



SIDE

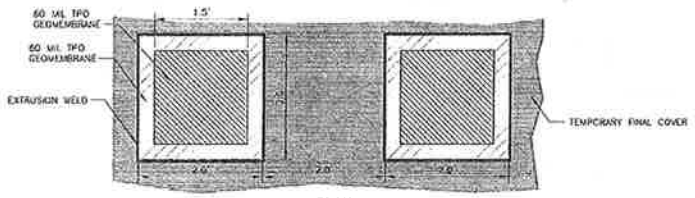


FRONT

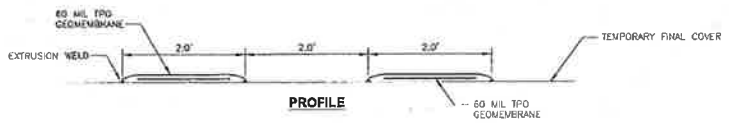
NOTES:

1. CONTRACTOR TO USE CAUTION WHEN EXCAVATING AROUND EXISTING UNDERGROUND PIPING SYSTEM.
2. CUT GEOMEMBRANE AROUND EXISTING PIPE.
3. PLACE GEOMEMBRANE PATCH AROUND PIPE PENETRATION, OVERLAP MIN 1' ON EACH SIDE AND FIELD SEAM AS SHOWN.
4. PATCH WALL CONSIST OF A 60 MIL TPO WELDED TO SEC AS SHOWN TO STRENGTHEN THE GEOMEMBRANE UNDERNEATH THE HEADER.
5. FOR LANDFILL GAS PIPING, PENETRATION WOULD BE REQUIRED FOR LATERAL OR HEADER, AIR LINE, AND FORCEMAIN, UP TO 3 PIPES AT EACH CROSSING

LANDFILL GAS PIPE AND ANCHOR TRENCH PENETRATION
N.T.S.



PLAN



PROFILE

GEOMEMBRANE TEST PANELS
NOT TO SCALE

RECORD DRAWING

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THOMAS M. YANOSCHAK, P.E.
FLORIDA P.E. NO. 44200
HDR ENGINEERING, INC.

HDR

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER R. SIEVERING
REVIEWED BY N. ROBERTS
CIVIL DESIGNER K. PEREIRA
DRAWN BY L. KARSNER
PROJECT NUMBER 60096.130530.005

THOMAS M. YANOSCHAK, P.E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS
FLORIDA

PHASE I TEMPORARY FINAL COVER CLOSURE DETAILS

0 1" 2"

FILENAME C-20 AS-BLT.DWG
SCALE AS SHOWN

SHEET C-20

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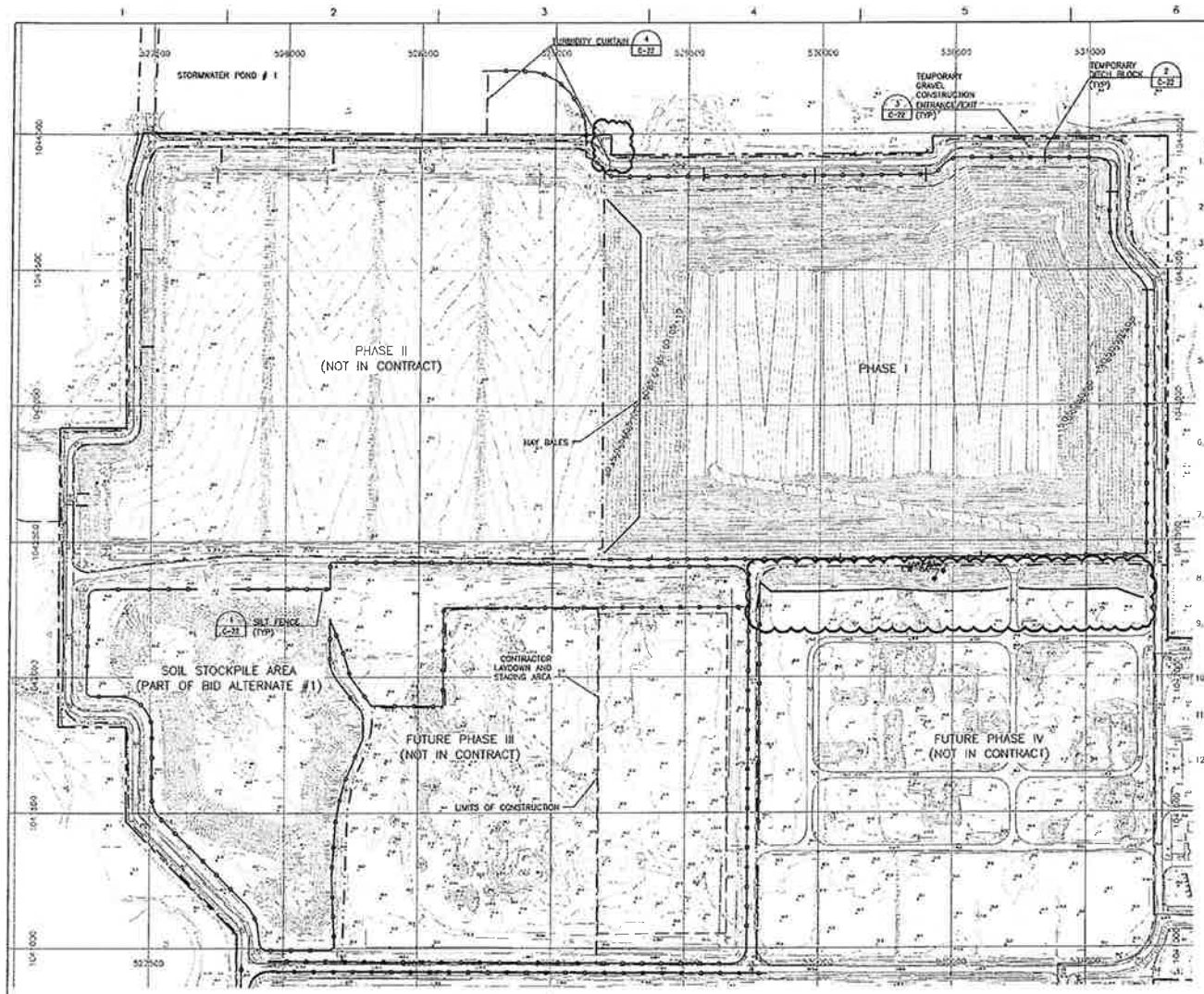

N

SEDIMENT AND EROSION CONTROL NOTES

1. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED IN STRICT ACCORDANCE WITH STANDARDS IN THE CONSTRUCTION DOCUMENTS AND APPLICABLE ENVIRONMENTAL REGULATIONS.
2. ALL STORM WATER MANAGEMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED AND MADE OPERATIONAL PRIOR TO COMMENCEMENT OF EARTHWORK ACTIVITIES.
3. CONTRACTOR, OWNER AND ENGINEER WILL EVALUATE THE EXISTING CONDITION OF THE PERIMETER DRAINAGE CHANNELS AT START OF WORK. CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING THE CHANNEL AND PONDS AND RESTORING THEM TO THE ORIGINAL CONDITION AT START OF WORK PRIOR TO DEMOBILIZING.
4. EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED TO THE SATISFACTION OF THE ENGINEER. FAILURE TO DO SO WILL RESULT IN STOPPAGE OF ALL OTHER WORK UNTIL SAID MEASURES COMPLY WITH ACCEPTABLE STANDARDS.
5. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 8 WEEKS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED, UNLESS ACTIVITY IN THAT PORTION OF THE SITE WILL RESUME WITHIN 8 WEEKS.
6. ADDITIONAL TEMPORARY DITCHES AND/OR DIVERSIONS MAY BE REQUIRED TO PERFORM CONSTRUCTION. WHERE SUCH MEASURES ARE REQUIRED, THEY SHALL BE CONSTRUCTED SO AS TO DIRECT RUNOFF FROM DISTURBED AREAS TO APPROPRIATE TEMPORARY CONTROL FEATURES. NO ADDITIONAL PAYMENT SHALL BE MADE FOR ADDITIONAL MEASURES REQUIRED TO CONTROL EROSION.
7. ALL SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER ANY STORM EVENT OF GREATER THAN ONE-HALF INCH OF PRECIPITATION DURING ANY 24 HOUR PERIOD. ALL SEDIMENT CONTROL FEATURES SHALL BE MAINTAINED UNTIL FINAL STABILIZATION HAS BEEN OBTAINED.
8. RESTORE AND STABILIZE ALL DISTURBED AREAS INCLUDING STOCKPILES AND STORAGE AREAS. PERFORM PERMANENT SEEDING IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
9. BETWEEN SUBSTANTIAL COMPLETION AND FINAL COMPLETION OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL SEDIMENT FROM THE EROSION CONTROL MEASURES THAT RECEIVED DRAINAGE DURING CONSTRUCTION UNLESS OTHERWISE DIRECTED BY OWNER.
10. ANY ERODED MATERIALS SHALL BE PROMPTLY REMOVED FROM ROADWAYS, DRIVES, WALKS, DITCHES, WATER COURSES, DRAINAGE CULVERTS, AND/OR STRUCTURES.
11. SILT FENCE, STRAW BALE BARRIERS, ETC. SHALL BE CHECKED REGULARLY FOR UNDERMINING OR DETERIORATION. CONTRACTOR SHALL REPLACE AS REQUIRED.
12. ALL TEMPORARY EROSION CONTROL AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED UPON SATISFACTORY COMPLETION OF WORK AND SITE STABILIZATION.

GENERAL NOTES

1. TOPOGRAPHY WITHIN PHASES I THROUGH IV AREAS COMPILED BY KUCERA INTERNATIONAL, INC. OF WILLOUGHBY, OHIO USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED JUNE 2, 2010.
2. APPROXIMATE LOCATION OF PHASE I LEACHATE FORCEMAIN OBTAINED FROM RECORD DRAWINGS BY CAMP DRESSER & MCKEE, INC. DATED APRIL 1998. VERIFY LOCATION IN FIELD.
3. CONTOURS WITHIN PHASE I CLOSURE AREA REPRESENT PROPOSED TOP OF FINAL COVER.

LEGEND

- GP-1 GAS PROBE
- MW-1DR GROUNDWATER MONITORING WELL
- VEGETATION
- WATERWAY
- SPECIAL EXCEPTION BOUNDARY
- EXISTING ROADWAY
- PHASE BOUNDARY
- SILT FENCE
- EXISTING PHASE I LEACHATE FORCEMAIN (SEE GENERAL NOTE 2)
- LIMITS OF CONSTRUCTION
- HAY BALES

RECORD DRAWING

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THOMAS M. YANOSCHAK, P.E.
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Sarasota, FL 34232-6013
(941) 342-2770
CA/EB-0113

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	M. ROBAYES
CIVIL DESIGN	K. PEREIRA
DRAWN BY	L. KARSHNER
PROJECT NUMBER	00096-130530-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

FLORIDA

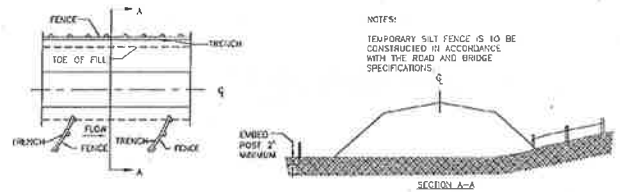
SEDIMENTATION AND EROSION CONTROL PLAN

0 1" 2"

FILENAME C-21 AS-BLT.DWG

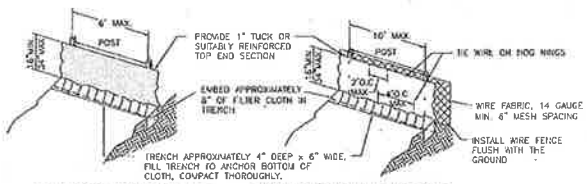
SCALE 1"=200'

SHEET C-21

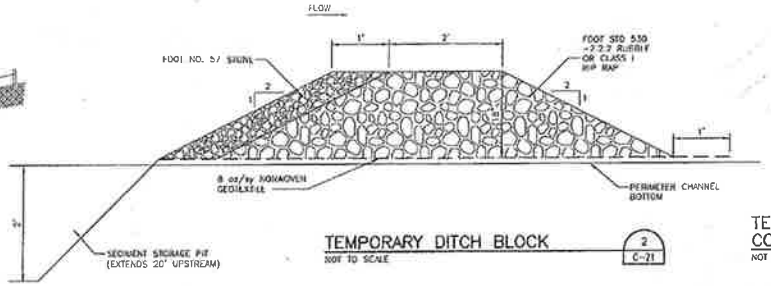


NOTES:

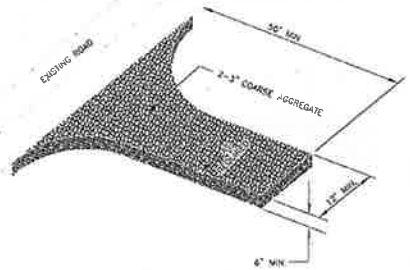
TEMPORARY SILT FENCE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE ROAD AND BRIDGE SPECIFICATIONS.



SILT FENCE
NOT TO SCALE — 1 / C-21



TEMPORARY DITCH BLOCK
NOT TO SCALE — 2 / C-21



TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT
NOT TO SCALE — 3 / C-21

CONSTRUCTION SPECIFICATIONS

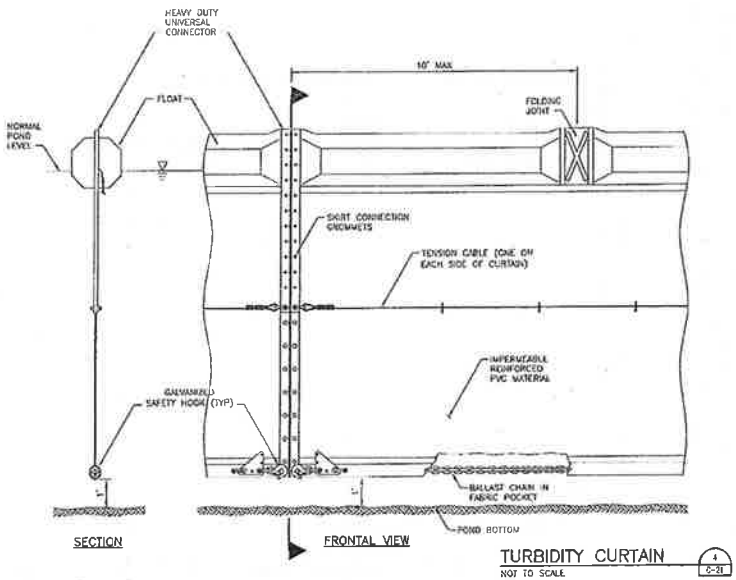
MATERIALS

1. SYNTHETIC FILTER FABRIC SHALL BE A PERVIOUS SHEET OF POLYPROPYLENE, NYLON POLYESTER, OR ETHYLENE YARN AND SHALL BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE FOLLOWING REQUIREMENTS:

PHYSICAL PROPERTY	TEST	REQUIREMENTS
FILTERING EFFICIENCY	ASTM D-5141	75% (MIN)
TENSILE STRENGTH AT 20% (MAX.) ELONGATION*	VTM-52	EXTRA STRENGTH - 50 LBS./LIN. IN. (MIN.) STANDARD STRENGTH - 30 LBS./LIN. IN. (MIN.)
FLOW RATE	ASTM D-5141	0.3 GAL./SQ. FT./MIN.
ULTRAVIOLET RADIATION	ASTM D-4355 AND G-28	90% (MIN.)

* REQUIREMENTS REDUCED BY 50% AFTER 6 MONTHS OF INSTALLATION.

2. SYNTHETIC FILTER FABRIC SHALL CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 F TO 120 F.



TURBIDITY CURTAIN
NOT TO SCALE — 4 / C-21

NOTES

1. CONTRACTOR SHALL INSPECT TURBIDITY CURTAIN ACCORDING TO INSPECTION SCHEDULE AND REPAIR ANY OBSERVED DAMAGE.
2. CONTRACTOR SHALL MEASURE SEDIMENT LEVELS IMMEDIATELY UPSTREAM OF CURTAIN AFTER ANY STORM EVENT OF GREATER THAN ONE HALF INCH OF PRECIPITATION DURING ANY 24 HOUR PERIOD. SEDIMENT SHALL BE REMOVED OR CURTAIN MOVED FURTHER DOWNSTREAM IF SEDIMENT LEVEL REACHES BOTTOM OF CURTAIN.

TURBIDITY CURTAIN SPECIFICATIONS

CURTAIN MATERIAL: IMPERVIOUS REINFORCED PVC
MIN. TENSILE STRENGTH — 300 LB/IN
MIN. FABRIC WT. — 13 OZ/SY
TEAR STRENGTH — 60 LBS
TENSILE STRENGTH AFTER ABRASION — 200 LB/IN
RESISTANT TO MARINE GROWTH, ULTRA VIOLET LIGHT, AND MILDEW
ALL FABRIC SHALL BE HEAT SEALED.

FLOATS: SOLID, CLOSED-CELL, PLASTIC FOAM SEALED IN FABRIC POCKET. PROVIDE BUOYANT RATIO > 5
MAX. LENGTH 10'

BALLAST CHAIN: NON-CORROSIVE
2 LB/IN WEIGHT

TENSION CABLE: GALVANIZED OR STAINLESS STEEL WIRE ROPE

MOORING: AS RECOMMENDED BY MANUFACTURER FOR PROPOSED APPLICATION

RECORD DRAWING
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THOMAS M. YANOSCHAK, P.E.
FLORIDA P.E. NO. 44200
HDR ENGINEERING, INC.

HDR
HDR Engineering, Inc.
2601 Cattlemen Rd., Ste 400
Sarasota, FL 34232-6312
(941) 342-8700
CA0000610

ISSUE	DATE	DESCRIPTION
1	03/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER R. SIEMERING
REVIEWED BY J. TIMMONS, R. SIEMERING
CIVIL DESIGN C. RESTREPO, T. YANOSCHACK
DRAWN BY B. JOHNSON
PROJECT NUMBER 00096-120530-005

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY FLORIDA

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM CONSTRUCTION DRAWINGS

SEDIMENTATION AND EROSION CONTROL DETAILS

0 1" 2"

FILENAME C-22.DWG
SCALE AS SHOWN

SHEET 00C-22

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ENGINEERING SYMBOLOGY

HP	HIGH POINT
LP	LOW POINT
S-1	PROPOSED CONDENSATE SUMP
GW-19	PROPOSED LFG EXTRACTION WELL
AP	PROPOSED ACCESS POINT
KO	PROPOSED KNOCKOUT POT
U1	PROPOSED U-TRAP
	PROPOSED REMOTE WELLHEAD
	EXISTING LEACHATE SUMP
	EXISTING LEACHATE CLEANOUT
	PROPOSED AIRLINE/FORCE MAIN VALVE PIT
	PROPOSED HEADER ISOLATION VALVE PIT
	PROPOSED ECCENTRIC REDUCER
	PROPOSED STRAW BALE BARRIER
	PROPOSED TEMPORARY DITCH BLOCK
	EXISTING SOLAR FLARE
GP-7	EXISTING GAS PROBE
MW-14	EXISTING GROUNDWATER MONITORING WELL
	EXISTING WATER SUPPLY WELL
	PROPOSED ELECTRICAL HOUSING
	PROPOSED SILT FENCE
	PROPOSED 2" HDPE SDR 9 AIR SUPPLY LINE
	PROPOSED 4" HDPE SDR 9 CONDENSATE RETURN LINE
	PROPOSED 4" HDPE SDR 11 LATERAL
	PROPOSED 6" HDPE SDR 11 LATERAL
	PROPOSED 8" HDPE SDR 11 LATERAL
	PROPOSED HDPE SDR 17 HEADER
	EXISTING MAJOR/MINOR CONTOURS
40	PROPOSED MAJOR/MINOR CONTOURS
	PHASE LIMITS
	CELL LIMITS
	PROPERTY LINE
	EXISTING 6" LEACHATE FORCEMAIN
	PROPOSED CHAIN LINK FENCE
	EXISTING CHAIN LINK FENCE
	LIMITS OF CONSTRUCTION
UGE	PROPOSED UNDERGROUND ELECTRIC CONDUIT
UGT	PROPOSED UNDERGROUND TELEPHONE CONDUIT

DETAILS LEGEND OF PATTERNS

CLEAN BACKFILL

PIPE BEDDING (DEFINED AS FIELD COMPACTED AND LEVELED BACKFILL OR EQ.)

INTERMEDIATE COVER

WASTE

BENTONITE SEAL

EXISTING GROUND

STONE

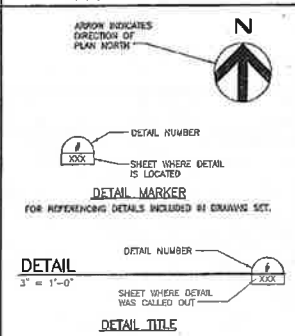
ONSITE SOIL

CONCRETE

ASPHALT

NOTE
SYMBOLOGY IS REPRESENTATIVE OF MAJOR LANDFILL GAS COMPONENTS.

GENERAL SYMBOLOGY



DETAIL MARKER

FOR REFERENCING DETAILS INCLUDED ON DRAWING SET.

DETAIL TITLE

GENERAL NOTES

SURVEY AND MAP REPORT:

1. TOPOGRAPHY WITHIN PHASES I THROUGH IV AREAS COMPILED BY KUCERA INTERNATIONAL INC., OF WILLOUGHBY, OHIO USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED JUNE 2010.

SPECIFIC NOTES:

1. 2 WEEKS PRIOR TO INITIATING WORK, THE CONTRACTOR WILL SUBMIT FOR APPROVAL A SCHEDULE TO THE ENGINEER, FOR COMPLETION OF THE PROJECT.
2. ALL EXCAVATION AND DRILLING WITHIN THE LANDFILL LIMITS SHALL CEASE PRIOR TO 3:00 PM. ALL WASTE EXCAVATED SHALL BE DELIVERED TO THE ACTIVE FACE OF THE LANDFILL DAILY BY 6:00 PM. WASTE NOT TAKEN TO WORKING FACE SHALL BE COVERED OR CONTAINERIZED. CHANGES IN WORK HOURS ARE BASED UPON OWNER'S APPROVAL.
3. HOURS FOR CONSTRUCTION: 7:00 AM TO 7:00 PM MONDAY THRU SATURDAY, NO WORK ALLOWED ON SUNDAY UNLESS OTHERWISE APPROVED BY OWNER AND PERMIT WITH A MAXIMUM OF 60 HOURS PER WEEK.
4. CONTRACTOR MAY CONTAINERIZE WASTE AND TARP OVERNIGHT BASED ON OWNER APPROVAL.

EROSION AND SEDIMENT CONTROL:

1. CONTRACTOR WILL ADD EROSION AND SEDIMENT CONTROL AS NECESSARY TO PREVENT SEDIMENTATION AND DAMAGE TO ADJACENT AREAS AND AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
2. CONTRACTOR WILL INSPECT AND REPAIR, AS NECESSARY, ANY EROSION AND SEDIMENT CONTROL DAILY AND FOLLOWING EACH RAIN.
3. EROSION AND SEDIMENT CONTROL WILL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE MAINTAINED UNTIL PERMANENT GROWTH COVER IS ESTABLISHED.
4. CONTRACTOR IS RESPONSIBLE FOR MONITORING DOWNSTREAM CONDITIONS THROUGHOUT THE CONSTRUCTION PERIOD AND CLEARING ANY DEBRIS AND SEDIMENT RESULTING FROM CONSTRUCTION.
5. EROSION CONTROL FENCING MUST MEET THE REQUIREMENT OF THE DEPARTMENT OF TRANSPORTATION, STATE OF FLORIDA STANDARD SPECIFICATIONS. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES.
6. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTION.

EARTHWORK:

1. EXCAVATION IS UNCLASSIFIED AND INCLUDES REMOVAL OF EARTH FILLS, RUBBISH, TRASH, AND OTHER MATERIALS ENCOUNTERED IN EXCAVATION AND GRADING OPERATIONS TO DEPTH AND EXTENT SHOWN ON DRAWINGS OR SPECIFIED. THE OWNER'S REPRESENTATIVE SHALL BE THE FINAL AUTHORITY AND SHALL MAKE THE FINAL DECISION DURING CONSTRUCTION AS TO THE DEPTH AND EXTENT TO WHICH MATERIALS MUST BE REMOVED AND REPLACED.
2. SURVEY BENCHMARKS, MONUMENTS AND OTHER REFERENCE POINTS WILL BE PROTECTED FROM DAMAGE AND DISPLACEMENT. IF DISTURBED OR DESTROYED, THEY WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
3. CONTRACTOR SHALL KEEP DIRT, DUST, NOISE AND OTHER OBJECTIONABLE NUISANCES TO A MINIMUM.
4. ALL FILL AREAS ARE TO BE COMPACTED AS DEFINED IN THE SPECIFICATIONS AND DRAWINGS.
5. CUT AND FILL SLOPES FOR STRUCTURAL EMBANKMENTS SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL.

UTILITIES:

1. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR LOCATIONS SHOWN AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS OF ALL UTILITIES WITHIN THE LIMITS OF THE WORK PRIOR TO CONSTRUCTION. ALL DAMAGE MADE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN THE AREA AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION. CALL FLORIDA SUNSHINE STATE ONE CALL CENTER AT 1-800-432-4770. ALL COORDINATION AND REQUIRED UTILITY COMPANY TEMPORARY PROTECTION SHALL BE AT THE CONTRACTOR'S EXPENSE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE UNINTERRUPTION OF SERVICE AND REPLACEMENT OF DAMAGED UTILITIES.

AS-BUILT SURVEY DATA:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR MINIMIZING LANDFILL GAS EMISSIONS FROM SURVEY TUBES (E.G. SEAL TOP OF SURVEY TUBES).
2. THE CONTRACTOR SHALL PROVIDE SURVEY DATA TO THE ENGINEER SHOWING THE LANDFILL GAS SYSTEM HAS BEEN PROPERLY CONSTRUCTED AND MEETS THE MINIMUM SLOPES REQUIRED AS SHOWN ON THE DRAWINGS.
3. THE SURVEY DATA SUBMITTED TO THE ENGINEER SHALL BE GROUND SURFACE ELEVATIONS AND TOP OF PIPE ELEVATIONS AT 50 FOOT INTERVALS ON CENTER AND AT EACH FITTING, LATERAL CONNECTION, VALVE, BENDS AND OTHER SIGNIFICANT FEATURES.
4. ALL REQUESTED SURVEY DATA MUST BE PROVIDED TO OWNER'S REPRESENTATIVE IN FLORIDA STATE PLANE COORDINATES AND BE PERFORMED BY A STATE OF FLORIDA CERTIFIED SURVEYOR.

GENERAL NOTES:

1. THE CONTRACTOR IS ADVISED THAT NO ACTIVITIES MAY INTERFERE, DISRUPT, BLOCK, OR OTHERWISE CONFLICT WITH LANDFILL OPERATIONS. IF CONFLICTS ARE ANTICIPATED THEY SHALL BE COORDINATED AND APPROVED BY THE OWNER AND ENGINEER PRIOR TO DISRUPTION.
2. PROJECT SITE IS A SOLID WASTE LANDFILL AS SUCH, CONDITIONS ARE SUBJECT TO CHANGE WITH TIME. CONTROLS, IN PARTICULAR VERTICAL CONTROL, SHOULD BE EXPECTED (AND ANTICIPATED) TO VARY FROM THOSE SHOWN ON THESE DRAWINGS DUE TO ONGOING SUBSIDENCE RESULTING FROM REFUSE DECOMPOSITION. RELATIVE ELEVATION DIFFERENCES IN EXISTING AND PROPOSED ELEVATIONS SHOWN ON THE DRAWINGS SHALL BE ADJUSTED ACCORDINGLY. LOCATION OF STRUCTURES SHALL BE PLACED IN ACCORDANCE WITH HORIZONTAL CONTROLS. VERTICAL PLACEMENT OF STRUCTURES SHALL BE IN ACCORDANCE WITH CONSTRUCTION DOCUMENTS, OR AS APPROVED BY THE ENGINEER.
3. CONSTRUCTION OF LANDFILL GAS COLLECTION SYSTEM WILL INVOLVE REFUSE EXCAVATION. THE CONTRACTOR SHALL MAKE IN ALL SAFETY AND ENVIRONMENTAL PRECAUTIONS TO PROTECT ITS WORKERS AND SUBCONTRACTORS, AT NO ADDITIONAL COST TO THE OWNER. ALL EXCAVATED WASTES SHALL BE PLACED AT THE WORKING FACE. CONTRACTOR IS ADVISED THAT THE POTENTIAL FOR ENCOUNTERING ASBESTOS CONTAINING MATERIAL EXISTS. SHOULD SUSPECT ASBESTOS-CONTAINING MATERIAL BE ENCOUNTERED, IT SHALL BE MAINTAINED IN A MOIST CONDITION DURING THE REMOVAL AND TRANSFER PROCESS TO MINIMIZE/PREVENT EMISSIONS FROM SUCH. DISTURBED REFUSE (INCLUDING ANY SUSPECT ASBESTOS-CONTAINING MATERIAL) WILL BE TRANSPORTED TO THE WORKING FACE OF THE CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX BY THE END OF EACH WORKING DAY FOR PROPER DISPOSAL AND BURIED WITH A MINIMUM OF SIX (6) INCHES OF SOIL COVER.
4. ANY AND ALL FINES IMPOSED ON THE OWNER BY ANY REGULATORY AGENCY DUE TO ACTIONS OF THE CONTRACTOR SHALL BE PAID BY THE CONTRACTOR.
5. INSPECTION. EXAMINE AREAS FOR CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. REPORT IN WRITING TO OWNER'S REPRESENTATIVE ALL CONDITIONS CONTRARY TO THOSE SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN AND ALL OTHER CONDITIONS THAT WILL AFFECT SATISFACTORY EXECUTION OF WORK. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. STARTING WORK CONSTITUTES ACCEPTANCE OF THE CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. AFTER SUCH ACCEPTANCE, THE CONTRACTOR SHALL, AT CONTRACTORS EXPENSE, BE RESPONSIBLE FOR CORRECTING ALL UNSATISFACTORY AND DEFECTIVE WORK RESULTING FROM SUCH UNSATISFACTORY CONDITIONS.
6. PROTECTIONS: INSTALL TEMPORARY BARRIERS, FENCES, BARRICADES, LIGHTS, WARNING SIGNS AND OTHER DEVICES NECESSARY TO PROTECT STRUCTURES, UTILITIES, LANDSCAPING, EXCAVATIONS, AND OTHER ITEMS AS NECESSARY. PROTECT SURVEY BENCHMARKS AND MONUMENTS FROM DISPLACEMENT.
7. ALL WORK SHALL BE PERFORMED IN A QUALITY WORKMANLIKE MANNER.
8. DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE ENGINEER OR OWNER MAY CAUSE THE WORK TO BE UNACCEPTABLE AND WILL BE ADJUSTED OR REPAIRED AT THE CONTRACTOR'S EXPENSE.
9. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY LICENSES AND PERMITS ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT UNLESS NOTIFIED OTHERWISE IN WRITING BY THE OWNER.
10. LATERAL PIPING ALIGNMENTS ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY TO ASSURE REQUIRED SLOPE AND DIRECTION OF GAS AND CONDENSATE FLOW.
11. SUGGESTED INSTALLATION SEQUENCE: THE FOLLOWING INSTALLATION SEQUENCE HAS BEEN ASSUMED IN THE ENGINEER CALCULATIONS.
    - (A.) DRILL ALL VERTICAL WELLS, INSTALLING AND COMPLETING WELL COMPONENTS AS PROCEEDING
    - (B.) TRENCH LATERAL PIPING FROM THE WELLS TO CONNECTION POINT IN THE ACTIVE GAS COLLECTION SYSTEM.
    - (C.) CONNECT ALL LATERALS TO ACTIVE GAS COLLECTION SYSTEM.
    - (D.) INSTALL FORCEMAIN AND AIR LINE PIPING
    - (E.) INSTALL PNEUMATIC PUMPS AT WELLS DESIGNATED BY ENGINEER.
    - (F.) COMPLETE WELLHEAD INSTALLATION AND PNEUMATIC PUMP CONNECTIONS.
12. PRIOR TO INSTALLATION OF GAS COLLECTION SYSTEM, ENGINEER TO BE PROVIDED WITH THE FINAL GRADING PLAN TO CONFIRM LAYOUT AND MINIMUM SLOPES.
13. ALL WORK SHALL HAVE A WARRANTY AS SPECIFIED IN THE CONTRACT DOCUMENTS.
14. ALL BORE HOLES THAT ARE NOT COMPLETED AT THE END OF THE DAY ARE TO BE COVERED WITH A METAL WELL COVER CAPABLE OF PREVENTING ANY PERSONS FROM FALLING INTO THE HOLE. THE HOLE MUST THEN BE COVERED WITH A PIECE OF PLYWOOD TO SUBSTANTIALLY COVER THE ENTIRE HOLE. SOIL MUST BE PLACED ON TOP OF THE PLYWOOD TO COMPLETELY COVER THE PLYWOOD TO FURTHER PREVENT GAS EMISSIONS. SUBSTITUTE SAFETY MEASURES MAY BE USED IF APPROVED BY ENGINEER.
15. ALL HDPE PIPES SHALL BE PRESSURE TESTED AFTER FUSION FOR LEAKS. THE STANDARD PRESSURE TEST SHALL BE 10 PSI FOR 1 HOUR WITH A MAXIMUM OF 6% LOSS.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL SURVEY TUBES AT THE END OF THE PROJECT, UNLESS INSTRUCTED OTHERWISE BY OWNER OR ENGINEER.
17. ACTUAL DIMENSIONS AND LOCATIONS MAY VARY BASED ON FIELD LOCATIONS.
18. TERMS 'OWNER'S REPRESENTATIVE' AND 'ENGINEER' ARE INTERCHANGEABLE.
19. CONTRACTOR TO PROVIDE SHOP DRAWINGS TO ENGINEER FOR APPROVAL.
20. THE CONTRACTOR IS ADVISED THAT THE LANDFILL CONTAINS A SYNTHETIC LINER AS PART OF THE SUBGRADE CONSTRUCTION. ALL COSTS ASSOCIATED WITH REPAIR RESULTING FROM DAMAGE TO THIS LINER SYSTEM SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THESE COSTS SHALL INCLUDE, BUT ARE NOT LIMITED TO ENGINEERS REVIEW, REPAIR OR REPLACEMENT BY A QUALIFIED LLDPE LINER INSTALLER, THIRD PARTY OBSERVATION, AND COUNTY REVIEW.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ENGINEERING HOURS OVER THE 60 HOURS PER WEEK WORK SCHEDULE AT A RATE OF $100/HR.

RECORD DRAWING

THIS DOCUMENT WAS BOTH PREPARED BASED ON INFORMATION PROVIDED BY OTHERS AND REFLECTS THE CONTRACTOR'S RECORD OF MODIFICATIONS FOR CONSISTENCY, BUT DOES NOT WARRANT THE ACCURACY OF SUCH INFORMATION OR COMPLETENESS OR FOR ANY ERRORS OR OMISSIONS THAT MAY BE ASCERTAINED AFTER THIS RECORD DATE OF THE ACKNOWLEDGEMENT.

CLIFFORD G. KOENIG, P.E.
FLORIDA P.E. NO. 64078

HDR ENGINEERING, INC.

HDR
6410 Benjamin Rd., Ste. 400
Tampa, Florida 33634
813-882-2000
COA CA#7, AA#26, EC#4, EB#3
FL Reg. AA 0002417

ISSUE	DATE	DESCRIPTION
1	08/2012	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	C. KOENIG
CIVIL DESIGN	C. RESTREPO, T. YAKOSCHACK
DRAWN BY	S. JOHNSON
PROJECT NUMBER	00096-130530-005

CLIFFORD G. KOENIG, P. E.
CERTIFICATE NO. 64078

Sarasota County

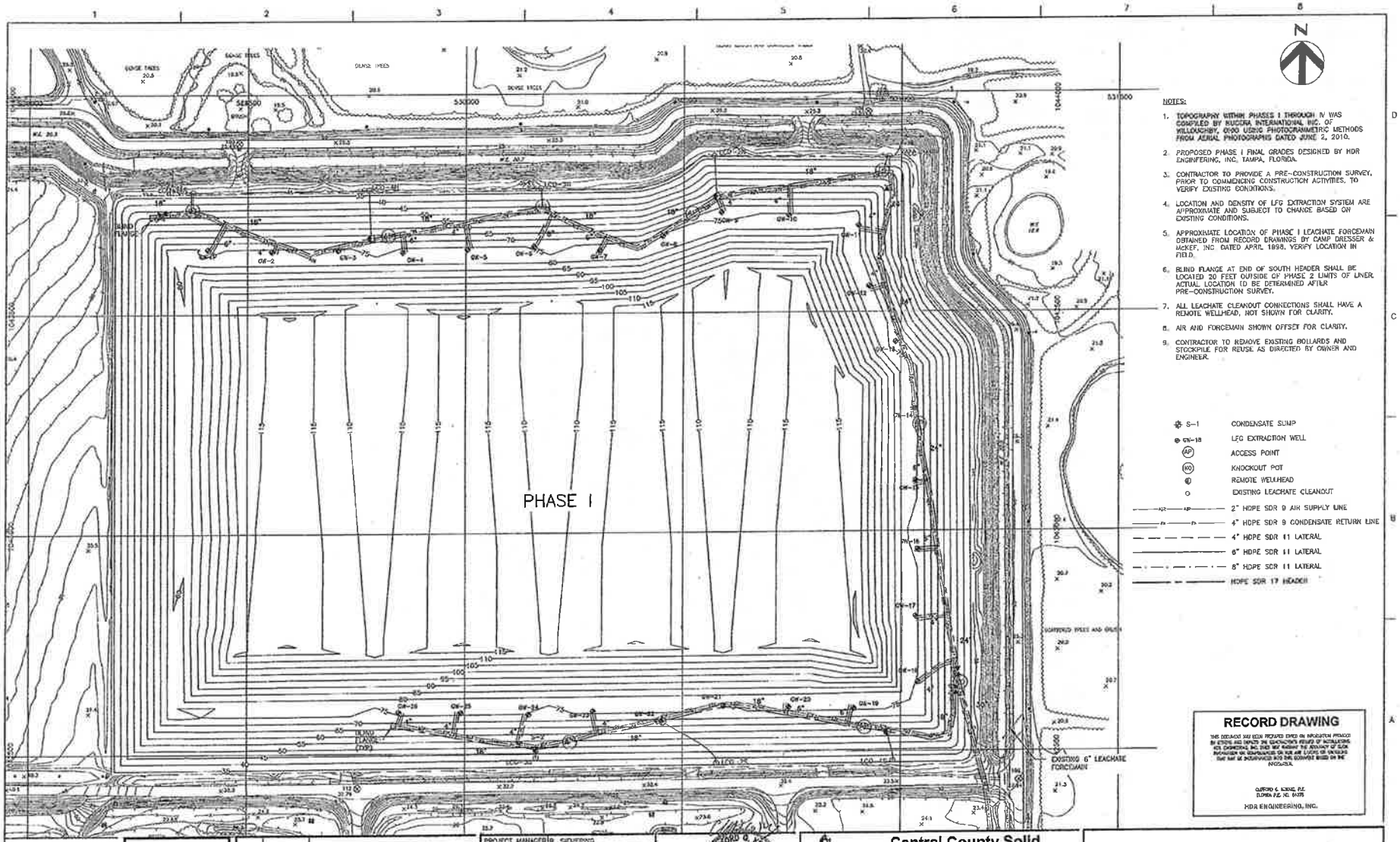
Central County Solid Waste Disposal Complex
PHASE I SEQUENCE 2
LANDFILL GAS COLLECTION AND CONTROL SYSTEM

SARASOTA COUNTY FLORIDA

GENERAL NOTES, LEGEND AND ABBREVIATIONS

0 1" 2"

FILENAME	00C-02.DWG
SCALE	AS SHOWN
SHEET	~~LFG-02~~ LFG-01



NOTES:

1. TOPOGRAPHY WITHIN PHASES I THROUGH IV WAS COMPILED BY KUCERA INTERNATIONAL INC. OF WILLOUGHBY, OHIO USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED JUNE 2, 2010.
2. PROPOSED PHASE I FINAL GRADES DESIGNED BY HDR ENGINEERING, INC, TAMPA, FLORIDA.
3. CONTRACTOR TO PROVIDE A PRE-CONSTRUCTION SURVEY, PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, TO VERIFY EXISTING CONDITIONS.
4. LOCATION AND DENSITY OF LFG EXTRACTION SYSTEM ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON EXISTING CONDITIONS.
5. APPROXIMATE LOCATION OF PHASE I LEACHATE FORCEMAIN OBTAINED FROM RECORD DRAWINGS BY CAMP DRESSER & MCKEE, INC. DATED APRIL 1998. VERIFY LOCATION IN FIELD.
6. BLIND FLANGE AT END OF SOUTH HEADER SHALL BE LOCATED 20 FEET OUTSIDE OF PHASE 2 LIMITS OF LINER. ACTUAL LOCATION TO BE DETERMINED AFTER PRE-CONSTRUCTION SURVEY.
7. ALL LEACHATE CLEANOUT CONNECTIONS SHALL HAVE A REMOTE WELLHEAD, NOT SHOWN FOR CLARITY.
8. AIR AND FORCEMAIN SHOWN OFFSET FOR CLARITY.
9. CONTRACTOR TO REMOVE EXISTING BOLLARDS AND STOCKPILE FOR REUSE AS DIRECTED BY OWNER AND ENGINEER.

- S-1 — CONDENSATE SUMP
- GW-18 — LFG EXTRACTION WELL
- AP — ACCESS POINT
- KO — KNOCKOUT POT
- REMOTE WELLHEAD
- EXISTING LEACHATE CLEANOUT
- AIR — AIR — 2" HDPE SDR 9 AIR SUPPLY LINE
- FM — FM — 4" HDPE SDR 9 CONDENSATE RETURN LINE
- 4" HDPE SDR 11 LATERAL
- 6" HDPE SDR 11 LATERAL
- 8" HDPE SDR 11 LATERAL
- HDPE SDR 17 HEADER

RECORD DRAWING

THIS RECORD DRAWING WAS PREPARED BASED ON INFORMATION PROVIDED BY EXISTING AND INSTALLED AS CONSTRUCTED RECORDS OF INSTALLATIONS. HDR ENGINEERING, INC. DOES NOT WARRANT THE ACCURACY OF SUCH INFORMATION NOR RESPONSIBILITIES OR RISK ARE LIABLE OR ASSUMED THAT MAY BE INCORPORATED INTO THIS RECORD BASED ON THE PROVIDED.

CLIFFORD C. KOENIG, P.E.
FLORIDA P.E. NO. 64078
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813-881-9320
HDR ENGINEERING, INC. OF NORTH CAROLINA
FL REG. AA 0000457

ISSUE	DATE	DESCRIPTION
1	08/2012	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER: R. SIEVERING
REVIEWED BY: C. KOENIG
CIVIL DESIGN: C. RESTREPO, T. YANOSCHACK
DRAWN BY: B. JOHNSON

PROJECT NUMBER: 10091-130530-005

CLIFFORD C. KOENIG, P. E.
CERTIFICATE NO. 64078

Sarasota County

Central County Solid Waste Disposal Complex

PHASE I SEQUENCE 2 LANDFILL GAS COLLECTION AND CONTROL SYSTEM

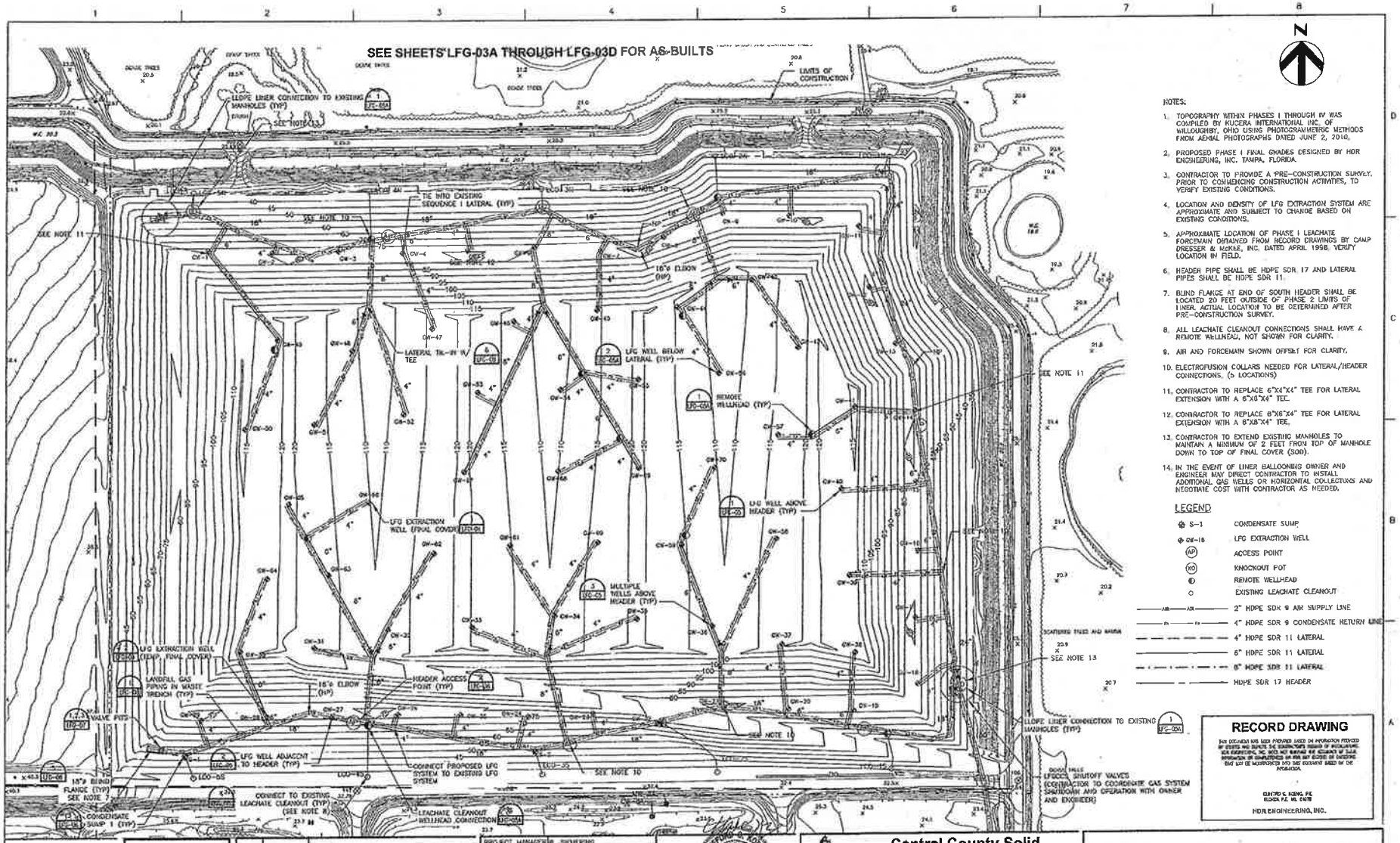
SARASOTA COUNTY FLORIDA

PHASE I GAS SYSTEM LAYOUT - EXISTING CONDITIONS

0 1" 2"

FILENAME: 00LFG-02.DWG
SCALE: 1"=100'

SHEET: LFG-02



NOTES:

1. TOPOGRAPHY WITHIN PHASES I THROUGH IV WAS COMPILED BY KUCERA INTERNATIONAL INC. OF WILLOUGHBY, OHIO USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED JUNE 2, 2010.
2. PROPOSED PHASE I FINAL GRADES DESIGNED BY HDR ENGINEERING, INC. TAMPA, FLORIDA.
3. CONTRACTOR TO PROVIDE A PRE-CONSTRUCTION SURVEY, PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, TO VERIFY EXISTING CONDITIONS.
4. LOCATION AND DENSITY OF LFG EXTRACTION SYSTEM ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON EXISTING CONDITIONS.
5. APPROXIMATE LOCATION OF PHASE I LEACHATE FORCEMAIN OBTAINED FROM RECORD DRAWINGS BY CAMP DRESSER & McKEE, INC. DATED APRIL 1998. VERIFY LOCATION IN FIELD.
6. HEADER PIPE SHALL BE HDPE SDR 17 AND LATERAL PIPES SHALL BE HDPE SDR 11.
7. BLIND FLANGE AT END OF SOUTH HEADER SHALL BE LOCATED 20 FEET OUTSIDE OF PHASE 2 LIMITS OF LINER. ACTUAL LOCATION TO BE DETERMINED AFTER PRE-CONSTRUCTION SURVEY.
8. ALL LEACHATE CLEANOUT CONNECTIONS SHALL HAVE A REMOTE WELLHEAD, NOT SHOWN FOR CLARITY.
9. AIR AND FORCEMAIN SHOWN OFFSET FOR CLARITY.
10. ELECTROFUSION COLLARS NEEDED FOR LATERAL/HEADER CONNECTIONS. (5 LOCATIONS)
11. CONTRACTOR TO REPLACE 6"X4"X4" TEE FOR LATERAL EXTENSION WITH A 6"X6"X4" TEE.
12. CONTRACTOR TO REPLACE 8"X6"X4" TEE FOR LATERAL EXTENSION WITH A 8"X8"X4" TEE.
13. CONTRACTOR TO EXTEND EXISTING MANHOLES TO MAINTAIN A MINIMUM OF 2 FEET FROM TOP OF MANHOLE DOWN TO TOP OF FINAL COVER (SOIL).
14. IN THE EVENT OF LINER BALLOONING OWNER AND ENGINEER MAY DIRECT CONTRACTOR TO INSTALL ADDITIONAL GAS WELLS OR HORIZONTAL COLLECTORS AND NEGOTIATE COST WITH CONTRACTOR AS NEEDED.

LEGEND

- S-1 — CONDENSATE SUMP
- GW-18 — LFG EXTRACTION WELL
- AP — ACCESS POINT
- KO — KNOCKOUT POT
- REMOTE WELLHEAD
- EXISTING LEACHATE CLEANOUT
- 2" HDPE SDR 9 AIR SUPPLY LINE
- 4" HDPE SDR 9 CONDENSATE RETURN LINE
- 4" HDPE SDR 11 LATERAL
- 6" HDPE SDR 11 LATERAL
- 8" HDPE SDR 11 LATERAL
- HDPE SDR 17 HEADER

RECORD DRAWING

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY OTHERS AND REFLECTS THE CONSTRUCTED RESULTS OF MODIFICATIONS. HDR ENGINEERING, INC. DOES NOT WARRANT THE ACCURACY OF SAID INFORMATION OR MODIFICATIONS OR THAT ANY ASPECTS OF EXISTING THAT MAY BE INCORPORATED INTO SAID DOCUMENT BASED ON THE INFORMATION.

CLIFFORD G. KOENIG, P.E.
FLORIDA P.E. NO. 54078

HDR ENGINEERING, INC.

HDR

NO.	DATE	DESCRIPTION
1	08/2012	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	C. KOENIG
CIVIL DESIGN	C. RESTREPO, T. YANOSCHACK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	00099-130530-005

CLIFFORD G. KOENIG, P. E.
CERTIFICATE NO. 54078

SARASOTA COUNTY

Central County Solid Waste Disposal Complex

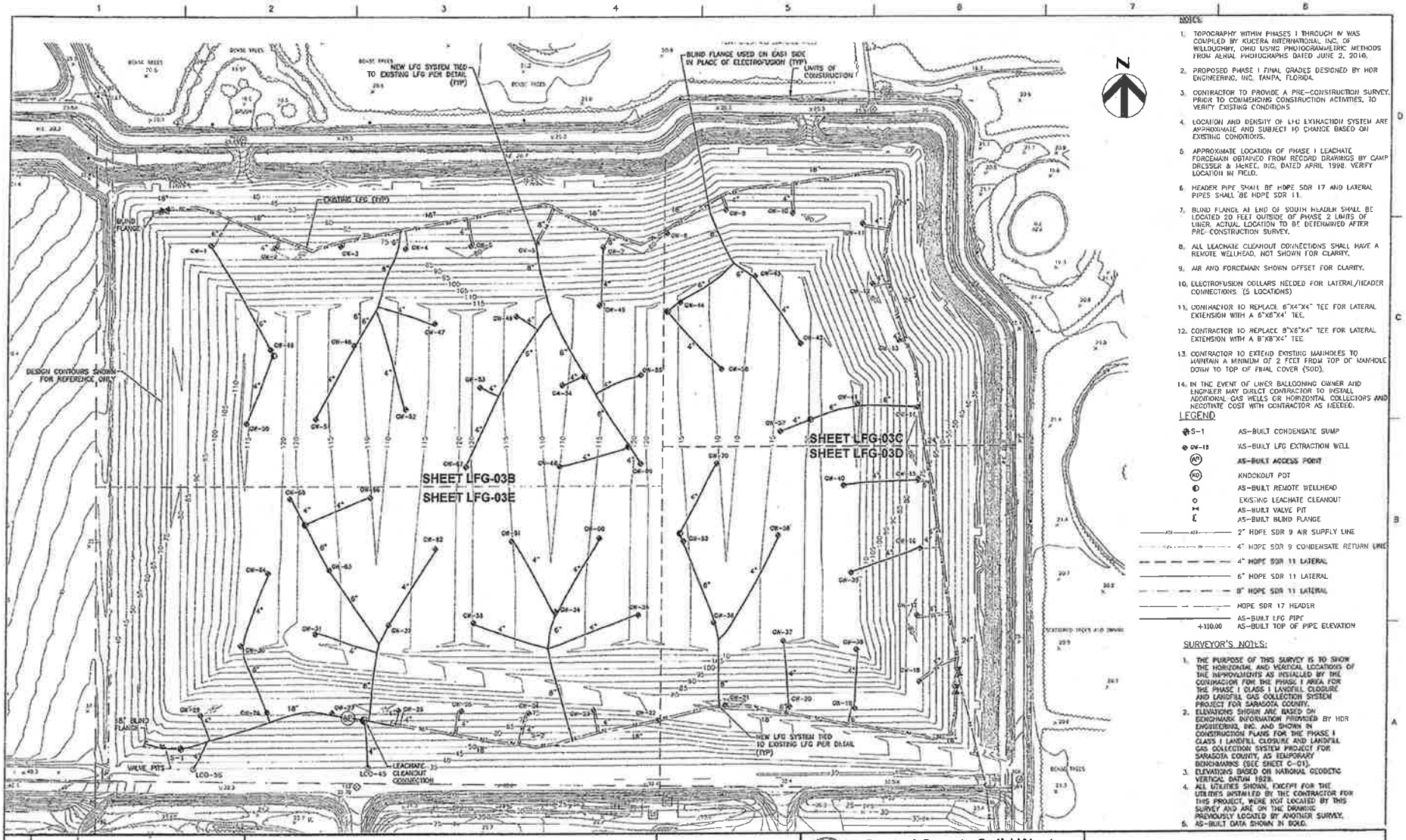
PHASE I SEQUENCE 2 LANDFILL GAS COLLECTION AND CONTROL SYSTEM

FLORIDA

PHASE I SEQUENCE 2 GAS SYSTEM LAYOUT AS-BUILT

0 1" 2"

FILENAME	00LFG-03.DWG
SCALE	1"=100'
SHEET	LFG-03A



NOTES:

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2. PROPOSED PHASE I FINAL GRADES DESIGNED BY HDR ENGINEERING, INC. TAMPA, FLORIDA.
3. CONTRACTOR TO PROVIDE A PRE-CONSTRUCTION SURVEY, PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, TO VERIFY EXISTING CONDITIONS
4. LOCATION AND DENSITY OF LFG EXTRACTION SYSTEM ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON EXISTING CONDITIONS.
5. APPROXIMATE LOCATION OF PHASE I LEACHATE FORCEMAIN OBTAINED FROM RECORD DRAWINGS BY CAMP DRESSER & MCKEE, INC. DATED APRIL 1998. VERIFY LOCATION IN FIELD.
6. HEADER PIPE SHALL BE HDPE SDR 17 AND LATERAL PIPES SHALL BE HDPE SDR 11.
7. BLIND FLANGE AT END OF SOUTH HEADER SHALL BE LOCATED 20 FEET OUTSIDE OF PHASE 2 LIMITS OF LINER. ACTUAL LOCATION TO BE DETERMINED AFTER PRE-CONSTRUCTION SURVEY.
8. ALL LEACHATE CLEANOUT CONNECTIONS SHALL HAVE A REMOTE WELLHEAD, NOT SHOWN FOR CLARITY.
9. AIR AND FORCEMAIN SHOWN OFFSET FOR CLARITY.
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13. CONTRACTOR TO EXTEND EXISTING MANHOLES TO MAINTAIN A MINIMUM OF 2 FEET FROM TOP OF MANHOLE DOWN TO TOP OF FINAL COVER (SOD).
14. IN THE EVENT OF LINER BALLOONING OWNER AND ENGINEER MAY DIRECT CONTRACTOR TO INSTALL ADDITIONAL GAS WELLS OR HORIZONTAL COLLECTORS AND NEGOTIATE COST WITH CONTRACTOR AS NEEDED.

LEGEND

S-1	AS-BUILT CONDENSATE SUMP
GW-18	AS-BUILT LFG EXTRACTION WELL
AP	AS-BUILT ACCESS PORT
KO	KNOCKOUT POT
	AS-BUILT REMOTE WELLHEAD
	EXISTING LEACHATE CLEANOUT
	AS-BUILT VALVE PIT
	AS-BUILT BLIND FLANGE
	2" HDPE SDR 9 AIR SUPPLY LINE
	4" HDPE SDR 9 CONDENSATE RETURN LINE
	4" HDPE SDR 11 LATERAL
	6" HDPE SDR 11 LATERAL
	8" HDPE SDR 11 LATERAL
	HDPE SDR 17 HEADER
+110.00	AS-BUILT LFG PIPE AS-BUILT TOP OF PIPE ELEVATION

SURVEYOR'S NOTES:

1. THE PURPOSE OF THIS SURVEY IS TO SHOW THE HORIZONTAL AND VERTICAL LOCATIONS OF THE IMPROVEMENTS AS INSTALLED BY THE CONTRACTOR FOR THE PHASE I AREA FOR THE PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM PROJECT FOR SARASOTA COUNTY.
2. ELEVATIONS SHOWN ARE BASED ON BENCHMARK INFORMATION PROVIDED BY HDR ENGINEERING, INC. AND SHOWN IN CONSTRUCTION PLANS FOR THE PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM PROJECT FOR SARASOTA COUNTY, AS TEMPORARY BENCHMARKS (SEE SHEET C-01).
3. ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM 1929.
4. ALL UTILITIES SHOWN, EXCEPT FOR THE UTILITIES MAINTAINED BY THE CONTRACTOR FOR THIS PROJECT, WERE NOT LOCATED BY THIS SURVEY AND ARE ON THE DRAWING PREVIOUSLY LOCATED BY ANOTHER SURVEY.
5. AS-BUILT DATA SHOWN IN BOLD.

ISSUE	DATE	DESCRIPTION
2	7/31/12	PROGRESSIVE AS-BUILT
1	3/12/12	PROGRESSIVE AS-BUILT

I hereby certify that the survey shown hereon is true and correct to the best of my knowledge and belief, based on actual measurements taken in the field. This survey was performed in accordance with the Minimum Technical Standards as set forth by the Florida Board of Professional Land Surveyors in Chapter 61G17, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes.

UNLESS IT BEARS THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER THIS DRAWING OR COPY THEREOF IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT VALID.

LAYOUT SERVICES, INC.
4340 S. PARK AVE. SUITE F (863) 763-3779
TITUSVILLE, FL. 32780 (321) 264-9740 (FAX)

James Zimmerman
Professional Land Surveyor No. 6548
State of Florida

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM AS-BUILT SURVEY

SARASOTA COUNTY FLORIDA

PHASE I SEQUENCE 2 GAS SYSTEM LAYOUT AS-BUILT SURVEY

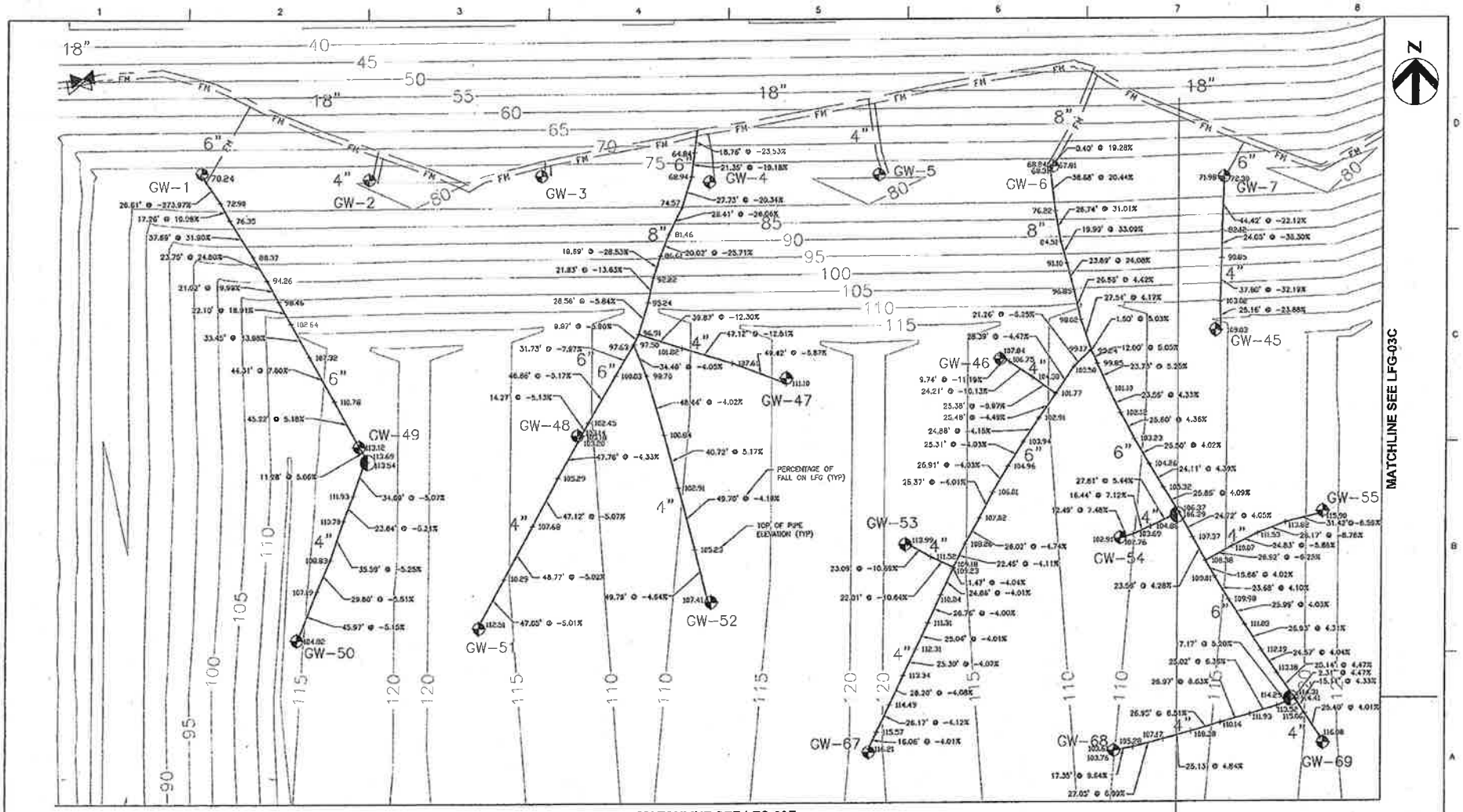
PROJECT NUMBER 000516-120530-005

0 1" 2"

FILENAME GDC-12 AS-BUILT.DWG

SCALE 1"=100'

SHEET LFG-03A



ISSUE	DATE	DESCRIPTION
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1	3/12/12	PROGRESSIVE AS-BUILT

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UNLESS IT BEARS THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER THIS DRAWING AND/OR PLAN OR MAP IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT VALID.

LAYOUT SERVICES, INC.
1060 S PARK AVE STE F (321) 269-9799
TITUSVILLE, FL 32780 (321) 904-9760 (FAX)

James Zimmerman
Professional Land Surveyor No. 6545
State of Florida

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex
PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM AS-BUILT SURVEY

FLORIDA

PHASE I SEQUENCE 2 GAS SYSTEM LAYOUT AS-BUILT SURVEY

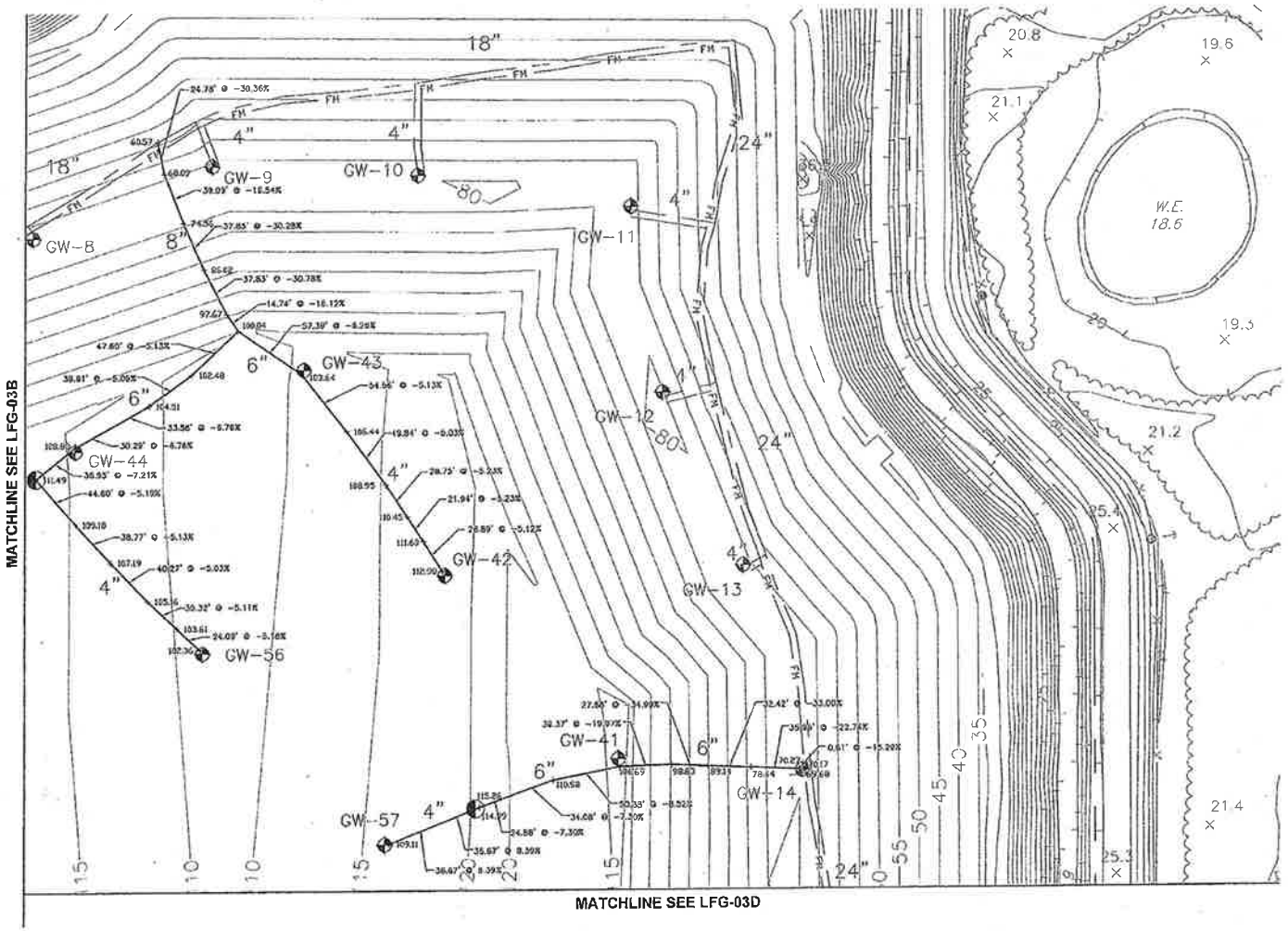
PROJECT NUMBER 0006-130530-005

0 1" 2"

FILENAME 06C-12 AS-BUILT.DWG

SCALE 1"=40'

SHEET LFG-03B



ISSUE	DATE	DESCRIPTION
3	7/31/12	PROGRESSIVE AS-BUILT
1	3/12/12	PROGRESSIVE AS-BUILT

I hereby certify that the survey shown hereon is true and correct to the best of my knowledge and belief, based on actual measurements taken in the field. This survey meets the Minimum Technical Standards as set forth by the Florida Board of Professional Land Surveyors in Chapter 61G17, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes.

UNLESS IT BEARS THE ORIGINAL AND EMBOSSED SEARCH SEAL OF A FLORIDA REGISTERED SURVEYOR AND MAPPER THIS DRAWING, SKETCH, PLAT OR MAP IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT VALID.

LAYOUT SERVICES, INC.
3465 B FAIRVIEW ST (941) 739-8779
TITUSVILLE, FL. 32780 (321) 264-8748 (FAX)

James Zimmerman
Professional Land Surveyor No. 6545
State of Florida

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY FLORIDA

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM AS-BUILT SURVEY

PHASE I SEQUENCE 2 GAS SYSTEM LAYOUT AS-BUILT SURVEY

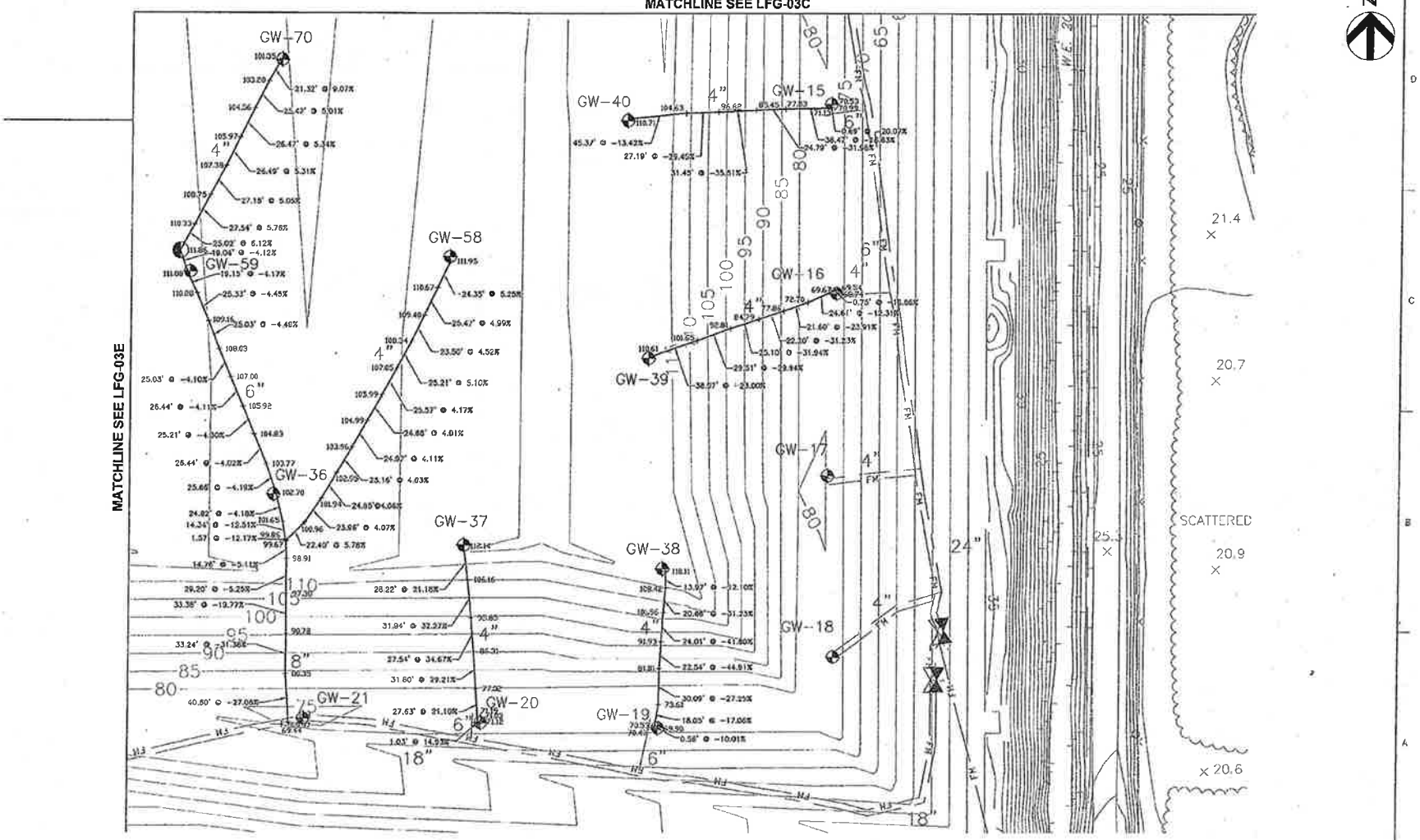
PROJECT NUMBER 00011-130530-005

0 1" 2"

FILENAME 00C-12 AS-BUILT.DWG

SCALE 1"=40'

SHEET LFG-03C



ISSUE	DATE	DESCRIPTION
2	7/31/12	PROGRESSIVE AS-BUILT
1	3/12/12	PROGRESSIVE AS-BUILT

LAYOUT SERVICES, INC.
8500 B PARKLAKE BLVD (813) 739-2779
TITUSVILLE, FL 32780 (321) 383-9748 (FAX)

James Zimmerman
Professional Land Surveyor No. 6545
State of Florida

THOMAS M. YAKOSCHUK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL
CLOSURE AND LANDFILL GAS
COLLECTION SYSTEM
AS-BUILT SURVEY

FLORIDA

PHASE I SEQUENCE 2 GAS SYSTEM LAYOUT
AS-BUILT SURVEY

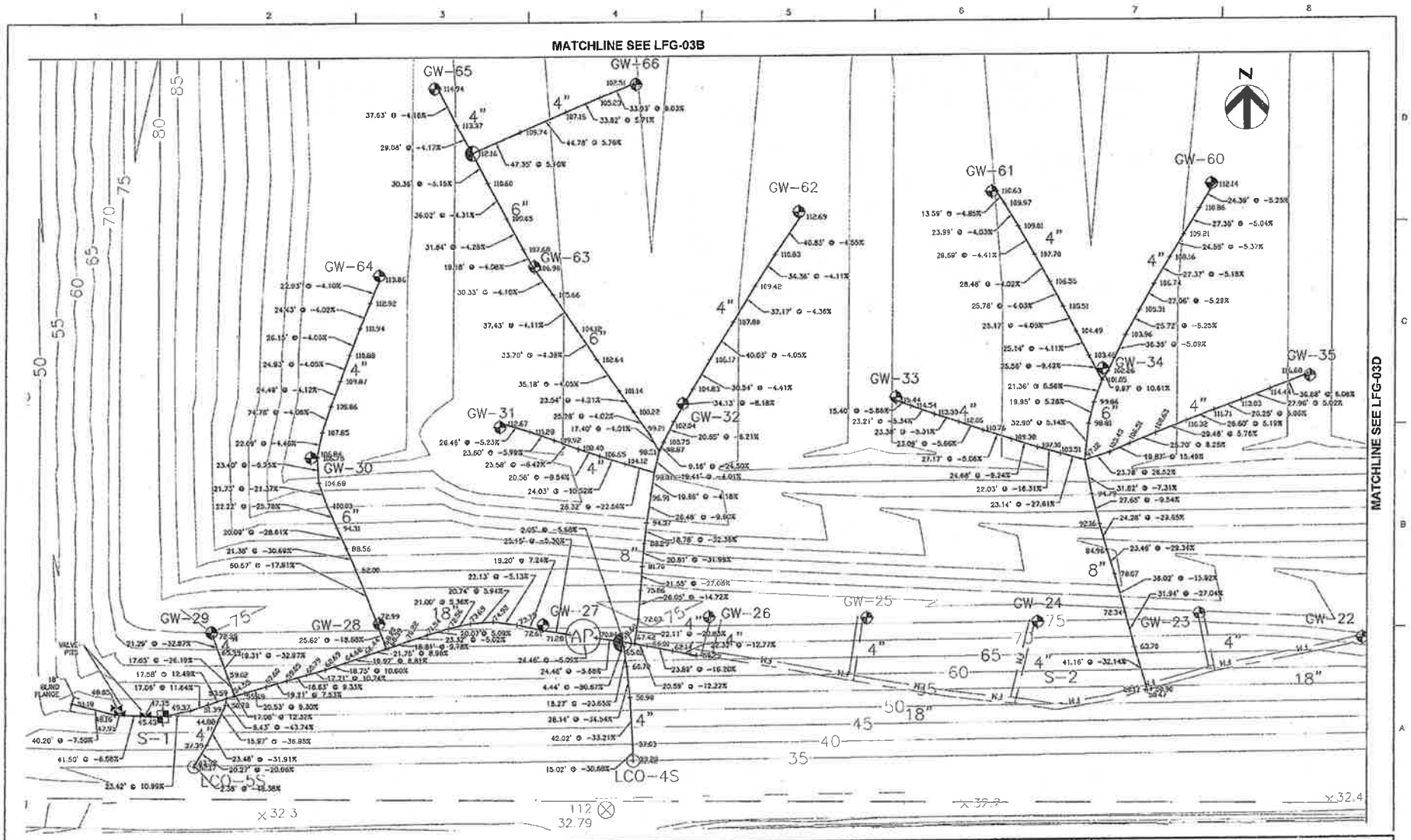
PROJECT NUMBER 00096-130530-005

0 1" 2"

FILENAME 00C-12 AS-BUILT.DWG

SCALE 1"=40'

SHEET LFG-03D



ISSUE	DATE	DESCRIPTION
2	7/31/12	PROGRESSIVE AS-BUILT
1	3/12/12	PROGRESSIVE AS-BUILT

I hereby certify that the survey shown hereon is true and correct to the best of my knowledge and belief, based on actual data immediate hereto in the field. This survey was in the Minimum Technical Standards as set forth by the Florida Board of Professional Land Surveyors in Chapter 5J-17, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes.

NOTICE: IT IS UNLAWFUL FOR ANYONE, UNLESS ACTING UNDER THE DIRECTION OF A FLORIDA LICENSED SURVEYOR AND MAPPER TO ALTER THIS SURVEY IN ANY WAY. ADDITIONS OR DELETIONS TO SURVEY MAPS OR REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES. ADDITIONS OR DELETIONS TO SURVEY MAPS OR REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES. ADDITIONS OR DELETIONS TO SURVEY MAPS OR REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES. ADDITIONS OR DELETIONS TO SURVEY MAPS OR REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES. ADDITIONS OR DELETIONS TO SURVEY MAPS OR REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.

LAYOUT SERVICES, INC.
3000 B PARK AVE STE 7 (941) 749-0779
TITUSVILLE, FL 32780 (321) 264-9746 (FAX)

James Zimmerman
Professional Land Surveyor No. 5648
State of Florida

THOMAS M. YANOSCHAK, P. E.
CERTIFICATE NO. 44200

SARASOTA COUNTY

Central County Solid Waste Disposal Complex

PHASE I CLASS I LANDFILL CLOSURE AND LANDFILL GAS COLLECTION SYSTEM AS-BUILT SURVEY

FLORIDA

PHASE I SEQUENCE 2 GAS SYSTEM LAYOUT AS-BUILT SURVEY

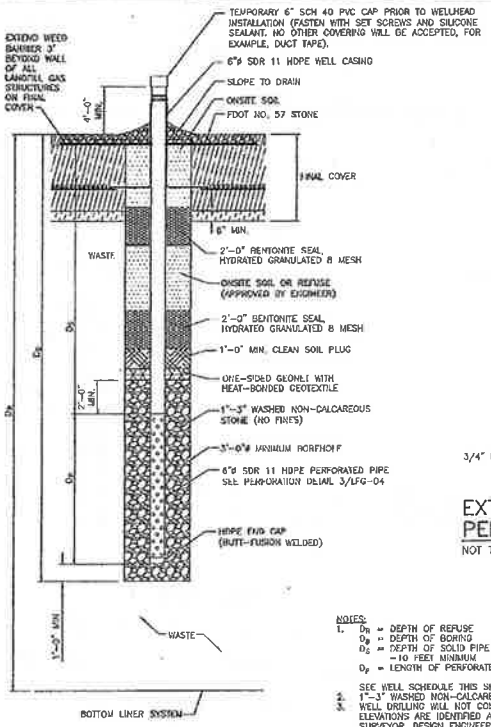
PROJECT NUMBER 00095-1301.10-005

0 1" 2"

FILENAME 00C-12 AS-BUILT.DWG

SCALE 1" = 40'

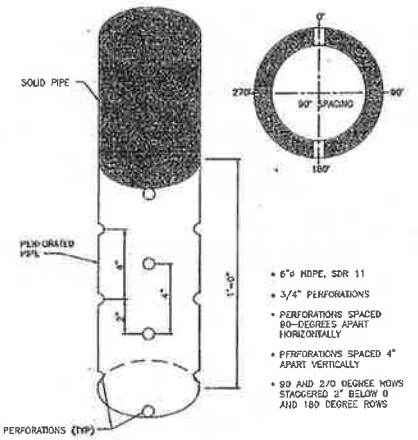
SHEET LFG-03E



LANDFILL GAS EXTRACTION WELL (FINAL COVER)

NOT TO SCALE

1 LFG-03



- 6"ø HDPE, SDR 11
- 3/4" PERFORATIONS
- PERFORATIONS SPACED 90-DEGREES APART HORIZONTALLY
- PERFORATIONS SPACED 4" APART VERTICALLY
- 90 AND 270 DEGREE ROWS STAGGERED 2" BELOW 0 AND 180 DEGREE ROWS

EXTRACTION WELL PERFORATION DETAIL

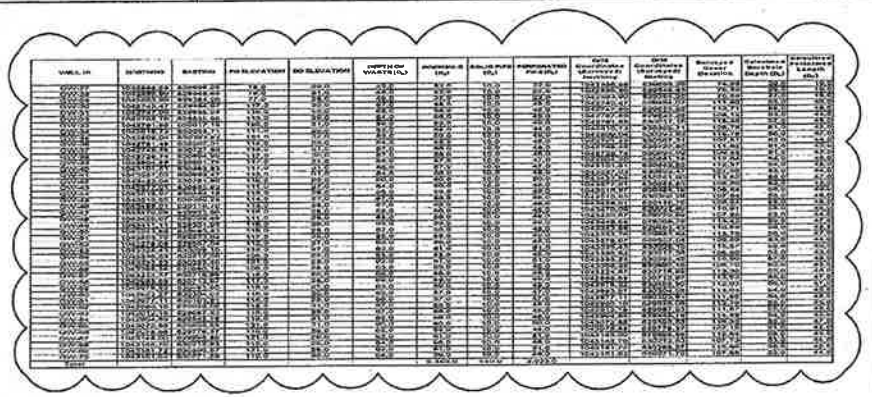
NOT TO SCALE

3 LFG-04

NOTES:

1. D_R = DEPTH OF REFUSE
   D_B = DEPTH OF BORING
   D_S = DEPTH OF SOLID PIPE (BELOW GRADE) – 10 FEET MINIMUM
   D_P = LENGTH OF PERFORATED PIPE

   SEE WELL SCHEDULE THIS SHEET.
2. 1"-3" WASHED NON-CALCAREOUS STONE (NO FINES).
3. WELL DRILLING WILL NOT COMMENCE UNTIL EXISTING GRADE ELEVATIONS ARE IDENTIFIED AND VERIFIED BY PROJECT SURVEYOR, DESIGN ENGINEER, AND COA REPRESENTATIVE.
4. WELL DRILLING TABLE WILL BE MANAGED BY OWNER OR DESIGNATED REPRESENTATIVE TO ENSURE ONLY THE VERIFIED WELL DEPTHS ARE PRESENT, AND THAT DRILLER AND COA REPRESENTATIVE HAVE THE IDENTICAL INFORMATION PRIOR TO DRILLING.



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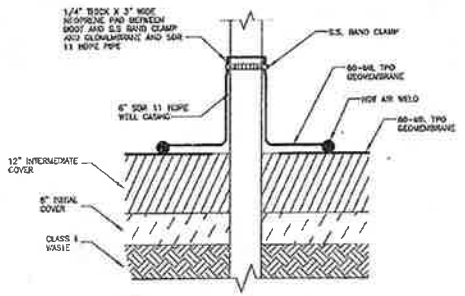

NOTES:

1. EXTRUSION WELD LINER AROUND PIPE FOR ACCESS POINTS AND SUMP.

LANDFILL GAS EXTRACTION WELL (TEMP FINAL COVER) DETAIL

NOT TO SCALE

2 LFG-03

RECORD DRAWING

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ISSUE	DATE	DESCRIPTION
1	08/2012	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	S. SIEMERING
REVIEWED BY	C. KOENIG
CIVIL DESIGN	C. RESTREPO, T. YANOSCHACK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	00096-130530-005

CLIFFORD G. KOENIG, P. E.
CERTIFICATE NO. 64078

12-30-12

Sarasota County

SARASOTA COUNTY

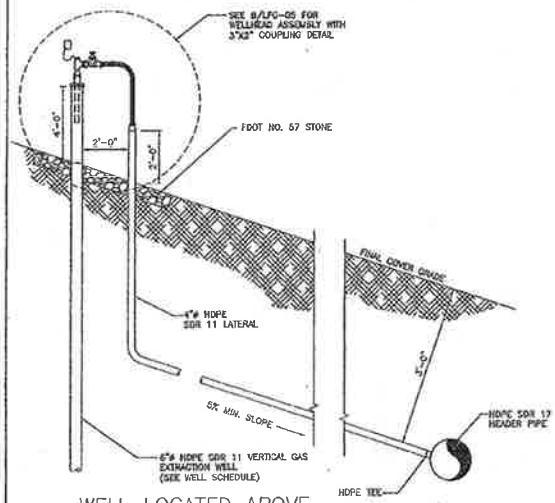
Central County Solid Waste Disposal Complex
PHASE I SEQUENCE 2
LANDFILL GAS COLLECTION AND CONTROL SYSTEM
FLORIDA

EXTRACTION WELL DETAILS AND WELL SCHEDULE

0 1" 2"

FILENAME 005LFG-04.DWG
SCALE AS SHOWN

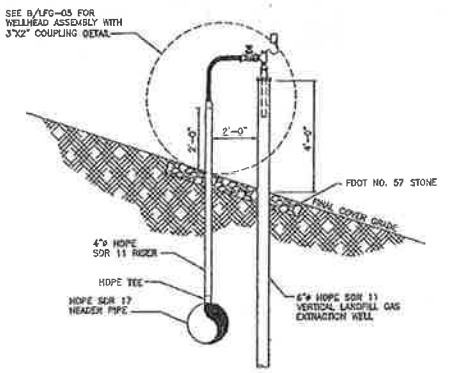
SHEET LFG-04



WELL LOCATED ABOVE HEADER PIPE (TYPE #1)

NOT TO SCALE

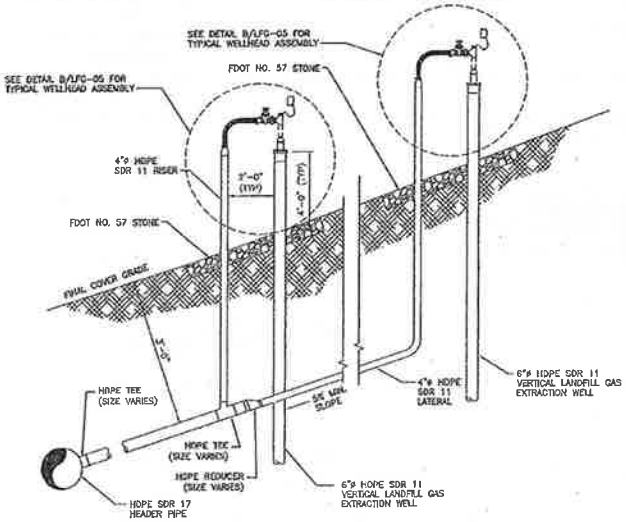
1 LFG-03



WELL LOCATED ADJACENT TO HEADER PIPE (TYPE #2)

NOT TO SCALE

2 LFG-03



MULTIPLE WELLS LOCATED ABOVE HEADER PIPE (TYPE #3)

NOT TO SCALE

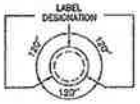
3 LFG-03

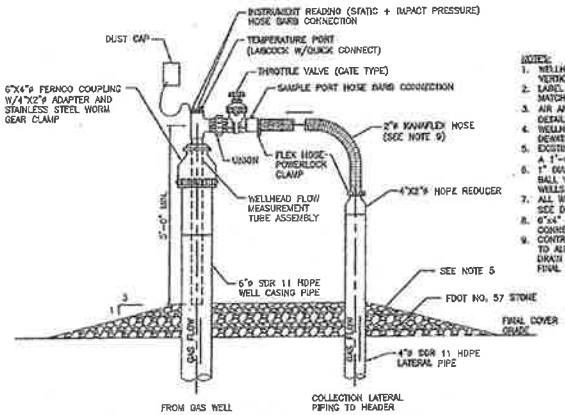
VERTICAL WELL HEAD CONFIGURATION SCHEDULE

TYPE #1				TYPE #2
GW-29	GW-40	GW-53	GW-65	GW-27
GW-31	GW-42	GW-55	GW-67	
GW-33	GW-45	GW-56	GW-69	
GW-35	GW-46	GW-60		
GW-37	GW-47	GW-61		
GW-38	GW-51	GW-62		
GW-39	GW-52	GW-64		

TYPE #3		TYPE #4		LCO
GW-28	GW-44	GW-50		LCO-45
GW-30	GW-48	GW-51		LCO-55
GW-32	GW-49	GW-58		
GW-34	GW-59	GW-57		
GW-36	GW-63	GW-66		
GW-41		GW-68		
GW-43		GW-70		

FOR INFORMATIONAL PURPOSES ONLY
SEE TYP WELL HEAD ASSEMBLIES FOR SIZES, DIMENSIONS AND SPECIFICS ON COMPONENTS. SEE ABOVE FOR WELL HEAD CONFIGURATION SCHEDULE.



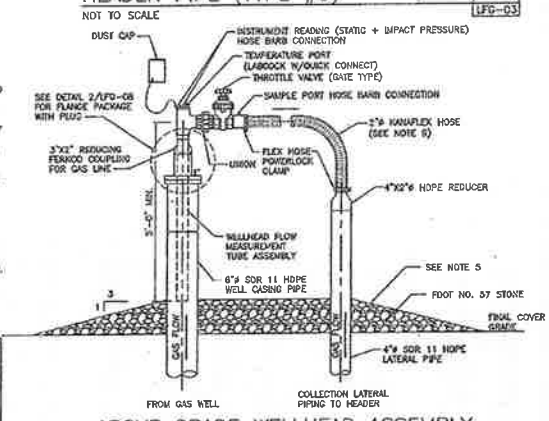


ABOVE GRADE WELLHEAD ASSEMBLY WITH 6"X4" COUPLING DETAIL

NOT TO SCALE

A LFG-05

NOTES:
1. WELLHEAD ASSEMBLY SHOWN REPRESENTS 2"ø LANDTEC VERTICAL ACCU-FLO WELLHEAD ASSEMBLY.
2. LABEL ALL WELL RISERS WITH IDENTIFICATION NUMBER TO MATCH EXISTING WELL RISERS.
3. AIR AND FORCEMAIN LINES NOT SHOWN FOR CLARITY (SEE DETAIL 4/LFG-08).
4. WELLHEAD TO BE CONSTRUCTED TO ALLOW INSTALLATION OF DEWATERING PUMP.
5. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'-0"ø SURROUNDING SURFACE EXPRESSION.
6. 1" DIAMETER RISERS FOR FORCEMAIN AND AIRLINE WITH BALL VALVES ARE REQUIRED FOR ALL VERTICAL EXTRACTION WELLS.
7. ALL WELLS TO BE CONSTRUCTED WITH BCOT CONNECTION. SEE DETAILS 1 AND 2/LFG-04
8. 6"X4" COUPLING DETAIL A/LFG-05 CORRESPONDS TO LCO CONNECTIONS AND REMOTE WELLHEADS ONLY.
9. CONTRACTOR SHALL PROVIDE SUFFICIENT SLACK IN HOSE TO ALLOW FOR SETTLEMENT, HOWEVER HOSE MUST FREELY DRAIN TO THE LATERAL PIPE AND NOT HOLD WATER. THE FINAL HOSE LENGTH MUST BE APPROVED BY THE ENGINEER.



ABOVE GRADE WELLHEAD ASSEMBLY WITH 3"X2" COUPLING DETAIL

NOT TO SCALE

B LFG-05

RECORD DRAWING

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ISSUE	DATE	DESCRIPTION
1	08/2012	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEMERING
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CIVIL DESIGN	C. RESTREPO, T. YANOSCHACK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	00098-130530-005

CLIFFORD G. KOENIG, P. E.
CERTIFICATE NO. 64078
3-30-2012

Sarasota County

SARASOTA COUNTY

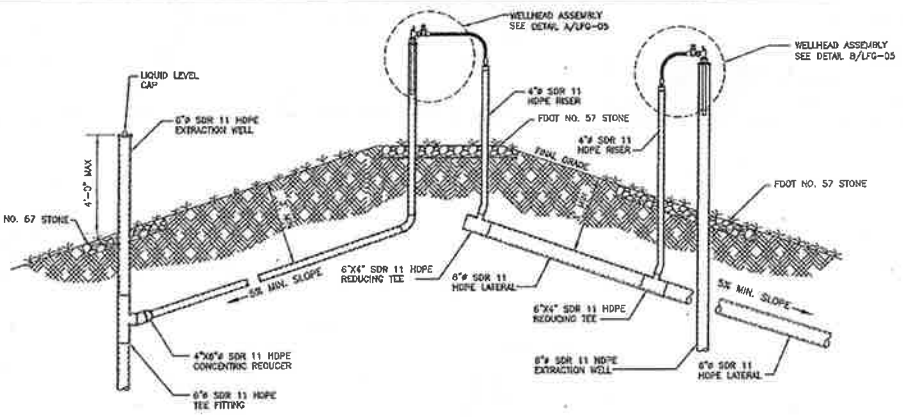
Central County Solid Waste Disposal Complex
PHASE I SEQUENCE 2
LANDFILL GAS COLLECTION AND CONTROL SYSTEM
FLORIDA

WELLHEAD AND CONFIGURATION DETAILS

0 1" 2"

FILENAME	00LFG-05.DWG
SCALE	AS SHOWN

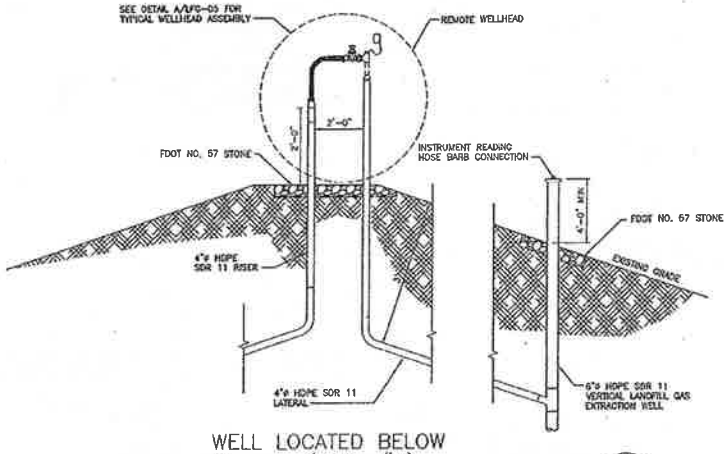
SHEET LFG-05



REMOTE WELLHEAD

NOT TO SCALE

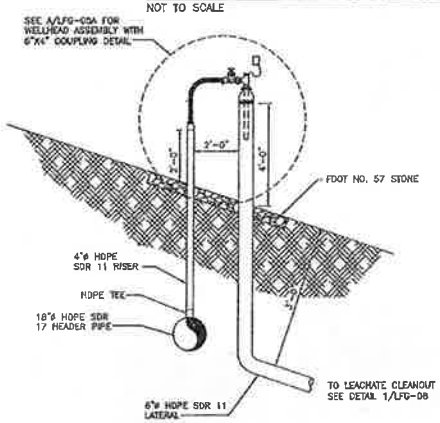
1 LFG-03



WELL LOCATED BELOW LATERAL (TYPE #4)

NOT TO SCALE

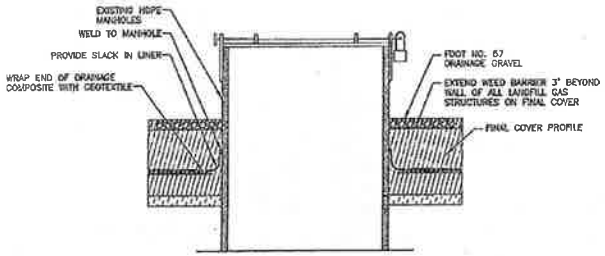
2 LFG-03



LEACHATE CLEANOUT CONNECTION

NOT TO SCALE

3 LFG-03



FINAL COVER LLDPE LINER CONNECTION TO EXISTING MANHOLES (TYP)

NOT TO SCALE

1 LFG-03

RECORD DRAWING

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ISSUE	DATE	DESCRIPTION
1	08/2013	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEVERING
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CIVIL DESIGN	C. RESTREPO, T. YANOSCHACK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	00095-130530-005

CLIFFORD G. KOENIG, P. E.
CERTIFICATE NO. 64078

Sarasota County

Central County Solid Waste Disposal Complex
PHASE I SEQUENCE 2
LANDFILL GAS COLLECTION AND CONTROL SYSTEM

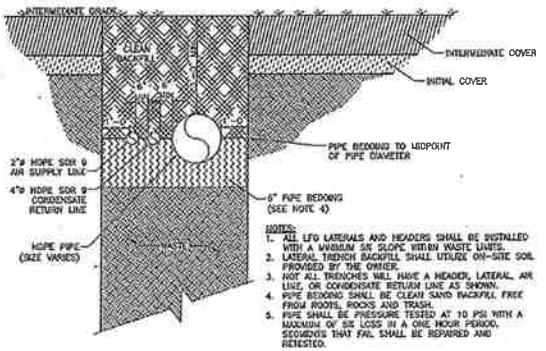
SARASOTA COUNTY FLORIDA

WELLHEAD AND CONFIGURATION DETAILS

0 1" 2"

FILENAME: 00LFG-05A.DWG
SCALE: AS SHOWN

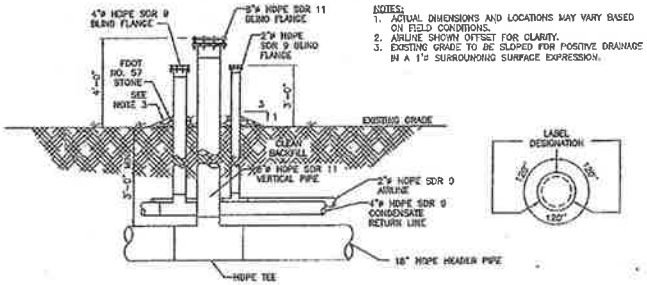
SHEET
LFG-5A



LANDFILL GAS PIPING IN WASTE TRENCH DETAIL

NOT TO SCALE

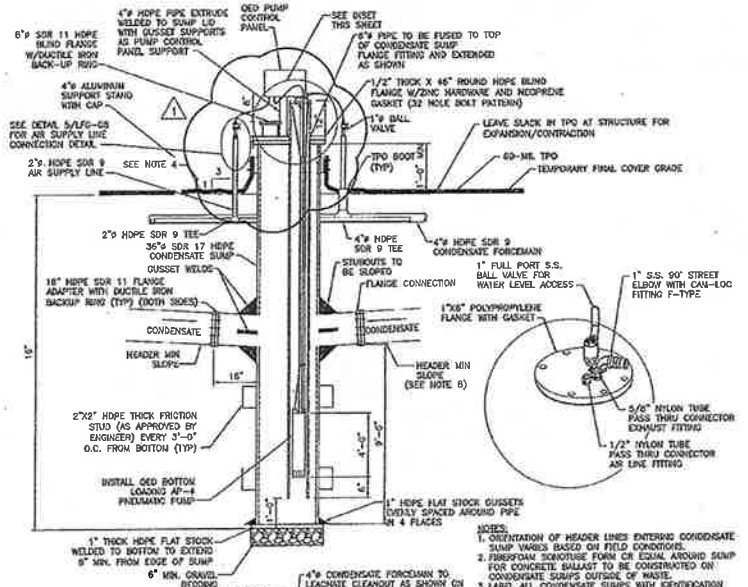
1 LFG-06



HEADER ACCESS POINT

NOT TO SCALE

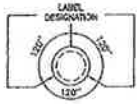
2 LFG-03



CONDENSATE SUMP DETAIL (TYP)

NOT TO SCALE

3 LFG-03



RECORD DRAWING

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FL REG. AA C009689

ISSUE	DATE	DESCRIPTION
1	08/2012	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEVERING
REVIEWED BY	C. KOENIG
CIVIL DESIGN	C. RESTREPO, T. SANOSCHACK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	60098-130530-005

CLIFFORD G. KOENIG, P. E.
CERTIFICATE NO. 64078

Sarasota County

Central County Solid Waste Disposal Complex
PHASE I SEQUENCE 2
LANDFILL GAS COLLECTION AND CONTROL SYSTEM

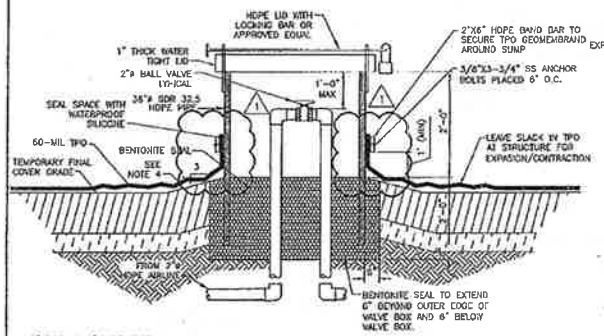
SARASOTA COUNTY FLORIDA

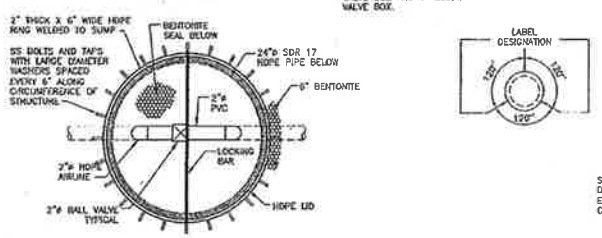
GENERAL LFG DETAILS

0 1" 2"

FILENAME: 00LFG-06.DWG
SCALE: AS SHOWN

SHEET: LFG-06



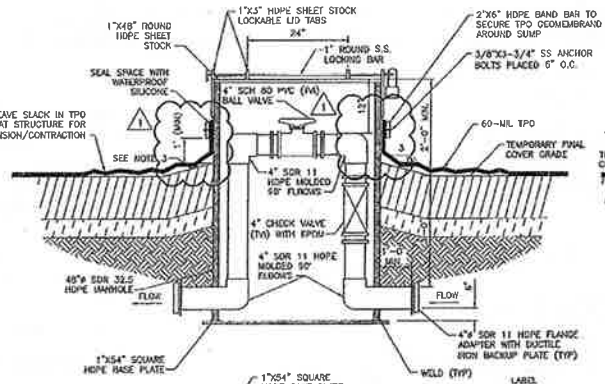


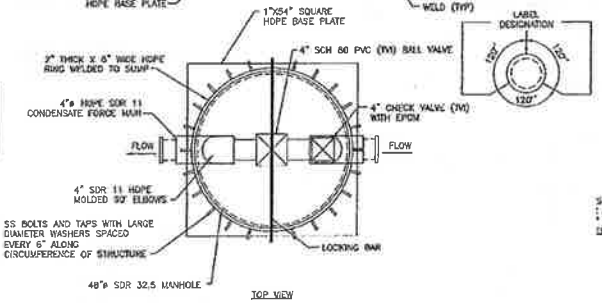
AIRLINE VALVE PIT

NOT TO SCALE

1 LFG-03

NOTES:
1. ALL FITTINGS SHALL BE HDPE SDR 9 UNLESS OTHERWISE NOTED.
2. VALVE BOX AND COVER SHALL BE 2'-0"ø MIN. WITH LID AND LOCKING DEVICE.
3. LABEL ALL VALVE PITS WITH IDENTIFICATION NUMBER TO MATCH EXISTING VALVE PITS.
4. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'± SURROUNDING SURFACE EXPRESSION.



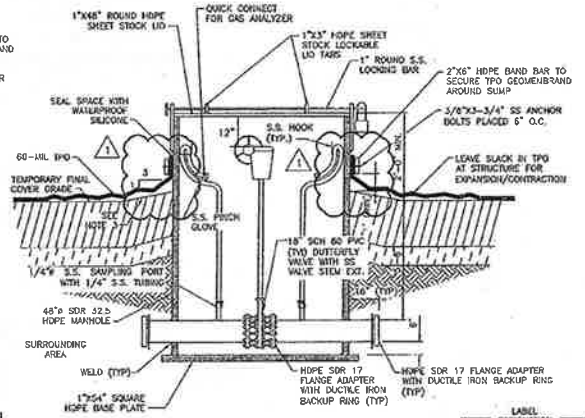


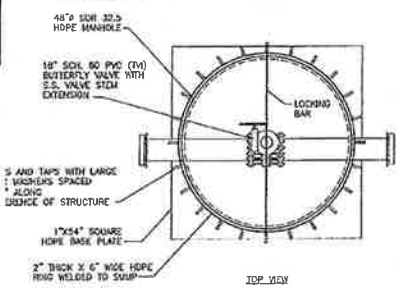
FORCE MAIN VALVE PIT

NOT TO SCALE

2 LFG-03

NOTES:
1. ACTUAL DIMENSIONS AND LOCATIONS MAY VARY BASED ON FIELD CONDITIONS.
2. LABEL ALL VALVE PITS WITH IDENTIFICATION NUMBER TO MATCH EXISTING VALVE PITS.
3. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'± SURROUNDING SURFACE EXPRESSION.





HEADER LINE ISOLATION VALVE PIT

NOT TO SCALE

3 LFG-03

NOTES:
1. HOOK FOR SAMPLE PORT SHALL BE CONNECTED TO WALL OF VALVE PIT WITHIN REACH OF TOP OF VALVE PIT.
2. LABEL ALL VALVE PITS WITH IDENTIFICATION NUMBER MATCHING EXISTING VALVE PITS.
3. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'± SURROUNDING SURFACE EXPRESSION.

RECORD DRAWING

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ISSUE	DATE	DESCRIPTION
1	08/2012	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEMERAS
REVIEWED BY	C. KOENIG
CIVIL DESIGN	C. RESTREPO, T. VANOSCHAICK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	00096-130630-035

CLIFFORD G. KOENIG, P. E.
CERTIFICATE NO. 54078

Sarasota County

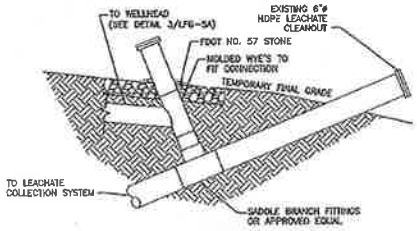
Central County Solid Waste Disposal Complex
PHASE I SEQUENCE 2
LANDFILL GAS COLLECTION AND CONTROL SYSTEM
SARASOTA COUNTY FLORIDA

VALVE PIT DETAILS

0 1" 2"

FILENAME	00LFG-07.DWG
SCALE	AS SHOWN

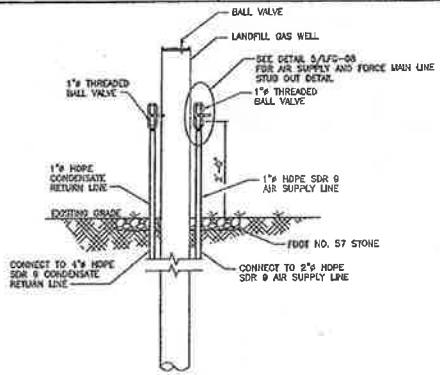
SHEET LFG-07



GAS COLLECTION FROM LEACHATE CLEANOUT CONNECTION (TYP)

NOT TO SCALE

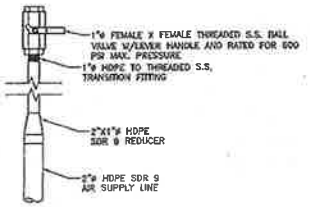
1 LFG-03 LFG-5A



WELL RISER DETAIL (TYP)

NOT TO SCALE

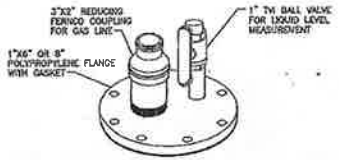
4 LFG-05



AIR SUPPLY AND FORCE MAIN LINE CONNECTION DETAIL (TYP)

NOT TO SCALE

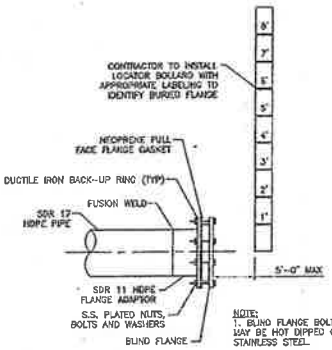
5 LFG-08



VERTICAL WELL WITHOUT PUMP FLANGE PACKAGE

NOT TO SCALE

2 LFG-05

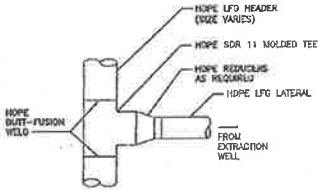


NOTE:
1. BLIND FLANGE BOLTS AND WASHERS MAY BE HOT DIPPED GALVANIZED OR STAINLESS STEEL.

BLIND FLANGE WITH LOCATOR BOLLARD DETAIL

NOT TO SCALE

3 LFG-03

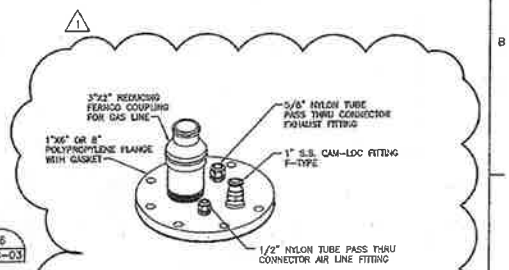


NOTES:
1. SHOP FABRICATED BRANCH SADDLE FITTINGS MAY BE USED AS APPROVED BY THE ENGINEER. FIELD FABRICATED BRANCH SADDLE FITTINGS WILL NOT BE ACCEPTED.
2. 1' MIN. OF SAND WILL BE PLACED BELOW EACH TEE. THE SAND WILL BE INSTALLED SO IT EXTENDS 3'-0" MIN. ON EACH SIDE OF THE TEE. SAND WILL BE SLIGHTLY MOISTENED AND HAND-TAMPED PROVIDING SUPPORT TO ALL POINTS OF THE TEE. CLEAN, GRADED SOIL WILL BE HAND-TAMPED ABOVE TEE (1'-0" MIN.) BEING CAREFUL TO ELIMINATE ALL VOIDS.

LATERAL TIE-IN W/TEE

NOT TO SCALE

6 LFG-03



VERTICAL WELL WITH PUMP FLANGE PACKAGE

NOT TO SCALE

2 LFG-05

RECORD DRAWING

THIS DRAWING WAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY OTHERS AND DENOTES THE CONTRACTOR'S RECORD OF INFORMATION. HDR ENGINEERING, INC. DOES NOT WARRANT THE ACCURACY OF SUCH INFORMATION OR ENDORSEMENT OF FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED INTO THIS DRAWING BASED ON THE INFORMATION.

CLIFFORD G. KOENIG, P.E.
FLORIDA P.E. NO. 64078
HDR ENGINEERING, INC.

HDR
6428 Bay Center Drive, Ste. 430
Tampa, Florida 33609
813-282-2300
LICENSED ARCHITECTURE B.O. EA 4356
FL REG. AA C030447

ISSUE	DATE	DESCRIPTION
1	08/2012	RECORD DRAWINGS
0	10/2011	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	R. SIEMERING
REVIEWED BY	C. KOENIG
CIVIL DESIGN	C. RESTREPO, T. VANDSCHACK
DRAWN BY	B. JOHNSON
PROJECT NUMBER	00095-130530-005

CLIFFORD G. KOENIG, P. E.
CERTIFICATE NO. 64078

Sarasota County

Central County Solid Waste Disposal Complex
PHASE I SEQUENCE 2
LANDFILL GAS COLLECTION AND CONTROL SYSTEM

SARASOTA COUNTY FLORIDA

GENERAL LFG DETAILS

0 1" 2"

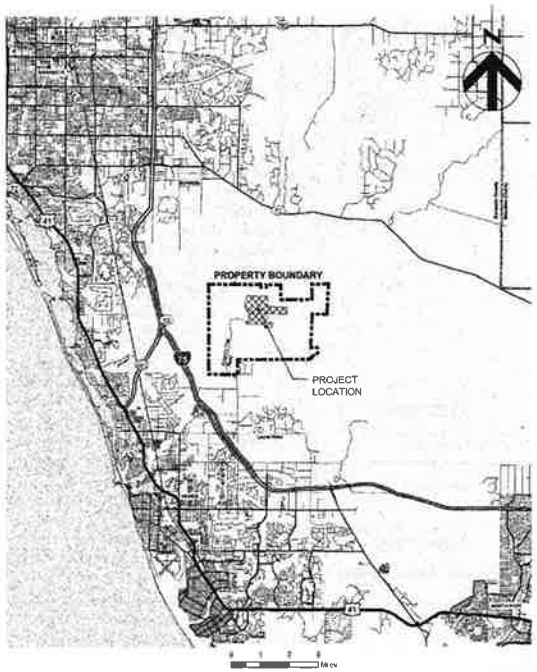
FILENAME 00LFG-08.DWG
SCALE AS SHOWN

SHEET
LFG-08

Sarasota County

HDR

HDR Engineering, Inc.
200 W. Forsyth St
Suite 800
Jacksonville, FL 32202
Certificate of Authorization No. 4213



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Construction Drawings For

Central County Solid Waste Disposal Complex

Sarasota County

Phase 1 - Sequence 1
Landfill Gas Collection and Control System

Project No. 95215
BID No. 09803CS

Nokomis, Florida

Record Drawings
June, 2010

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00C-03A PHASE 1 - GAS SYSTEM PIPING LAYOUT - AS-BUILT SURVEY BY HYATT
00C-03B PHASE 1 - GAS SYSTEM PIPING LAYOUT - AS-BUILT SURVEY BY HYATT
00C-03C PHASE 1 - GAS SYSTEM PIPING LAYOUT - AS-BUILT SURVEY BY HYATT
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00D-08 EROSION CONTROL LAYOUT
00D-09 EROSION CONTROL DETAILS

RECORD DRAWING
HDR ENGINEERING, INC.

AUG 13 2010

ENGINEERING SYMBOLOGY

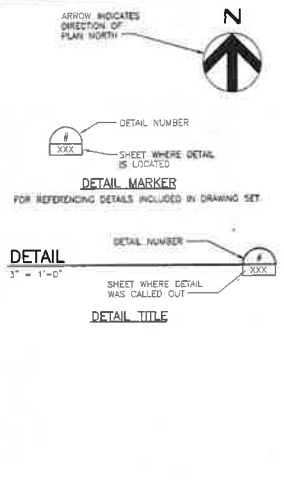
HP	HIGH POINT
LP	LOW POINT
S-1	PROPOSED CONDENSATE SUMP
GW-49	PROPOSED LFG EXTRACTION WELL
AP	PROPOSED ACCESS POINT
KO	PROPOSED KNOCKOUT POT
U1	PROPOSED U-TRAP
	PROPOSED REMOTE WELLHEAD
	EXISTING LEACHATE SUMP
	EXISTING LEACHATE CLEANOUT
	PROPOSED AIRLINE/FORCE MAIN VALVE PIT
	PROPOSED HEADER ISOLATION VALVE PIT
	PROPOSED ECCENTRIC REDUCER
	PROPOSED STRAW BALE BARRIER
	PROPOSED TEMPORARY DITCH BLOCK
	EXISTING SOLAR FLARE
GP-7	EXISTING GAS PROBE
MW-14	EXISTING GROUNDWATER MONITORING WELL
	EXISTING WATER SUPPLY WELL
	PROPOSED ELECTRICAL HOUSING
	PROPOSED SILT FENCE
	PROPOSED 2" HDPE SDR 9 AIR SUPPLY LINE
	PROPOSED 4" HDPE SDR 9 CONDENSATE RETURN LINE
	PROPOSED 4" HDPE SDR 11 LATERAL
	PROPOSED 6" HDPE SDR 11 LATERAL
	PROPOSED 8" HDPE SDR 11 LATERAL
	PROPOSED HDPE SDR 17 HEADER
	EXISTING MAJOR/MINOR CONTOURS
40	PROPOSED MAJOR/MINOR CONTOURS
	PHASE LIMITS
	CELL LIMITS
	PROPERTY LINE
FM FM	EXISTING 6" LEACHATE FORCEMAIN
	PROPOSED CHAIN LINK FENCE
	EXISTING CHAIN LINK FENCE
	LIMITS OF CONSTRUCTION
UGE	PROPOSED UNDERGROUND ELECTRIC CONDUIT
UGT	PROPOSED UNDERGROUND TELEPHONE CONDUIT

DETAILS LEGEND OF PATTERNS

- CLEAN BACKFILL
- PIPE BEDDING (DEFINED AS FIELD COMPACTED AND LEVELED BACKFILL OR ED.)
- INTERMEDIATE COVER
- WASTE
- BENTONITE SEAL
- EXISTING GROUND
- STONE
- ONSITE SOIL
- CONCRETE
- ASPHALT

NOTE
SYMBOLOGY IS REPRESENTATIVE OF MAJOR LANDFILL GAS COMPONENTS

GENERAL SYMBOLOGY



GENERAL NOTES

SURVEY AND MAP REPORT:

1. TOPOGRAPHY WITHIN PHASES I THROUGH IV AREAS COMPILED BY KUCERA INTERNATIONAL INC., OF WILLOUGHBY, OHIO USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED APRIL 12, 2008.

SPECIFIC NOTES:

1. 2 WEEKS PRIOR TO INITIATING WORK, THE CONTRACTOR WILL SUBMIT FOR APPROVAL A SCHEDULE TO THE ENGINEER FOR COMPLETION OF THE PROJECT.
2. ALL EXCAVATION AND DRILLING WITHIN THE LANDFILL LIMITS SHALL CEASE PRIOR TO 3:00 PM M-F AND BY 1:00 PM SAT. ALL WASTE EXCAVATED SHALL BE DELIVERED TO THE ACTIVE FACE OF THE LANDFILL DAILY BY 4:00 PM M-F AND BY 2:00 PM SAT. CHANGES IN WORK HOURS ARE BASED UPON OWNER'S APPROVAL.
3. HOURS FOR CONSTRUCTION: 7:00 AM TO 5:30 PM MONDAY THRU FRIDAY, 8 AM TO 2 PM SATURDAY. NO WORK ALLOWED ON SUNDAY UNLESS OTHERWISE APPROVED BY OWNER AND PERMIT.
4. CONTRACTOR MAY CONTAINERIZE WASTE AND TARP OVERNIGHT BASED ON OWNER APPROVAL.

EROSION AND SEDIMENT CONTROL:

1. CONTRACTOR WILL ADD EROSION AND SEDIMENT CONTROL AS NECESSARY TO PREVENT SILTATION AND DAMAGE TO ADJACENT AREAS AND AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
2. CONTRACTOR WILL INSPECT AND REPAIR, AS NECESSARY, ANY EROSION AND SEDIMENT CONTROL DAILY AND FOLLOWING EACH RAIN.
3. EROSION AND SEDIMENT CONTROL WILL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
4. CONTRACTOR IS RESPONSIBLE FOR MONITORING DOWNSTREAM CONDITIONS THROUGHOUT THE CONSTRUCTION PERIOD AND CLEARING ANY DEBRIS AND SEDIMENT RESULTING FROM CONSTRUCTION.
5. EROSION CONTROL FENCING MUST MEET THE REQUIREMENT OF THE DEPARTMENT OF TRANSPORTATION, STATE OF FLORIDA, STANDARD SPECIFICATIONS. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES.
6. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTION.

EARTHWORK:

1. EXCAVATION IS UNCLASSIFIED AND INCLUDES REMOVAL OF EARTH FILLS, RUBBLE, TRASH, AND OTHER MATERIALS ENCOUNTERED IN EXCAVATION AND GRADING OPERATIONS TO DEPTH AND EXTENT SHOWN ON DRAWINGS OR SPECIFIED. THE OWNER'S REPRESENTATIVE SHALL BE THE FINAL AUTHORITY AND SHALL MAKE THE FINAL DECISION DURING CONSTRUCTION AS TO THE DEPTH AND EXTENT TO WHICH MATERIALS MUST BE REMOVED AND REPLACED.
2. SURVEY BENCHMARKS, MONUMENTS AND OTHER REFERENCE POINTS WILL BE PROTECTED FROM DAMAGE AND DISPLACEMENT IF DISTURBED OR DESTROYED, THEY WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
3. CONTRACTOR SHALL KEEP DIRT, DUST, NOISE AND OTHER OBJECTIONABLE NUISANCES TO A MINIMUM.
4. ALL FILL AREAS ARE TO BE COMPACTED AS DEFINED IN THE SPECIFICATIONS AND DRAWINGS.
5. CUT AND FILL SLOPES FOR STRUCTURAL EMBANKMENTS SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL.

UTILITIES:

1. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR LOCATIONS SHOWN AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS OF ALL UTILITIES WITHIN THE LIMITS OF THE WORK PRIOR TO CONSTRUCTION. ALL DAMAGE MADE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN THE AREA AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION. CALL FLORIDA SUNSHINE STATE ONE CALL CENTER AT 1-800-432-4770. ALL COORDINATION AND REQUIRED UTILITY COMPANY TEMPORARY PROTECTION SHALL BE AT THE CONTRACTOR'S EXPENSE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE UNINTERRUPTION OF SERVICE AND REPLACEMENT OF DAMAGED UTILITIES.

AS-BUILT SURVEY DATA:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR MINIMIZING LANDFILL GAS EMISSIONS FROM SURVEY TUBES (E.G. SEAL TOP OF SURVEY TUBES).
2. THE CONTRACTOR SHALL PROVIDE SURVEY DATA TO THE ENGINEER SHOWING THE LANDFILL GAS SYSTEM HAS BEEN PROPERLY CONSTRUCTED AND MEETS THE MINIMUM SLOPES REQUIRED AS SHOWN ON THE DRAWINGS.
3. THE SURVEY DATA SUBMITTED TO THE ENGINEER SHALL BE GROUND SURFACE ELEVATIONS AND TOP OF PIPE ELEVATIONS AT 50 FOOT INTERVALS ON CENTER AND AT EACH FITTING, LATERAL CONNECTION, VALVE, BENDS AND OTHER SIGNIFICANT FEATURES.
4. ALL REQUESTED SURVEY DATA MUST BE PROVIDED TO OWNER'S REPRESENTATIVE IN FLORIDA STATE PLANE COORDINATES AND BE PERFORMED BY A STATE OF FLORIDA CERTIFIED SURVEYOR.

GENERAL NOTES:

1. THE CONTRACTOR IS ADVISED THAT NO ACTIVITIES MAY INTERFERE, DISRUPT, BLOCK OR OTHERWISE CONFLICT WITH LANDFILL OPERATIONS. IF CONFLICTS ARE ANTICIPATED THEY SHALL BE COORDINATED AND APPROVED BY THE OWNER AND ENGINEER PRIOR TO DISRUPTION.
2. PROJECT SITE IS A SOLID WASTE LANDFILL. AS SUCH, CONDITIONS ARE SUBJECT TO CHANGE WITH TIME. CONTROLS, IN PARTICULAR VERTICAL CONTROL, SHOULD BE EXPECTED (AND ANTICIPATED) TO VARY FROM THOSE SHOWN ON THESE DRAWINGS DUE TO ONGOING SUBSIDENCE RESULTING FROM REFUSE DECOMPOSITION. RELATIVE ELEVATION DIFFERENCES IN EXISTING AND PROPOSED ELEVATIONS SHOWN ON THE DRAWINGS SHALL BE ADJUSTED ACCORDINGLY. LOCATION OF STRUCTURES SHALL BE PLACED IN ACCORDANCE WITH HORIZONTAL CONTROLS. VERTICAL PLACEMENT OF STRUCTURES SHALL BE IN ACCORDANCE WITH CONSTRUCTION DOCUMENTS, OR AS APPROVED BY THE ENGINEER.
3. CONSTRUCTION OF LANDFILL GAS COLLECTION SYSTEM WILL INVOLVE REFUSE EXCAVATION. THE CONTRACTOR SHALL MAKE ALL SAFETY AND ENVIRONMENTAL PRECAUTIONS TO PROTECT ITS WORKERS AND SUBCONTRACTORS, AT NO ADDITIONAL COST TO THE OWNER. ALL EXCAVATED WASTES SHALL BE PLACED AT THE WORKING FACE. CONTRACTOR IS ADVISED THAT THE POTENTIAL FOR ENCOUNTERING ASBESTOS CONTAINING MATERIAL EXISTS. SHOULD SUSPECT ASBESTOS CONTAINING MATERIAL BE ENCOUNTERED, IT SHALL BE MAINTAINED IN A MOIST CONDITION DURING THE REMOVAL AND TRANSFER PROCESS TO MINIMIZE/PREVENT EMISSIONS FROM SUCH DISTURBED REFUSE (INCLUDING ANY SUSPECT ASBESTOS-CONTAINING MATERIAL) WILL BE TRANSPORTED TO THE WORKING FACE OF THE CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX BY THE END OF EACH WORKING DAY FOR PROPER DISPOSAL AND BURIED WITH A MINIMUM OF SIX (6) INCHES OF SOIL COVER.
4. ANY AND ALL FINES IMPOSED ON THE OWNER BY ANY REGULATORY AGENCY DUE TO ACTIONS OF THE CONTRACTOR SHALL BE PAID BY THE CONTRACTOR.
5. INSPECTION: EXAMINE AREAS FOR CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. REPORT IN WRITING TO OWNER'S REPRESENTATIVE ALL CONDITIONS CONTRARY TO THOSE SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN AND ALL OTHER CONDITIONS THAT WILL AFFECT SATISFACTORY EXECUTION OF WORK. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. STARTING WORK CONSTITUTES ACCEPTANCE OF THE CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. AFTER SUCH ACCEPTANCE, THE CONTRACTOR SHALL AT CONTRACTOR'S EXPENSE BE RESPONSIBLE FOR CORRECTING ALL UNSATISFACTORY AND DEFECTIVE WORK RESULTING FROM SUCH UNSATISFACTORY CONDITIONS.
6. PROTECTIONS: INSTALL TEMPORARY BARRIERS, FENCES, BARRICADES, LIGHTS, WARNING SIGNS AND OTHER DEVICES NECESSARY TO PROTECT STRUCTURES, UTILITIES, LANDSCAPING, EXCAVATIONS, AND OTHER ITEMS AS NECESSARY. PROTECT SURVEY BENCHMARKS AND MONUMENTS FROM DISPLACEMENT.
7. ALL WORK SHALL BE PERFORMED IN A QUALITY WORKMANLIKE MANNER.
8. DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE ENGINEER OR OWNER MAY CAUSE THE WORK TO BE UNACCEPTABLE AND WILL BE ADJUSTED OR REPAIRED AT THE CONTRACTOR'S EXPENSE.
9. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY LICENSES AND PERMITS ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT UNLESS NOTIFIED OTHERWISE IN WRITING BY THE OWNER.
10. LATERAL PIPING ALIGNMENTS ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY TO ASSURE REQUIRED SLOPE AND DIRECTION OF GAS AND CONDENSATE FLOW.
11. SUGGESTED INSTALLATION SEQUENCE: THE FOLLOWING INSTALLATION SEQUENCE HAS BEEN ASSUMED IN THE ENGINEER CALCULATIONS.
    (A.) DRILL ALL VERTICAL WELLS, INSTALLING AND COMPLETING WELL COMPONENTS AS PROCEEDING
    (B.) TRENCH LATERAL PIPING FROM THE WELLS TO CONNECTION POINT IN THE ACTIVE GAS COLLECTION SYSTEM.
    (C.) CONNECT ALL LATERALS TO ACTIVE GAS COLLECTION SYSTEM
    (D.) INSTALL FORCEMAIN AND AIR LINE PIPING
    (E.) INSTALL PNEUMATIC PUMPS AT WELLS DESIGNATED BY ENGINEER.
    (F.) COMPLETE WELLHEAD INSTALLATION AND PNEUMATIC PUMP CONNECTIONS.
12. PRIOR TO INSTALLATION OF GAS COLLECTION SYSTEM, ENGINEER TO BE PROVIDED WITH THE FINAL GRADING PLAN TO CONFIRM LAYOUT AND MINIMUM SLOPES.
13. ALL WORK SHALL HAVE A ONE YEAR WARRANTY. ONE YEAR WARRANTY WILL BECOME EFFECTIVE WHEN THE PROJECT IS SUBSTANTIALLY COMPLETE, AS DETERMINED BY ENGINEER.
14. ALL BORE HOLES THAT ARE NOT COMPLETED AT THE END OF THE DAY ARE TO BE COVERED WITH A METAL WELL COVER CAPABLE OF PREVENTING ANY PERSONS FROM FALLING INTO THE HOLE. THE HOLE MUST THEN BE COVERED WITH A PIECE OF PLYWOOD TO SUBSTANTIALLY COVER THE ENTIRE HOLE. SOIL MUST BE PLACED ON TOP OF THE PLYWOOD TO COMPLETELY COVER THE PLYWOOD TO FURTHER PREVENT GAS EMISSIONS. SUBSTITUTE SAFETY MEASURES MAY BE USED IF APPROVED BY ENGINEER.
15. ALL HDPE PIPES SHALL BE PRESSURE TESTED AFTER FUSION FOR LEAKS. THE STANDARD PRESSURE TEST SHALL BE 10 PSI FOR 1 HOUR WITH A MAXIMUM OF 5% LOSS.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL SURVEY TUBES AT THE END OF THE PROJECT, UNLESS INSTRUCTED OTHERWISE BY OWNER OR ENGINEER.
17. ACTUAL DIMENSIONS AND LOCATIONS MAY VARY BASED ON FIELD LOCATIONS.
18. TERMS "OWNER'S REPRESENTATIVE" AND "ENGINEER" ARE INTERCHANGEABLE.
19. ALL ROAD CROSSINGS TO BE ENCASED IN A LARGER DIAMETER PIPE AS SHOWN IN DETAIL 1, SHEET D-05 FOR PROTECTION. CASING TO EXTEND 5' PAST THE ACCESS ROAD ON BOTH SIDES OF ACCESS ROAD.
20. CONTRACTOR TO PROVIDE SHOP DRAWINGS TO ENGINEER FOR APPROVAL.
21. EXISTING SOLAR FLARES WHICH PASSIVELY CONTROL LANDFILL GAS ACCUMULATED IN LEACHATE COLLECTION SYSTEM TO BE DECOMMISSIONED AND MOVED TO OWNER SPECIFIED LOCATION. ALL CONNECTIONS FROM LEACHATE COLLECTION SYSTEM TO SOLAR FLARES SHALL BE CAPPED IMMEDIATELY.
22. CONTRACTOR MUST COORDINATE ROAD CROSSING CONSTRUCTION WITH OWNER. ALL ROAD CROSSINGS SHALL BE COMPLETED WHILE THE LANDFILL IS CLOSED TO DISPOSAL OPERATIONS. ROADWAY CUTS SHALL NOT HINDER TRAFFIC.
23. THE CONTRACTOR IS ADVISED THAT THE LANDFILL CONTAINS A SYNTHETIC LINER AS PART OF THE SUBGRADE CONSTRUCTION; ALL COSTS ASSOCIATED WITH REPAIR RESULTING FROM DAMAGE TO THIS LINER SYSTEM SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THESE COSTS SHALL INCLUDE, BUT ARE NOT LIMITED TO ENGINEER'S REVIEW, REPAIR OR REPLACEMENT BY A QUALIFIED LLDPE LINER INSTALLER, THIRD PARTY OBSERVATION AND COUNTY REVIEW.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ENGINEERING HOURS OVER THE 60 HOURS PER WEEK WORK SCHEDULE AT A RATE OF $150/HR.

RECORD DRAWING

HDR ENGINEERING, INC.

ISSUE	DATE	DESCRIPTION
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER: C. KOENIG, P.E.
DESIGNED BY: A. BARKER, E.I.
DRAWN BY: D. SOSA
CHECKED BY: C. LEBRON, P.E.
PROJECT NUMBER: 101828

CLIFFORD G. KOENIG LICENSE No. 54078 STATE OF FLORIDA PROFESSIONAL ENGINEER

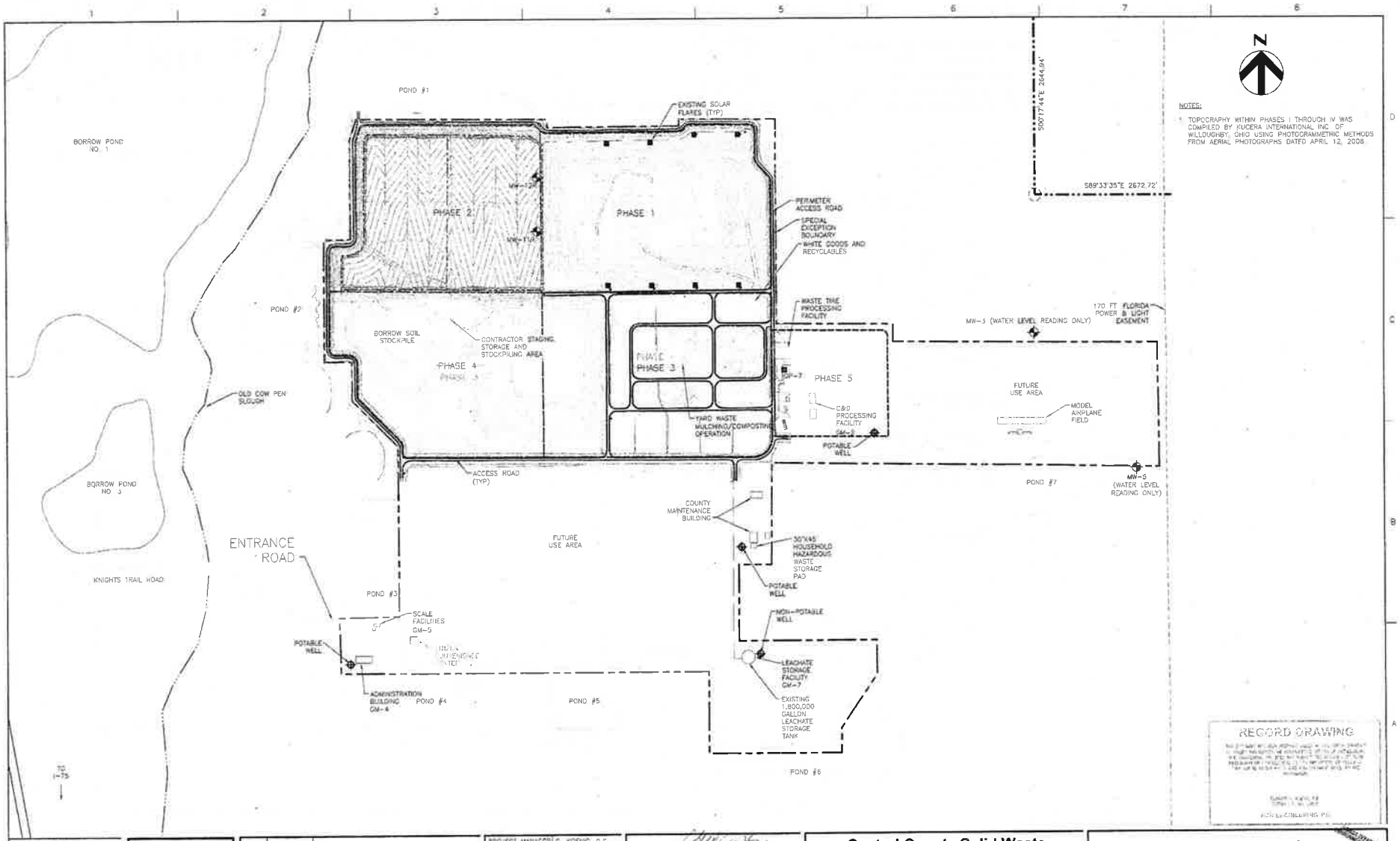
Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System

SARASOTA COUNTY FLORIDA

GENERAL NOTES

AUG 13 2010

FILENAME: 00G-01.dwg
SCALE: NOT TO SCALE
SHEET: 00G-01



NOTES:

1. TOPOGRAPHY WITHIN PHASES I THROUGH IV WAS COMPILED BY KUCERA INTERNATIONAL INC. OF WILLOUGHBY, OHIO USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED APRIL 12, 2008.

RECORD DRAWING

ISSUE	DATE	DESCRIPTION
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER: C. KOENIG, P.E.
DESIGNED BY: A. BARKER, E.I.
DRAWN BY: D. SOSA
CHECKED BY: C. LEBRON, P.E.
PROJECT NUMBER: 101028

CLIFFORD G. KOENIG, LICENSE No. 64078, STATE OF FLORIDA, PROFESSIONAL ENGINEER

Central County Solid Waste Disposal Complex

Phase 1 - Sequence 1

Landfill Gas Collection and Control System

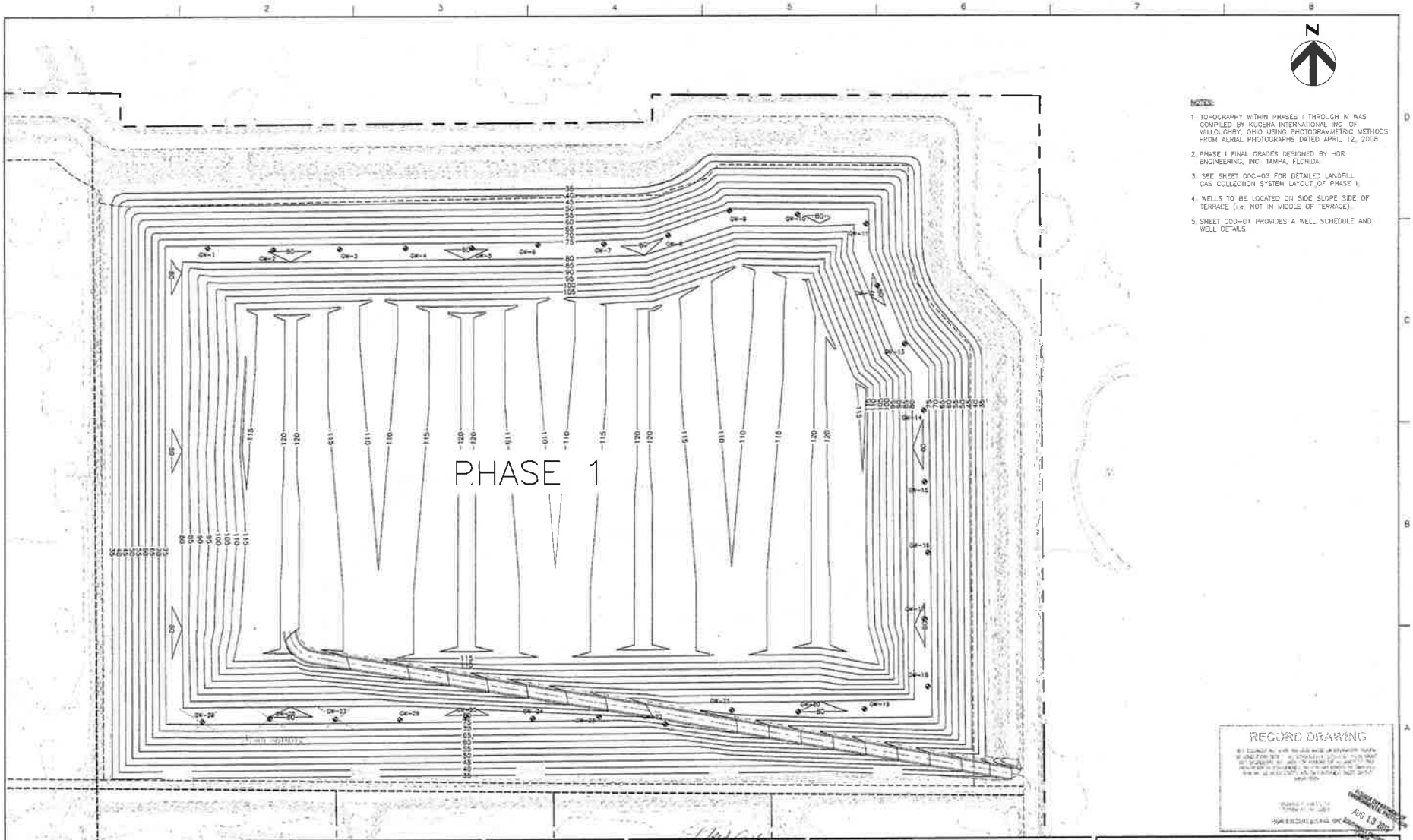
SARASOTA COUNTY FLORIDA

EXISTING CONDITIONS

AUG 13 2010

FILENAME: 00C-01.dwg
SCALE: 1" = 400'

SHEET 00C-01



NOTES:

1. TOPOGRAPHY WITHIN PHASES I THROUGH IV WAS COMPILED BY KUCERA INTERNATIONAL INC OF WILLOUGHBY, OHIO USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED APRIL 12, 2008
2. PHASE I FINAL GRADES DESIGNED BY HDR ENGINEERING, INC. TAMPA, FLORIDA
3. SEE SHEET 00C-03 FOR DETAILED LANDFILL GAS COLLECTION SYSTEM LAYOUT OF PHASE I.
4. WELLS TO BE LOCATED ON SIDE SLOPE SIDE OF TERRACE (i.e. NOT IN MIDDLE OF TERRACE).
5. SHEET 00D-01 PROVIDES A WELL SCHEDULE AND WELL DETAILS

RECORD DRAWING

AUG 13 2010

SARASOTA COUNTY

HDR

ISSUE	DATE	DESCRIPTION
3	[illegible]	[illegible]
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER: C. KOENIG, P.E.
DESIGNED BY: A. BARKER, E.I.
DRAWN BY: D. SOSA
CHECKED BY: C. LEBRON, P.E.
PROJECT NUMBER: 101628

CLIFFORD G. KOENIG LICENSE No. 64276 STATE OF FLORIDA PROFESSIONAL ENGINEER
8-13-2010

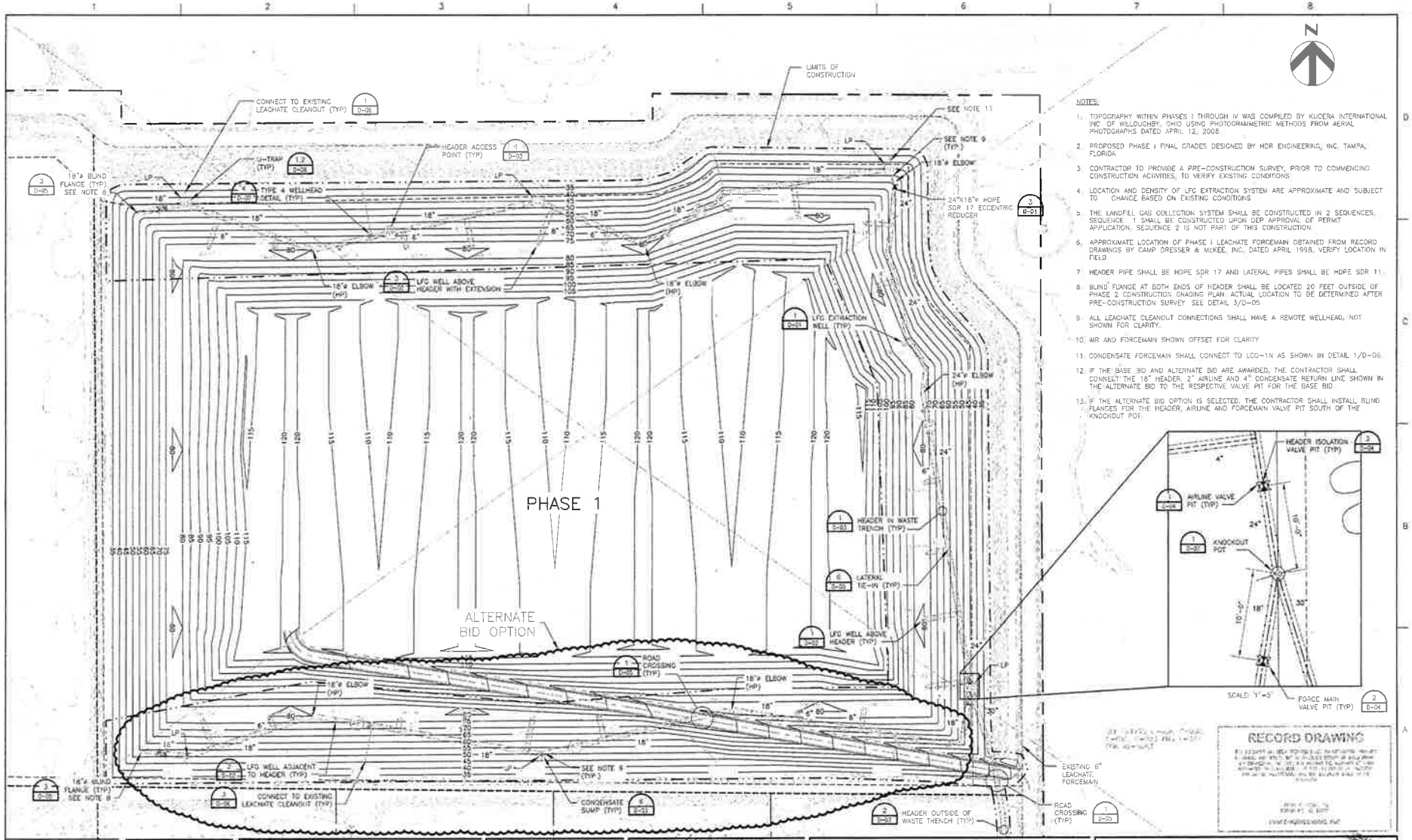
Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System
SARASOTA COUNTY FLORIDA

PHASE 1
LANDFILL GAS EXTRACTION WELL LAYOUT

0 1" 2"
AT FULL SIZE BAR IS 1" LONG. IF NOT 1" ADJUST ACCORDINGLY

FILENAME: 00C-02.dwg
SCALE: 1" = 100'

SHEET: 00C-02



NOTES:

1. TOPOGRAPHY WITHIN PHASES I THROUGH IV WAS COMPILED BY KUCERA INTERNATIONAL INC. OF WILLOUGHBY, OHIO USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED APRIL 12, 2008.
2. PROPOSED PHASE I FINAL GRADES DESIGNED BY HDR ENGINEERING, INC. TAMPA, FLORIDA.
3. CONTRACTOR TO PROVIDE A PRE-CONSTRUCTION SURVEY, PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, TO VERIFY EXISTING CONDITIONS.
4. LOCATION AND DENSITY OF LFG EXTRACTION SYSTEM ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON EXISTING CONDITIONS.
5. THE LANDFILL GAS COLLECTION SYSTEM SHALL BE CONSTRUCTED IN 2 SEQUENCES. SEQUENCE 1 SHALL BE CONSTRUCTED UPON DEP APPROVAL OF PERMIT APPLICATION. SEQUENCE 2 IS NOT PART OF THIS CONSTRUCTION.
6. APPROXIMATE LOCATION OF PHASE I LEACHATE FORCEMAIN OBTAINED FROM RECORD DRAWINGS BY CAMP DRESSER & MCKEE, INC., DATED APRIL 1998. VERIFY LOCATION IN FIELD.
7. HEADER PIPE SHALL BE HDPE SDR 17 AND LATERAL PIPES SHALL BE HDPE SDR 11.
8. BLIND FLANGE AT BOTH ENDS OF HEADER SHALL BE LOCATED 20 FEET OUTSIDE OF PHASE 2 CONSTRUCTION GRADING PLAN. ACTUAL LOCATION TO BE DETERMINED AFTER PRE-CONSTRUCTION SURVEY. SEE DETAIL 3/D-05.
9. ALL LEACHATE CLEANOUT CONNECTIONS SHALL HAVE A REMOTE WELLHEAD, NOT SHOWN FOR CLARITY.
10. AIR AND FORCEMAIN SHOWN OFFSET FOR CLARITY.
11. CONDENSATE FORCEMAIN SHALL CONNECT TO LCO-1N AS SHOWN IN DETAIL 1/D-06.
12. IF THE BASE BID AND ALTERNATE BID ARE AWARDED, THE CONTRACTOR SHALL CONNECT THE 18" HEADER, 2" AIRLINE AND 4" CONDENSATE RETURN LINE SHOWN IN THE ALTERNATE BID TO THE RESPECTIVE VALVE PIT FOR THE BASE BID.
13. IF THE ALTERNATE BID OPTION IS SELECTED, THE CONTRACTOR SHALL INSTALL BLIND FLANGES FOR THE HEADER, AIRLINE AND FORCEMAIN VALVE PIT SOUTH OF THE KNOCKOUT POT.

RECORD DRAWING

ISSUE	DATE	DESCRIPTION
3	02/10	RECORD DRAWING
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER: C. KOENIG, P.E.
DESIGNED BY: A. BARKER, E.I.
DRAWN BY: D. SOSA
CHECKED BY: C. LEBRON, P.E.
PROJECT NUMBER: 101028

CLIFFORD G. KOENIG LICENSE No. 64878 STATE OF FLORIDA PROFESSIONAL ENGINEER

Central County Solid Waste Disposal Complex

Phase 1 - Sequence 1

Landfill Gas Collection and Control System

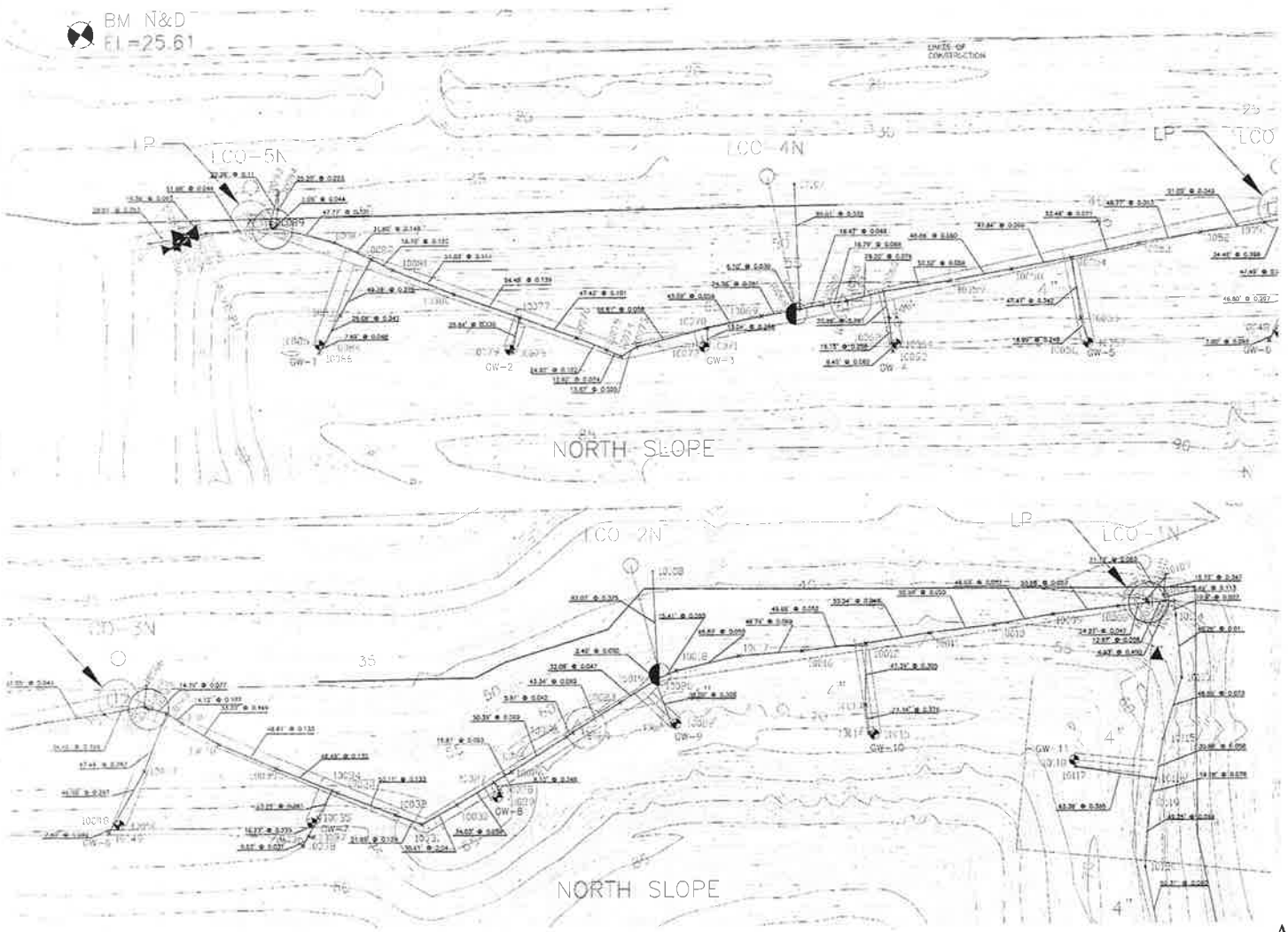
SARASOTA COUNTY FLORIDA

PHASE 1 GAS SYSTEM PIPING LAYOUT

AUG 13 2010

FILENAME	00C-03.dwg
SCALE	1" = 100'

SHEET 00C-03



N

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SURVEY NOTES:

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3. PLAN INFORMATION SHOWN HEREON TAKEN FROM THE CONSTRUCTION PLANS FOR THE CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX AS SUPPLIED BY THE PROJECT ENGINEER "HDR INC"

RECEIVED
AUG 13 2010
SARASOTA COUNTY

AS-BUILT SURVEY

PHASE 1
GAS SYSTEM PIPING LAYOUT

Hyatt Survey Services, Inc.

SURVEYING SURVEY

00C-03A

SARASOTA COUNTY

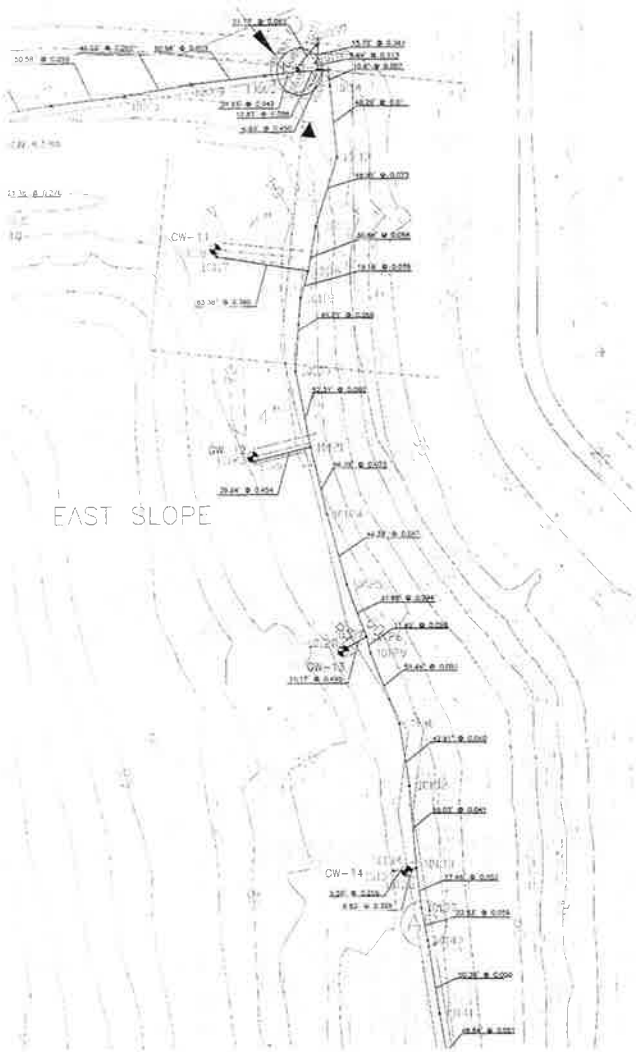
HDR

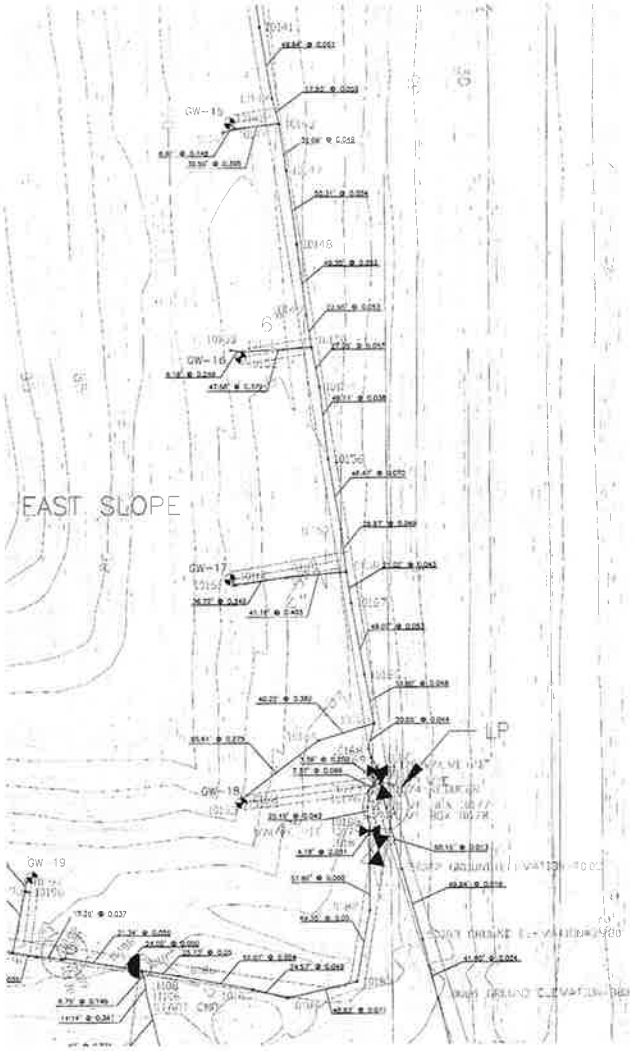
HDR Engineering, Inc.

CLIFFORD G. ROEHM
LICENSE
No. 64079
STATE OF FLORIDA
PROFESSIONAL ENGINEER
8-13-10

Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System
ISSUED FOR CONSTRUCTION

SARASOTA COUNTY FLORIDA





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RECEIVED
AUG 13 2010
SARASOTA COUNTY PUBLIC WORKS

SARASOTA COUNTY

HDR
HDR Engineering Inc

3	10/4/10	ISSUED FOR CONSTRUCTION	
2	08/27/10	ISSUED FOR BIDDING	
1	05/27/09	ISSUED FOR PERMITTING	
NO.	DATE	REVISION	

CLIFFORD G. KOENIG
LICENSE
No. 64078
STATE OF FLORIDA
PROFESSIONAL ENGINEER
8/2010

SARASOTA COUNTY, FLORIDA

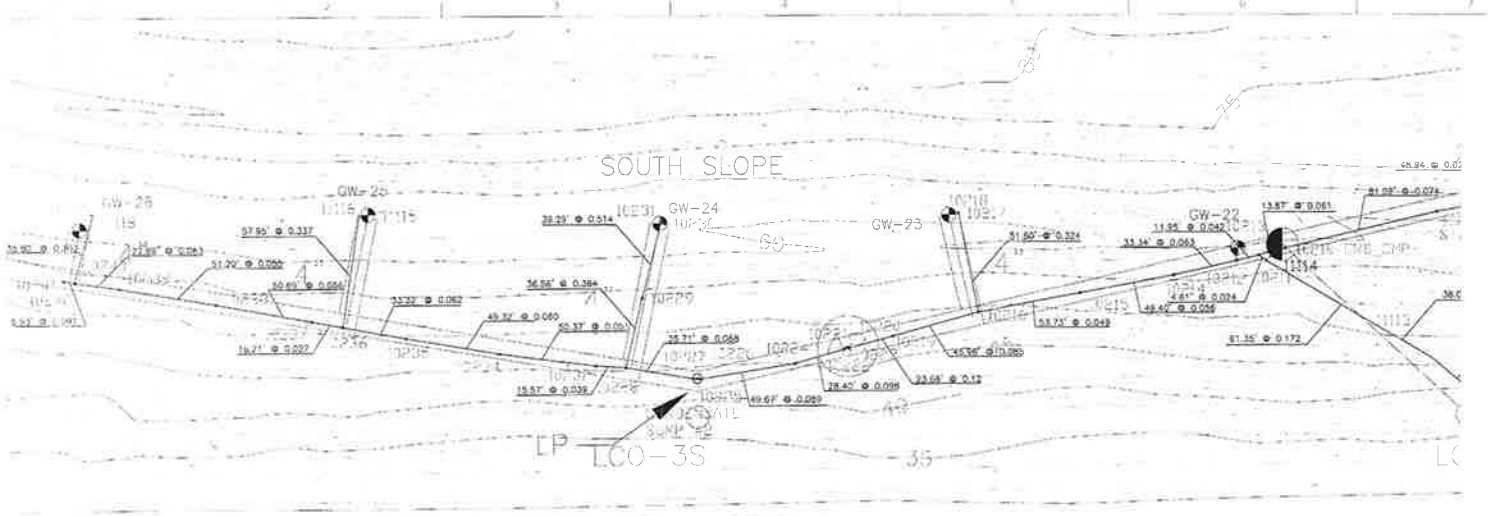
Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System
ISSUED FOR CONSTRUCTION

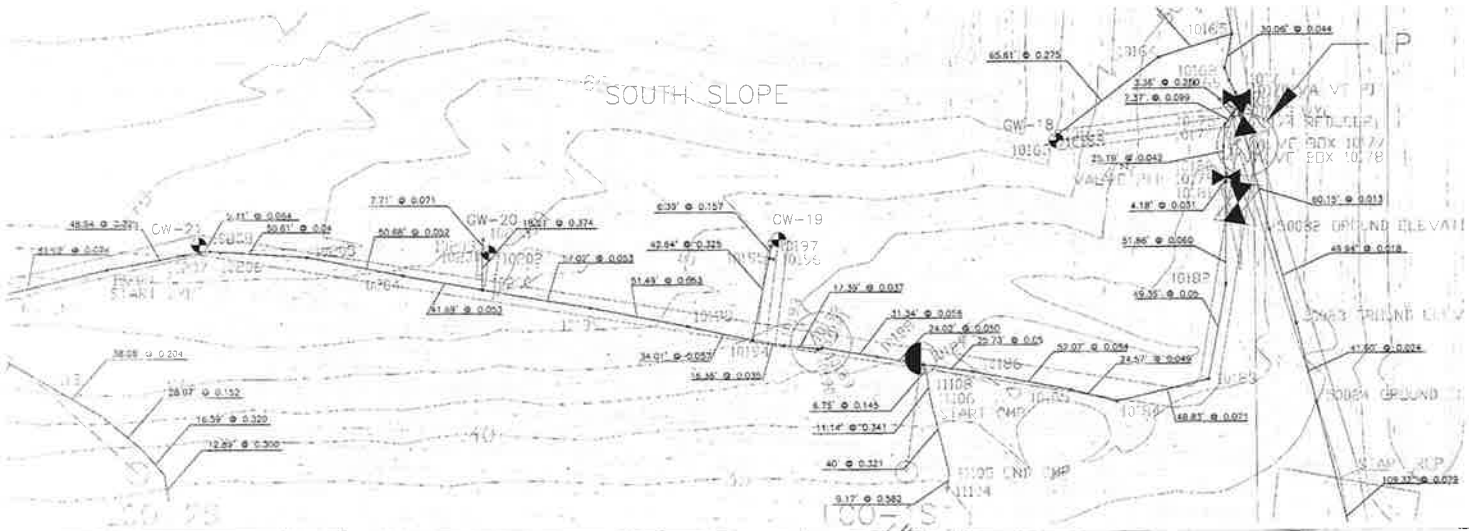
AS-BUILT SURVEY
PHASE 1
GAS SYSTEM PIPING LAYOUT

Hyatt Survey Services, Inc.

TOPOGRAPHIC SURVEY

00C-03B





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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AUG 13 2010
SOUTHWEST DISTRICT

AS-BUILT SURVEY

SARASOTA COUNTY

HDR
HDR Engineering, Inc.

3	2/09	ISSUED FOR CONSTRUCTION
2	09/08	ISSUED FOR BID
1	05/08	ISSUED FOR 60% SUBMITTAL
NO.	DATE	DESCRIPTION

CLIFFORD G. HIGGINS
LICENSE
No. 66078
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System
ISSUED FOR CONSTRUCTION

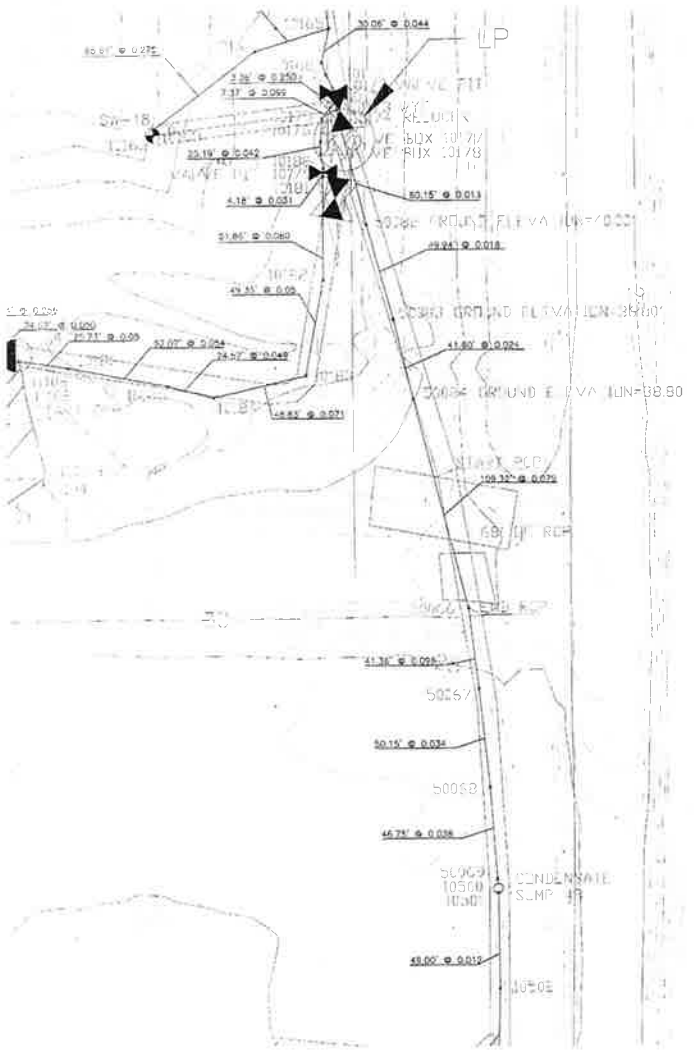
PHASE 1
GAS SYSTEM PIPING LAYOUT

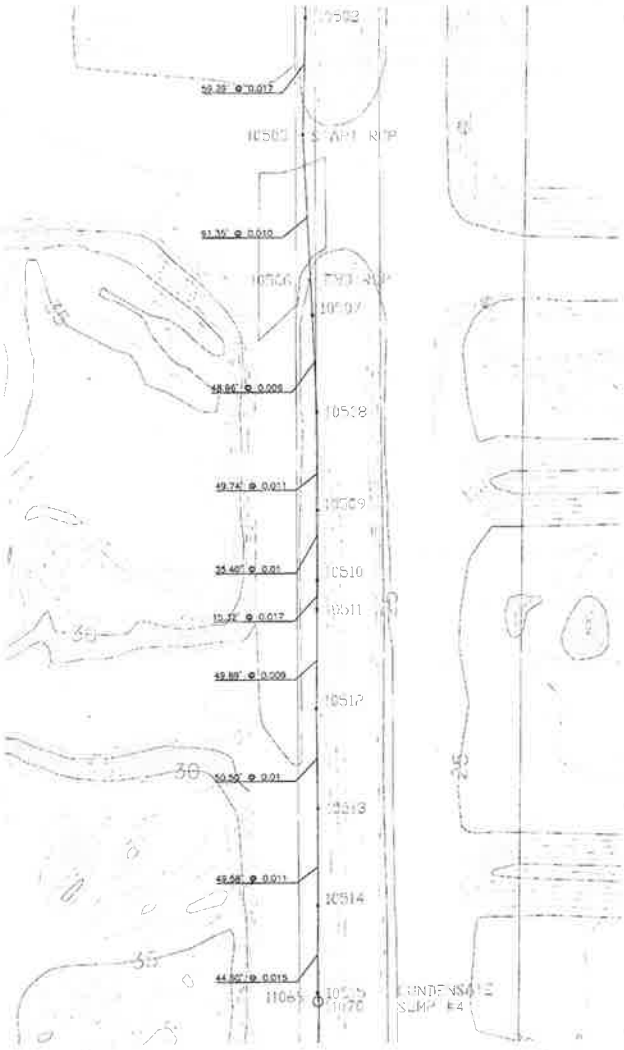
Hyatt Survey Services, Inc.

TOPOGRAPHIC SURVEY

RPH

00C-03C





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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AUG 13 2010
SOUTHWEST DISTRICT
TAMPA

AS-BUILT SURVEY

PHASE 1
GAS SYSTEM PIPING LAYOUT

SARASOTA COUNTY

HDR

2	10/28	ISSUED FOR CONSTRUCTION
1	05/09	ISSUED FOR BID
0	11/08	ISSUED FOR PERMIT

PROJECT MANAGER: [illegible]
DESIGNED BY: [illegible]
DRAWN BY: [illegible]
CHECKED BY: [illegible]
PROJECT NUMBER: [illegible]

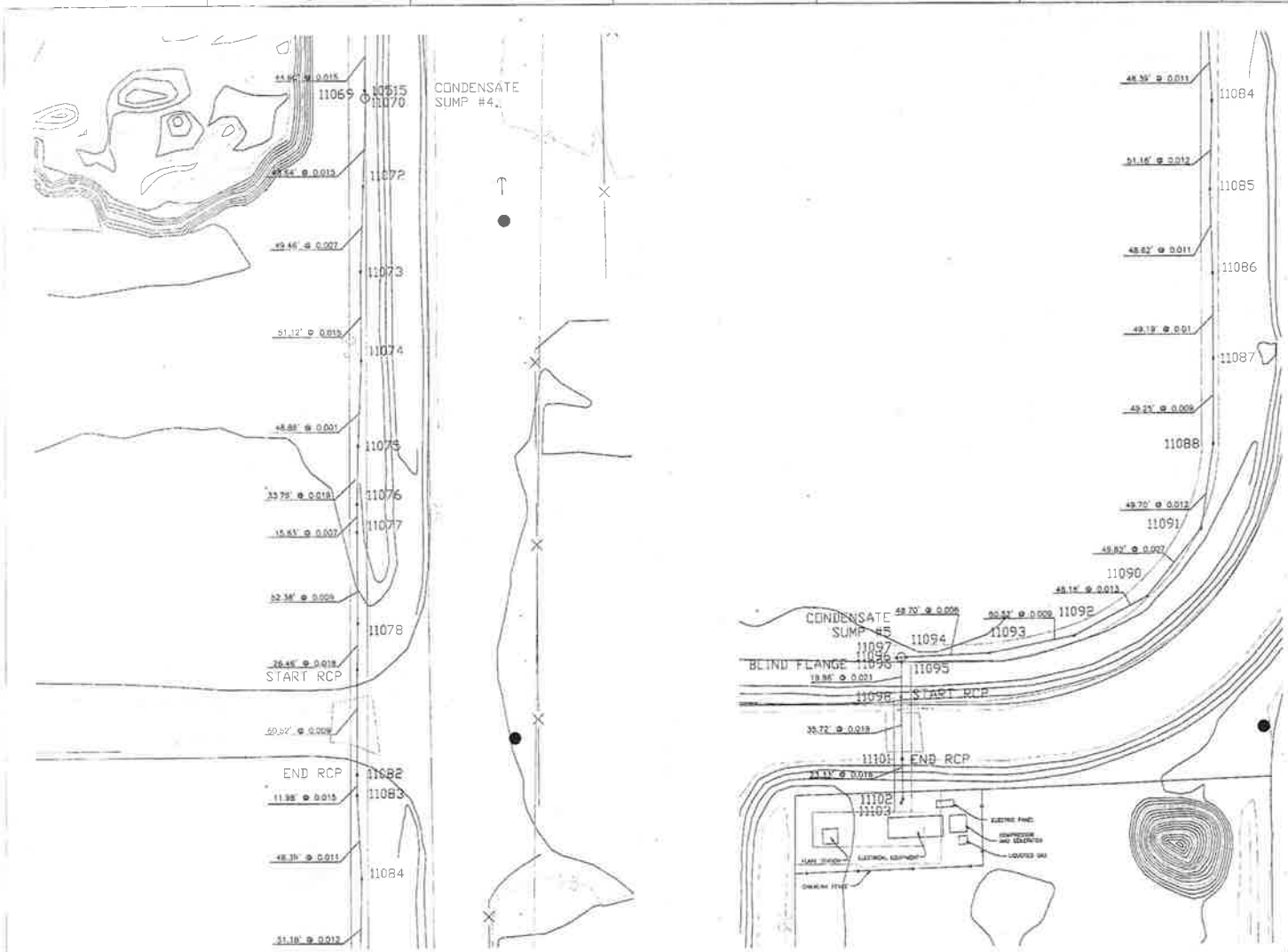
CLIFFORD G. KOENIG
LICENSE
No. 54078
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System
ISSUED FOR CONSTRUCTION

SARASOTA COUNTY FLORIDA

Hyatt Survey Services, Inc.
TOPOGRAPHIC SURVEY
STATE

00C-03D



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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AUG 13 2010 SOUTHWEST DISTRICT TAMPA

AS-BUILT SURVEY

PHASE 1
GAS SYSTEM PIPING LAYOUT

SARASOTA COUNTY

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	06/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER	C. KOENIG, P.E.
DESIGNED BY	A. BARKER, E.I.
DRAWN BY	D. SOSA
CHECKED BY	C. LEBRON, P.E.
PROJECT NUMBER	101628

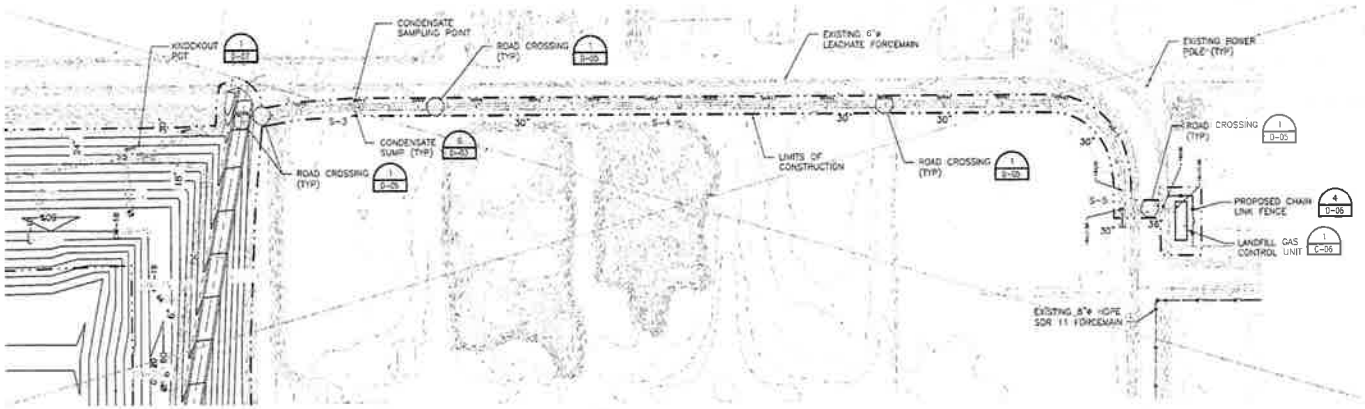
CLIFFORD G. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER

Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System
ISSUED FOR CONSTRUCTION
SARASOTA COUNTY FLORIDA

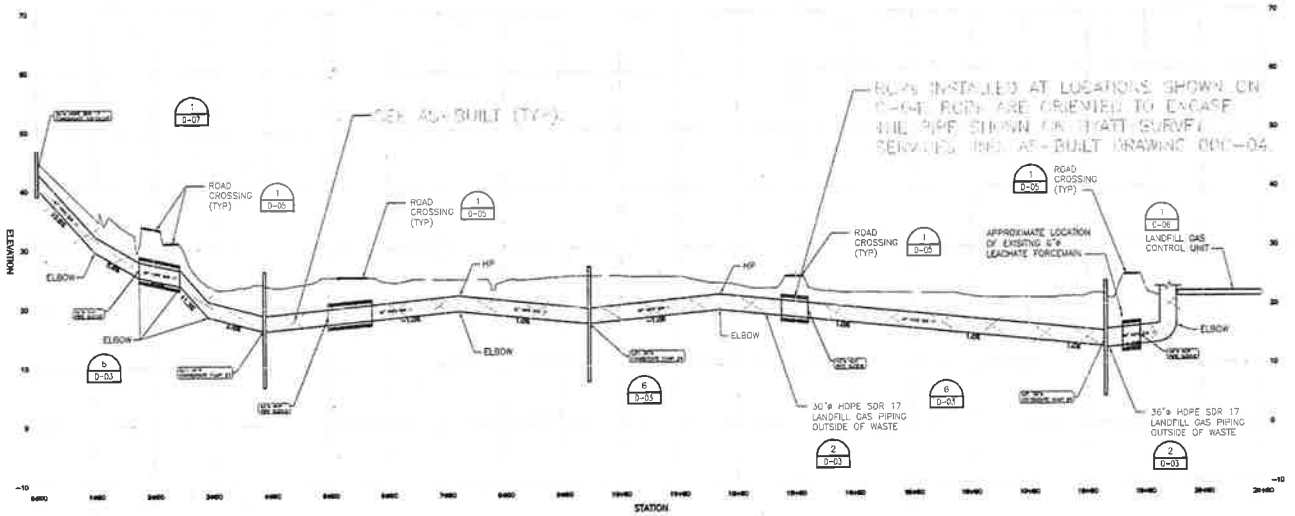
Hyatt Survey Services, Inc.
TOPOGRAPHIC SURVEY

0 1" 2"
AT FULL SIZE BAR LENGTH EQUALS TWO INCHES. ADJUST SCALE ACCORDINGLY.

FILENAME 00C-03.dwg
SCALE 1" = 100'
SHEET 00C-03E



PLAN VIEW
SCALE: 1"=100'



PROFILE VIEW
SCALE: 1"=10'V 1"=100'H

NOTE: AIRLINE/FORCEMAIN LINES NOT SHOWN FOR CLARITY

NOTES:

1. TOPOGRAPHY WITHIN PHASES I THROUGH IV WAS COMPILED BY KUCERA INTERNATIONAL INC. OF WILLOUGHBY, OHIO USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED APRIL 12, 2008.
2. TRENCH DEPTHS ARE CURRENTLY DESIGNED TO BE NO SHALLOWER THAN 4 FEET AND NO DEEPER THAN 8 FEET FOR ALL PIPING. SEE SUMP DETAIL FOR TOTAL SUMP DEPTH.
3. ONLY PROFILE OF HEADERLINE IS SHOWN FOR CLARITY. HOWEVER, AN AIRLINE AND A CONDENSATE FORCEMAIN SHALL BE INSTALLED IN THE SAME TRENCH.
4. GAS LINE MARKERS SHALL BE INSTALLED EVERY 300 FEET NOTING LOCATION OF HEADERLINE.
5. APPROXIMATE LOCATION OF PHASE I LEACHATE FORCEMAIN OBTAINED FROM RECORD DRAWINGS BY CAMP DRESSER & McKEE, INC. DATED APRIL 1998. VERIFY LOCATION IN FIELD.
6. CONTRACTOR RESPONSIBLE FOR CONNECTING HEADER PIPE TO LANDFILL GAS CONTROL UNIT. CONTRACTOR RESPONSIBLE FOR CONDENSATE, DRAINAGE, ELECTRICAL CONNECTIONS AND PAD CONSTRUCTION.

RECORD DRAWING
HDR ENGINEERING INC.

ISSUE	DATE	DESCRIPTION
3	08/10	REVISED PER ADDENDUM
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER: C. KOENIG, P.E.
DESIGNED BY: A. BARKER, E.I.
DRAWN BY: D. SOSA
CHECKED BY: C. LEBRON, P.E.
PROJECT NUMBER: 101028

CLIFFORD G. KOENIG LICENSE No. 66078 STATE OF FLORIDA PROFESSIONAL ENGINEER
8-13-2010

Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System
SARASOTA COUNTY FLORIDA

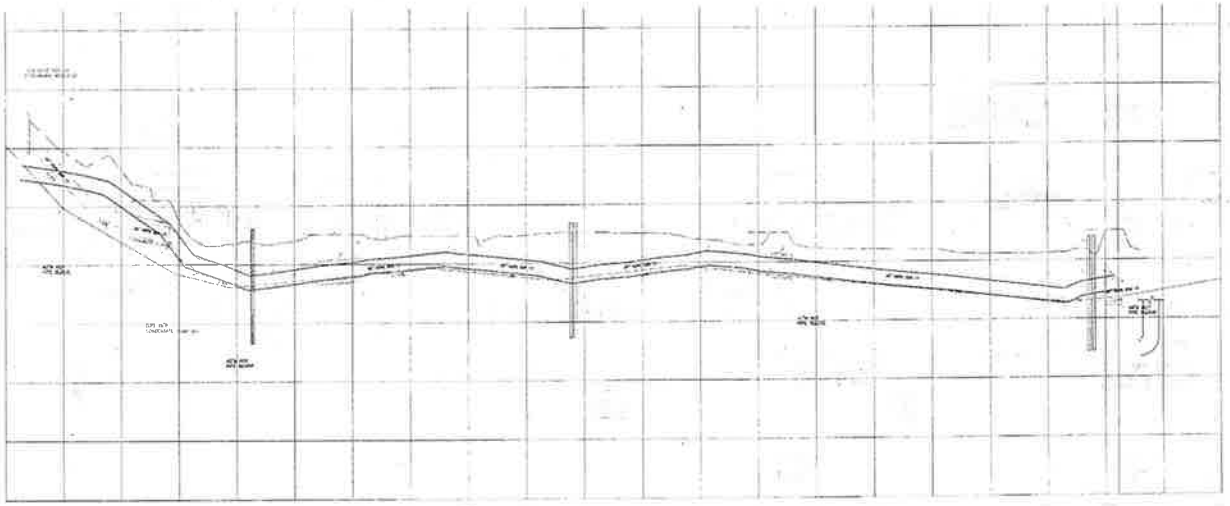
HEADER TO FLARE STATION PLAN & PROFILE

AUG 13 2010

FILENAME: 00C-04.dwg
SCALE: AS NOTED
SHEET: 00C-04

NOTES:

1. TOPOGRAPHY WITHIN PHASES 1 THROUGH IV WAS COMPILED BY KUCERA INTERNATIONAL INC. BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED APRIL 12, 2008.
2. TRENCH DEPTHS ARE CONSERVATIVELY DESIGNED TO BE NO SHALLOWER THAN 7 FEET AND NO DEEPER THAN 8 FEET FOR ALL TYPICAL SIDE SLOPE DETAILS FOR TOTAL SLOPE DEPTH.
3. ONLY PROFILE OF HEADERLINE IS SHOWN FOR CLARITY. HOWEVER, AN AIR LINE AND A CONDENSATE FORCEMAIN SHALL BE INSTALLED IN THE SAME TRENCH.
4. GAS LINE MARKERS SHALL BE INSTALLED EVERY 200 FEET NOTING LOCATION OF HEADERLINE.
5. APPROXIMATE LOCATION OF PROPOSED LEACHATE FORCEMAIN OBTAINED FROM AS-BUILT DRAWINGS BY CAM, OLSSON & MOSELEY, INC. (LAST APRIL 1998). VERIFY LOCATION IN FIELD.
6. CONTRACTOR RESPONSIBLE FOR CONNECTING LEACHATE TO LANDFILL GAS CONTROL VAULT. CONTRACTOR RESPONSIBLE FOR CONDENSATE DRAINAGE TO LOCAL CONNECTION AND PAD CONSTRUCTION.



SARASOTA COUNTY

HDR

HDR Engineering, Inc.

NO.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY

CLIFFORD G. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER

8-13-2010

Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System
ISSUED FOR CONSTRUCTION

SARASOTA COUNTY

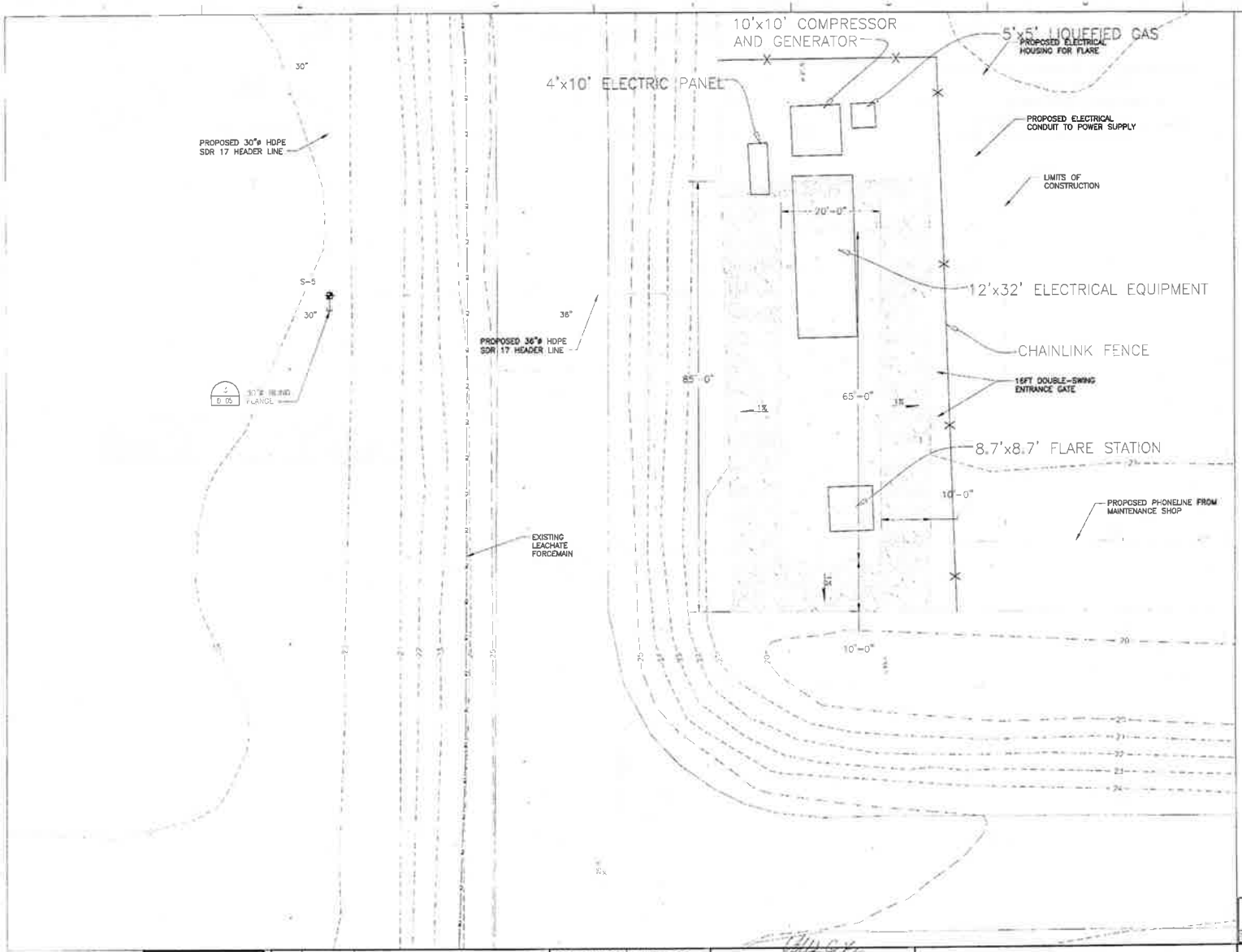
HEADER TO FLARE STATION PLAN & PROFILE

Hyatt Survey Services, Inc.

RECORD DRAWING

	FILE NAME	00C-04.dwg
	SCALE	AS NOTED

00C-04



NOTES:

1. TOPOGRAPHY WITHIN PHASES I THROUGH IV WAS COMPILED BY KUCERA INTERNATIONAL INC. OF WILLOUGHBY, OHIO USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED APRIL 12, 2008.
2. LOCATION AND DENSITY OF LFG EXTRACTION SYSTEM ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON EXISTING CONDITIONS.
3. APPROXIMATE LOCATION OF PHASE I LEACHATE FORCEMAIN OBTAINED FROM RECORD DRAWINGS BY CAMP DRESSER & McKEE, INC., DATED APRIL 1996. VERIFY LOCATION IN FIELD.
4. HEADER PIPE SHALL BE HDPE SDR 17.
5. 8" OF NO. 57 STONE IS REQUIRED TO BE INSTALLED WITHIN THE FENCED AREA AS SHOWN.
6. ELECTRICAL CONNECTION AND ROAD CROSSING OF ELECTRICAL MUST MEET FLORIDA CODE.
7. FLARE STATION ELEVATIONS ARE AS FOLLOWS:
   - CRUSHED GRAVEL – EL. 21.70
   - FLARE PAD – EL. 21.90

   CONTRACTOR TO FILL AND COMPACT FLARE STATION PAD AND GRAVEL AREA TO ELEVATION SPECIFIED. CONTRACTOR TO FILL AREA SURROUNDING GRAVEL AREA AT 3:1 SLOPE TO MEET EXISTING GRADES.
8. CONTRACTOR TO GRADE SOIL FOR STORMWATER DRAINAGE AROUND FLARE STATION.
9. AIR AND FORCEMAIN LINES NOT SHOWN FOR CLARITY.

AS-BUILT SURVEY

Hyatt Survey Services, Inc.

AS-BUILT SURVEY

SARASOTA COUNTY

HDR

ISSUE	DATE	DESCRIPTION
2	12/08	ISSUED FOR CONSTRUCTION
1	08/08	ISSUED FOR BID
0	05/08	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER: C. KOENIG, P.E.
DESIGNED BY: A. BARKER, E.I.
DRAWN BY: G. SOSA
CHECKED BY: C. LEBRON, P.E.
PROJECT NUMBER: 101628

CLIFFORD G. KOENIG LICENSE No. 54072 STATE OF FLORIDA PROFESSIONAL ENGINEER

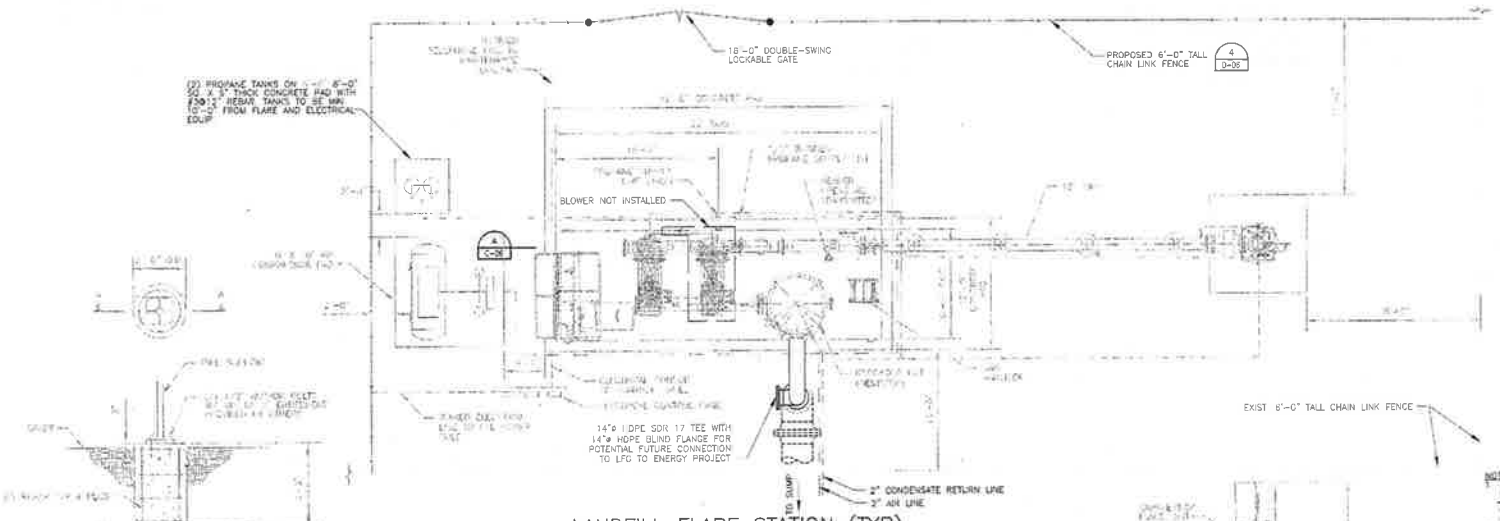
Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System
ISSUED FOR CONSTRUCTION

SARASOTA COUNTY FLORIDA

FLARE STATION GRADING PLAN

AUG 13 2009

FILENAME: 00C-05.dwg
SCALE: 1" = 30'
SHEET: 00C-05



LANDFILL FLARE STATION (TYP) PLAN VIEW

NOT TO SCALE

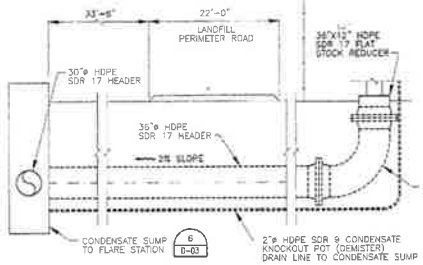
1 C-04 C-05 D-08

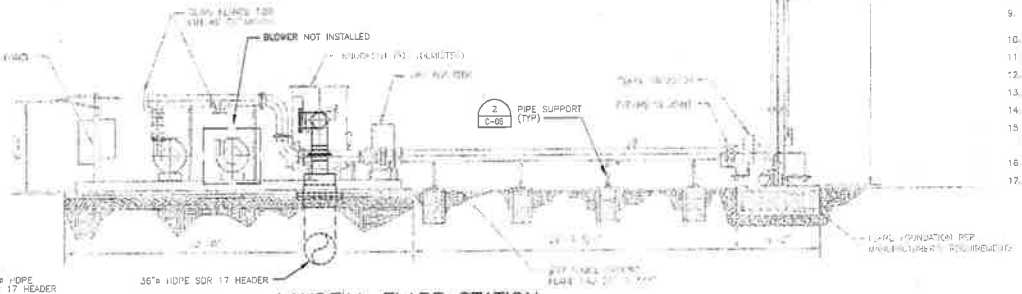
PIPE SUPPORT DETAIL

NOT TO SCALE

2 C-06

FLARE MANUFACTURER TO PROVIDE REINFORCED CONCRETE PAD FOUNDATION DESIGN, GROUNDING AND EARTHWORK COMPACTION REQUIREMENTS. THE CONSTRUCTION OF THE FLARE STATION PAD WILL BE COMPLETED BY THE GAS COLLECTION SYSTEM PIPING CONTRACTOR AND SHALL MEET THE FLARE VENDOR SPECIFICATIONS.





LANDFILL FLARE STATION SECTION

NOT TO SCALE

A C-06

NOTES:
1. POWER/PIPING PLAN AND SECTIONS ARE SHOWN FOR INFORMATION PURPOSES ONLY. IT IS A SCHEMATIC LAYOUT. ACTUAL LAYOUT AND DESIGN TO BE PROVIDED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER.
2. DIMENSIONS SHOWN MAY BE MODIFIED TO SUIT BLOWER/FLARE MANUFACTURER'S REQUIREMENTS. CONTRACTOR SHALL COORDINATE PIPING TO SUIT EQUIPMENT.
3. BLOWERS AND EQUIPMENT MAY BE SUPPLIED AND INSTALLED AS INDIVIDUAL UNITS OR AS A COMPLETE SKID PACKAGE, PER APPROVAL OF ENGINEER.
4. THE CONTRACTOR SHALL INSTALL ALL CONDUITS AND CONDUCTORS NECESSARY FOR THE FLARE, BLOWER MOTORS, AND CONTROLS. DIMENSIONS MAY BE MODIFIED TO SUIT INDIVIDUAL SKID ASSEMBLY MANUFACTURER'S REQUIREMENTS.
5. GAS IMPERMEABLE SEAL-OFFS SHALL BE USED ON ALL UNDERGROUND ELECTRICAL CONDUITS.
6. FLARE TO BE MOUNTED ON A LEVEL SURFACE. SHIM OR GROUT AS REQUIRED.
7. PROVIDE 8" NO.57 GRAVEL ON 8 OZ/SY NON-WOVEN GEOTEXTILE WITHIN FENCE AREA EXCEPT IN LOCATION OF FOUNDATION.
8. CONTRACTOR TO INSTALL PHONE SERVICE TO CONTROL PANEL FROM LANDFILL OFFICE.
9. ONE FLARE STACK SHOWN FOR CLARITY. ADDITIONAL FLARE STACKS MAY BE NECESSARY TO MEET FUTURE FLOW RATE.
10. KNOCK-AND-OUTLET CONFIGURATIONS MAY VARY DEPENDING UPON EQUIPMENT PROVIDED.
11. FORMWORK, CONCRETE PLACEMENT, PROTECTION, AND CURING SHALL BE IN ACCORDANCE WITH ACI 318.
12. THE REINFORCED CONCRETE FLARE STATION PAD WILL BE SPECIFIED IN ADDENDUM NO. .
13. FLARE SUBGRADE TO BE COMPACTED TO 95% OF MODIFIED PROCTOR.
14. CONTRACTOR TO INSTALL SPECIFIED GROUNDING AS REQUIRED BY FLARE MANUFACTURER.
15. CONTRACTOR TO PURCHASE AND INSTALL INGERSOLL RAND COMPRESSOR WITH 1.25 HP AND 150 MAX. PSI CAPABILITY. CONTRACTOR TO SUBMIT MANUFACTURER SPECIFICATIONS FOR APPROVAL.
16. AIR COMPRESSOR MAY BE LOCATED ON SEPARATE CONCRETE PAD AS REQUIRED BY FLARE MANUFACTURER.
17. FLARE STATION WILL BE PROVIDED AND COMMISSIONED BY OTHERS. ALL NOTED CONNECTIONS TO THE FLARE STATION SHALL BE MADE BY THE GAS COLLECTION SYSTEM CONTRACTOR.

RECORD DRAWING

SARASOTA COUNTY

HDR

ISSUE	DATE	DESCRIPTION
3	12/09	ISSUED FOR CONSTRUCTION
2	08/09	ISSUED FOR BID
1	06/09	ISSUED FOR CLIENT REVIEW
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER: C. KOENIG, P.E.
DESIGNED BY: A. BARKER, E.I.
DRAWN BY: D. SOSA
CHECKED BY: C. LEMRON, P.E.
PROJECT NUMBER: 101628

CLIFFORD G. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER
6-13-2010

Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System

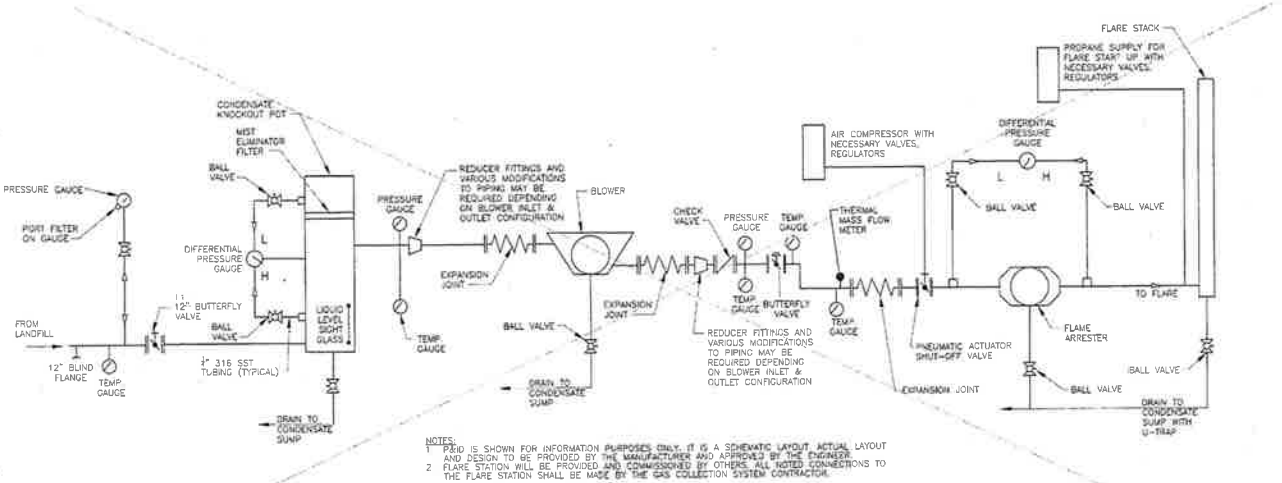
SARASOTA COUNTY FLORIDA

TYPICAL FLARE STATION LAYOUT

AUG 13 2010

FILENAME: 00C-06.dwg
SCALE: NOT TO SCALE

SHEET: **00C-06**



NOTES:
1. P&ID IS SHOWN FOR INFORMATION PURPOSES ONLY. IT IS A SCHEMATIC LAYOUT. ACTUAL LAYOUT AND DESIGN TO BE PROVIDED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER.
2. FLARE STATION WILL BE PROVIDED AND COMMISSIONED BY OTHERS. ALL NOTED CONNECTIONS TO THE FLARE STATION SHALL BE MADE BY THE GAS COLLECTION SYSTEM CONTRACTOR.

FLARE STATION P&ID

NOT TO SCALE

1 / C-07

RECORD DRAWING

HDR ENGINEERING INC

ISSUE	DATE	DESCRIPTION
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER	C. KOENIG, P.E.
DESIGNED BY	A. BARKER, E.I.
DRAWN BY	D. SOSA
CHECKED BY	C. LEBRON, P.E.
PROJECT NUMBER	101628

CLIFFORD G. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER
5-13-2010

Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System

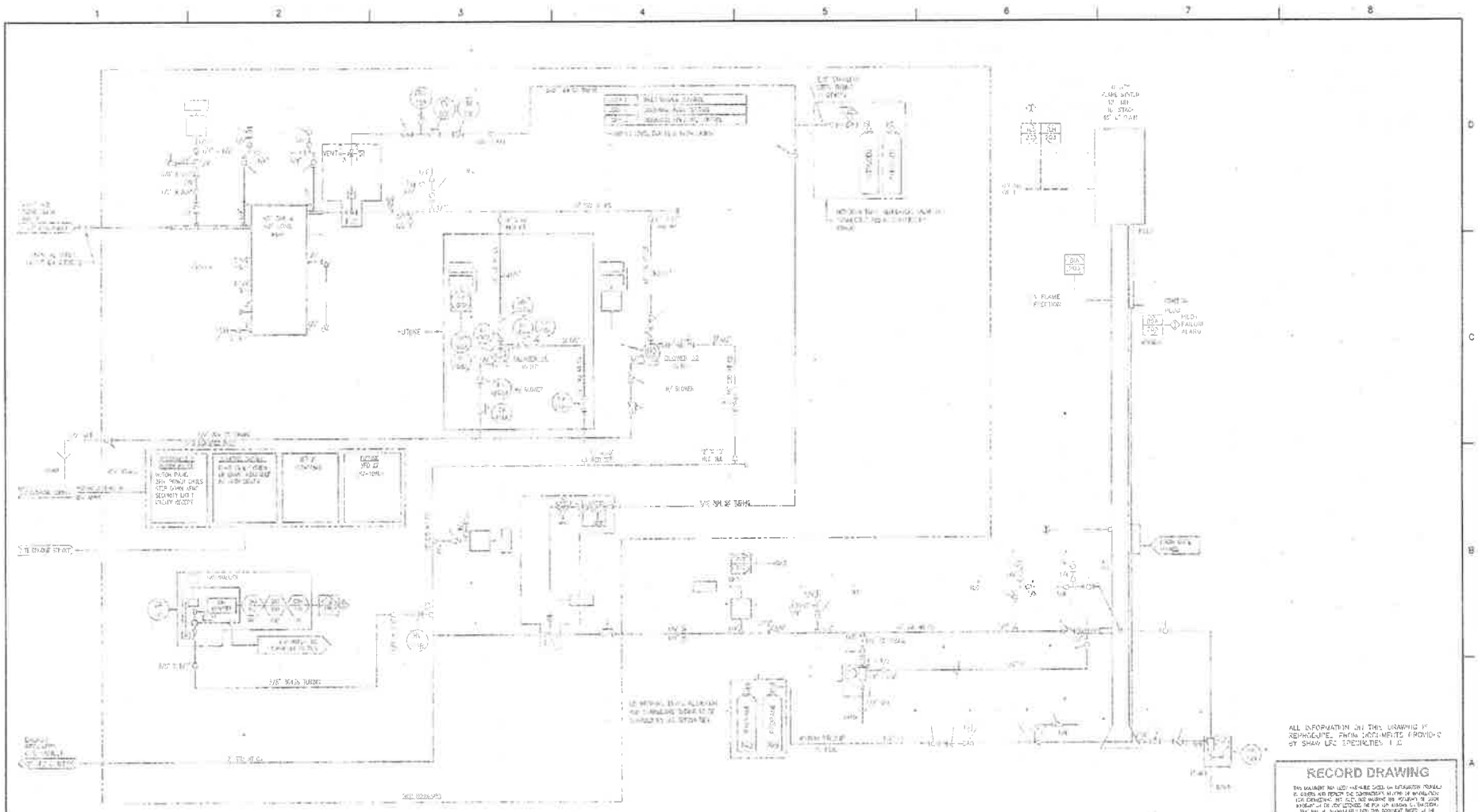
SARASOTA COUNTY FLORIDA

FLARE STATION P&ID

AUG 13 2010

FILENAME	00C-07.dwg
SCALE	NOT TO SCALE

SHEET 00C-07



SARASOTA COUNTY

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
	9/28/12	PERMIT SUBMITTAL

PROJECT MANAGER
DESIGNED BY SHAW LFG
DRAWN BY SHAW LFG
CHECKED BY
PROJECT NUMBER 101628

CLIFFORD G. KISENG LICENSED No. 84078 STATE OF FLORIDA PROFESSIONAL ENGINEER

Central County Solid Waste Disposal Complex

Phase 1 - Sequence 1

Landfill Gas Collection and Control System

SARASOTA COUNTY FLORIDA

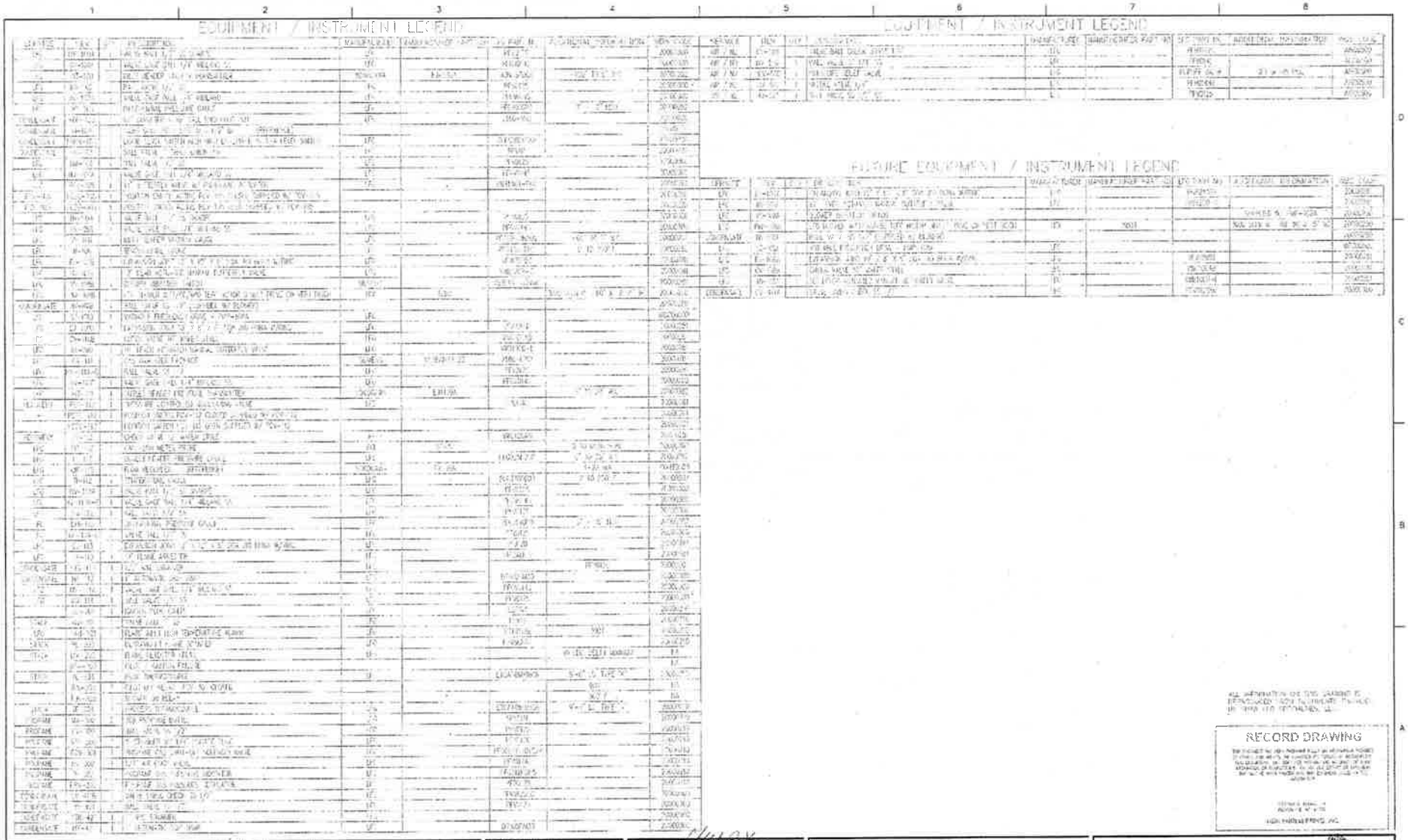
FLARE STATION P&ID BY SHAW

AUG 13 2013

AS SHOWN

FILENAME 00C-07A.dwg
SCALE NOT TO SCALE

SHEET 00C-07A



SARASOTA COUNTY

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
	07/2013	

PROJECT MANAGER
DESIGNED BY SHAW LFG
DRAWN BY SHAW LFG
CHECKED BY
PROJECT NUMBER 101628

CLIFFORD B. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER
8-13-2013

Central County Solid Waste Disposal Complex

Phase 1 - Sequence 1

Landfill Gas Collection and Control System

SARASOTA COUNTY FLORIDA

FLARE STATION P&ID LEGEND BY SHAW

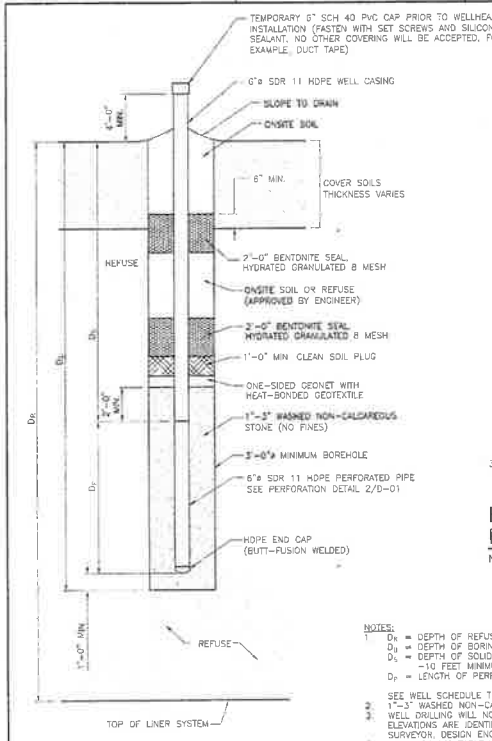
AUG 13 2013

AS SHOWN

FILENAME 00C-07B.dwg

SCALE NOT TO SCALE

SHEET 00C-07B

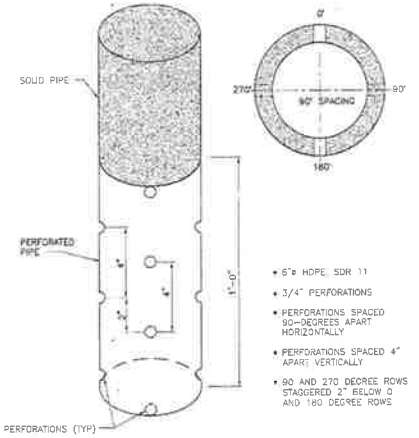


NOTES:
1. D_R = DEPTH OF REFUSE
   D_U = DEPTH OF BORING
   D_L = DEPTH OF SOLID PIPE (BELOW GRADE) −10 FEET MINIMUM
   D_P = LENGTH OF PERFORATED PIPE
2. SEE WELL SCHEDULE THIS SHEET
3. 1"−3" WASHED NON−CALCAREOUS STONE (NO FINES)
4. WELL DRILLING WILL NOT COMMENCE UNTIL EXISTING GRADE ELEVATIONS ARE IDENTIFIED AND VERIFIED BY PROJECT SURVEYOR, DESIGN ENGINEER, AND COA REPRESENTATIVE. WELL DRILLING TABLE WILL BE MANAGED BY OWNER OR DESIGNATED REPRESENTATIVE TO ENSURE ONLY THE VERIFIED WELL DEPTHS ARE PRESENT, AND THAT DRILLER AND COA REPRESENTATIVE HAVE THE IDENTICAL INFORMATION PRIOR TO DRILLING.

LANDFILL GAS EXTRACTION WELL

NOT TO SCALE

1 C-03

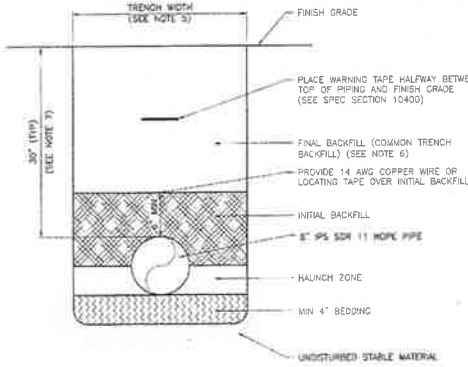


- 6"ø HDPE, SDR 11
- 3/4" PERFORATIONS
- PERFORATIONS SPACED 90−DEGREES APART HORIZONTALLY
- PERFORATIONS SPACED 4" APART VERTICALLY
- 90 AND 270 DEGREE ROWS STAGGERED 2" BELOW 0 AND 180 DEGREE ROWS

EXTRACTION WELL PERFORATION DETAIL

NOT TO SCALE

2 D-01



NOTES:
1. TRENCHING AND PIPE INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH ASTM D2321.
2. BEDDING, HAUNCHING AND INITIAL BACKFILL MATERIAL USED SHOULD BE CLASS I OR CLASS II AS PER ASTM D2487, "STANDARD METHOD FOR CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES." THIS MATERIAL SHALL BE COMPACTED TO 95% DENSITY PER AASHTO T−99. SEE SPECIFICATIONS.
3. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION. DEWATER TO ONE FOOT BELOW TRENCH BOTTOM. SEE SPECIFICATIONS.
4. INITIAL BACKFILL SHOULD BE PLACED IN 6" LAYERS AND EXTENDED TO AT LEAST 6" ABOVE THE TOP OF THE PIPE.
5. MINIMUM TRENCH WIDTH = PIPE OD + 16". MAXIMUM TRENCH WIDTH = MINIMUM TRENCH + 18".
6. FINAL BACKFILL SHALL BE CLASS I, CLASS II OR CLASS III MATERIAL AS PER ASTM D2487. THIS MATERIAL SHALL BE COMPACTED TO 95% DENSITY PER AASHTO T−99. SEE SPECIFICATIONS.
7. FORCEMAIN MAY BE INSTALLED DEEPER IN ACCORDANCE WITH SPECIFICATIONS TO MAINTAIN ADEQUATE CLEARANCE DURING HORIZONTAL DIRECTIONAL DRILLING OR DURING CROSSING OF EXISTING PIPELINES.
8. THIS DETAIL IS FOR INFORMATIONAL PURPOSES ONLY.

EXISTING LEACHATE FORCEMAIN BEDDING

NOT TO SCALE

3 C-04 C-05

LFG Extraction Well Number	Grid Coordinates NORTHING	Grid Coordinates EASTING	Final Grade Elevation	Basegrade Elevation	Calculated Depth of Waste (D_R)	Calculated Borehole (D_U)	Solid Pipe (Does Not include 4' Above Grade Stickup) (D_L)	Perforated Pipe (D_P)	Grid Coordinates (Surveyed) NORTHING	Grid Coordinates (Surveyed) EASTING	Surveyed Cover Elevation	Calculated Well Depth	Calculated Perforated Length
GW-1	1043648.25	529407.18	77.0	26.0	51.0	34.0	10.0	24.0	1043648.25	529407.18	74.35	32	22
GW-2	1043643.78	529555.93	79.0	28.0	51.0	34.0	10.0	24.0	1043643.77	529556.91	77.83	34	20
GW-3	1043644.93	529707.20	78.0	26.0	52.0	34.0	10.0	24.0	1043645.00	529707.11	76.33	35	24
GW-4	1043646.49	529856.78	78.0	27.0	51.0	34.0	10.0	24.0	1043646.45	529856.06	76.10	32	22
GW-5	1043646.70	530009.58	79.0	28.0	51.0	34.0	10.0	24.0	1043646.60	530009.59	78.04	33	22
GW-6	1043653.81	530156.12	77.0	25.0	52.0	34.0	10.0	24.0	1043653.74	530156.11	74.58	36	24
GW-7	1043655.04	530306.24	75.0	28.6	50.0	33.0	10.0	23.0	1043655.00	530306.17	73.17	30	19
GW-8	1043674.02	530451.01	79.0	27.0	52.0	34.0	10.0	24.0	1043674.05	530451.06	76.08	32	22
GW-9	1043729.42	530599.25	76.0	26.0	50.0	33.0	10.0	23.0	1043729.39	530599.22	74.53	32	20
GW-10	1043720.28	530744.59	79.0	28.0	51.0	34.0	10.0	24.0	1043720.35	530744.57	76.87	34	20
GW-11	1043698.47	530900.23	77.0	27.0	50.0	33.0	10.0	23.0	1043698.49	530900.22	74.82	33	22
GW-12	1043559.00	530925.66	80.0	27.0	53.0	35.0	10.0	25.0	1043559.07	530925.59	76.56	36	24
GW-13	1043427.84	530987.70	77.0	27.0	50.0	33.0	10.0	23.0	1043427.84	530987.70	76.27	33	22
GW-14	1043278.66	531030.61	79.0	29.0	50.0	33.0	10.0	23.0	1043278.56	531030.60	78.61	31	21
GW-15	1043116.60	531032.49	79.0	29.0	50.0	33.0	10.0	23.0	1043117.28	531032.48	78.01	32	21
GW-16	1042957.98	531039.64	77.0	29.0	48.0	32.0	10.0	22.0	1042957.98	531039.64	75.61	30	19
GW-17	1042808.10	531031.73	80.0	29.0	51.0	34.0	10.0	24.0	1042808.10	531031.73	78.09	34	23
GW-18	1042657.09	531038.82	78.0	29.0	49.0	32.0	10.0	22.0	1042657.09	531038.82	76.16	32	21
GW-19	1042607.47	530894.94	78.0	30.0	49.0	32.0	10.0	22.0	1042607.47	530894.94	76.19	30	19
GW-20	1042601.45	530744.79	80.0	31.0	49.0	32.0	10.0	22.0	1042601.45	530744.79	76.80	31	21
GW-21	1042591.49	530594.32	77.0	29.0	48.0	32.0	10.0	22.0	1042596.07	530594.44	74.42	30	19
GW-22	1042596.53	530443.14	79.0	30.0	49.0	32.0	10.0	22.0	1042596.53	530443.14	76.51	32	18
GW-23	1042592.58	530293.30	78.0	30.0	48.0	32.0	10.0	22.0	1042592.64	530293.30	76.01	31	20
GW-24	1042588.66	530143.85	77.0	28.0	49.0	32.0	10.0	22.0	1042588.66	530143.85	73.20	32	21
GW-25	1042593.76	529992.42	79.0	31.0	48.0	32.0	10.0	22.0	1042593.77	529992.56	76.56	31	20
GW-26	1042586.82	529842.63	77.0	29.0	48.0	32.0	10.0	22.0	1042586.81	529842.81	75.77	30	19
GW-27	1042588.90	529692.07	N/A	29.0	49.0	32.0	10.0	22.0					
GW-28	1042588.90	529542.69	79.0	31.0	48.0	32.0	10.0	22.0					
GW-29	1042588.90	529392.69	77.0	29.0	48.0	32.0	10.0	22.0					
TOTALS:			852.00		530.00		103.00				TOTALS:	834.00	546.00
			879.00		559.00		329.00						

RECORD DRAWING

ISSUE	DATE	DESCRIPTION
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER: C. KOENIG, P.E.
DESIGNED BY: A. BARKER, E.I.
DRAWN BY: D. SOSA
CHECKED BY: C. LEMON, P.E.
PROJECT NUMBER: 101628

CLIFFORD G. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER 8/13/2010

Central County Solid Waste Disposal Complex

Phase 1 - Sequence 1

Landfill Gas Collection and Control System

SARASOTA COUNTY FLORIDA

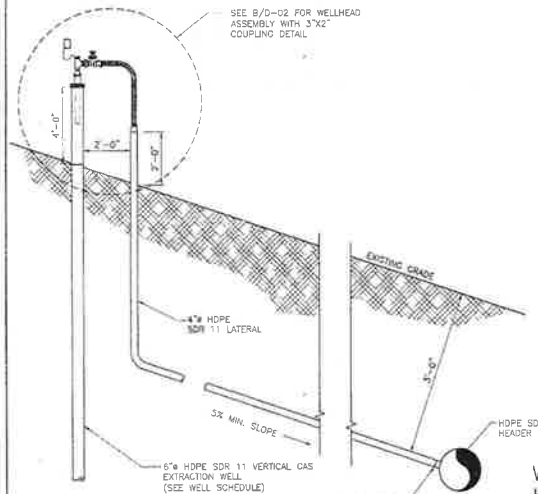
EXTRACTION WELL DETAILS AND WELL SCHEDULE

AUG 13 2010

0 1" 2" — AT FULL SIZE SAY LENGTH COUNTS, NO NOTES, IF NOT SAME ACCORDINGLY

FILENAME: 000-01.dwg
SCALE: NOT TO SCALE

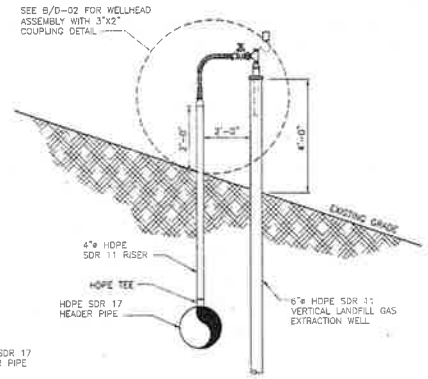
SHEET 00D-01



WELL LOCATED ABOVE HEADER PIPE (TYPE #1)

NOT TO SCALE

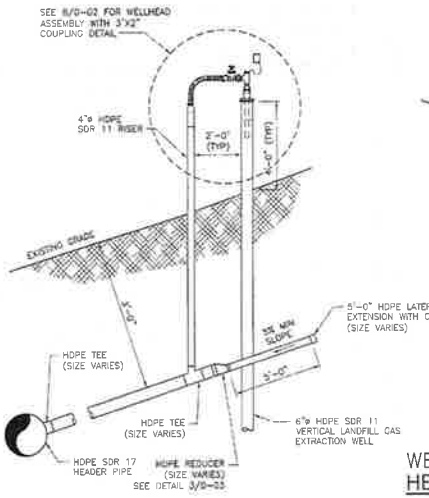
1 C-03



WELL LOCATED ADJACENT TO HEADER PIPE (TYPE #2)

NOT TO SCALE

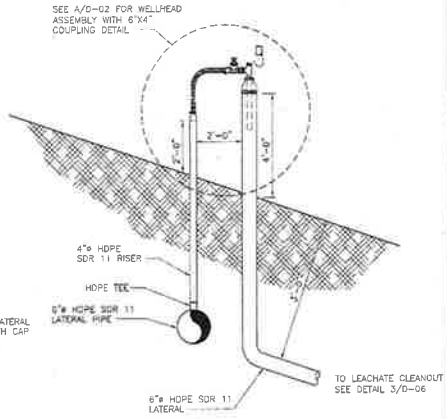
2 C-03



WELL LOCATED ABOVE HEADER PIPE WITH EXTENSION (TYPE #3)

NOT TO SCALE

3 C-03



WELL LOCATED BELOW HEADER (TYPE #4)

NOT TO SCALE

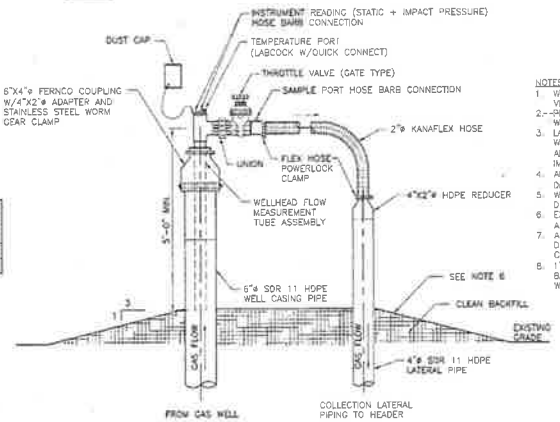
4 C-03

VERTICAL WELL HEAD CONFIGURATION SCHEDULE

TYPE #1		TYPE #2	TYPE #3		TYPE #4	
GW-2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	GW-17	GW-3	GW-1	GW-15	LCO-1N	LCO-1S
GW-5	GW-18	GW-8	GW-4	GW-16	LCO-2N	LCO-2S
[illegible]	GW-23	SW-13	GW-6	GW-19	LCO-3N	LCO-3S
GW-9	GW-24	GW-21	GW-7	GW-20	LCO-4N	LCO-4S
GW-10	GW-25	GW-22	GW-14	GW-26	LCO-5N	LCO-5S
GW-11	GW-26	GW-27				
GW-12	GW-28					

FOR INFORMATIONAL PURPOSES ONLY

SEE TYP WELL HEAD ASSEMBLIES FOR SIZES, DIMENSIONS AND SPECIFICS ON COMPONENTS. SEE ABOVE FOR WELL HEAD CONFIGURATION SCHEDULE.



ABOVE GRADE WELLHEAD ASSEMBLY WITH 6"X4" COUPLING DETAIL

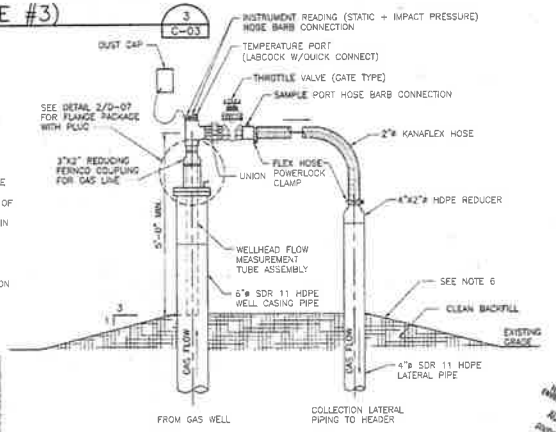
NOT TO SCALE

A D-02

NOTES:

1. WELLHEAD ASSEMBLY SHOWN REPRESENTS 2"ø LANDTEC VERTICAL ACCU-FLO WELLHEAD ASSEMBLY.
2. PROVIDE HIGH-VISIBILITY TAPE AROUND TOP 1 FOOT OF WELL CASING AND LATERAL PIPE.
3. LABEL ALL WELL RISERS WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE.
4. AIR AND FORCEMAIN LINES NOT SHOWN FOR CLARITY (SEE DETAIL 4/D-05).
5. WELLHEAD TO BE CONSTRUCTED TO ALLOW INSTALLATION OF DEWATERING PUMP.
6. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'-0"ø SURROUNDING SURFACE EXPRESSION.
7. A TOTAL OF TWO SOLAR FLARES SHALL BE DECOMMISSIONED AS PART OF THE TYPE 4 WELLHEAD CONNECTION.
8. 1" DIAMETER RISERS FOR FORCEMAIN AND AIRLINE WITH BALL VALVES ARE REQUIRED FOR ALL VERTICAL EXTRACTION WELLS.

RECORD DRAWING



ABOVE GRADE WELLHEAD ASSEMBLY WITH 3"X2" COUPLING DETAIL

NOT TO SCALE

B D-02

SARASOTA COUNTY

HDR

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
3	[illegible]	[illegible]
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER: C. KOENIG, P.E.
DESIGNED BY: A. BARKER, E.I.
DRAWN BY: D. SOSA
CHECKED BY: C. LEBRON, P.E.
PROJECT NUMBER: 101628

CLIFFORD G. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER
8-13-2010

Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System

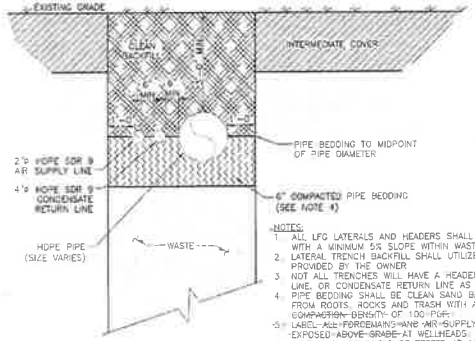
SARASOTA COUNTY FLORIDA

WELLHEAD AND CONFIGURATION DETAILS

0 1" 2"
IF THIS BAR DOES NOT MEASURE TWO INCHES, ADJUST SCALE ACCORDINGLY

FILENAME: 00D-02.dwg
SCALE: NOT TO SCALE
SHEET: 00D-02

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AUG 13 2010 SOUTHWEST DISTRICT TAMPA

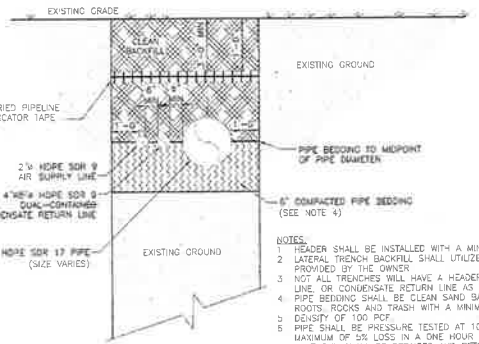


NOTES:
1. ALL LFG LATERALS AND HEADERS SHALL BE INSTALLED WITH A MINIMUM 5% SLOPE WITHIN WASTE LIMITS.
2. LATERAL TRENCH BACKFILL SHALL UTILIZE ON-SITE SOIL PROVIDED BY THE OWNER.
3. NOT ALL TRENCHES WILL HAVE A HEADER, LATERAL, AIR LINE, OR CONDENSATE RETURN LINE AS SHOWN.
4. PIPE BEDDING SHALL BE CLEAN SAND BACKFILL FREE FROM ROOTS, ROCKS AND TRASH WITH A MINIMUM ~~COMPACTION DENSITY OF 100 PCF.~~
5. ~~LABEL ALL FORCEMAINS HANDWRITTEN SUPPLY LINES WHERE EXPOSED ABOVE GRADE AT WELLHEADS.~~
6. PIPE SHALL BE PRESSURE TESTED AT 10 PSI WITH A MAXIMUM OF 5% LOSS IN A ONE HOUR PERIOD. SEGMENTS THAT FAIL SHALL BE REPAIRED AND RETESTED

LANDFILL GAS PIPING IN WASTE TRENCH DETAIL

NOT TO SCALE

1 / C-03

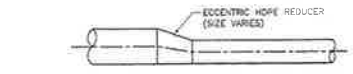


NOTES:
1. HEADER SHALL BE INSTALLED WITH A MINIMUM 1% SLOPE
2. LATERAL TRENCH BACKFILL SHALL UTILIZE ON-SITE SOIL PROVIDED BY THE OWNER.
3. NOT ALL TRENCHES WILL HAVE A HEADER, LATERAL, AIR LINE, OR CONDENSATE RETURN LINE AS SHOWN.
4. PIPE BEDDING SHALL BE CLEAN SAND BACKFILL FREE FROM ROOTS, ROCKS AND TRASH WITH A MINIMUM COMPACTION
5. DENSITY OF 100 PCF.
5. PIPE SHALL BE PRESSURE TESTED AT 10 PSI WITH A MAXIMUM OF 5% LOSS IN A ONE HOUR PERIOD. SEGMENTS THAT FAIL SHALL BE REPAIRED AND RETESTED.

LANDFILL GAS PIPING OUTSIDE OF WASTE TRENCH DETAIL

NOT TO SCALE

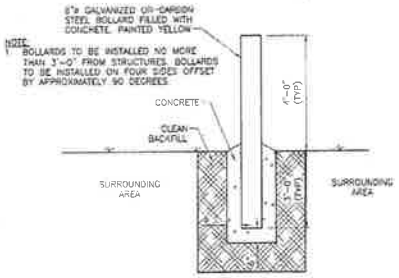
2 / C-03 / C-04



ECCENTRIC REDUCER DETAIL

NOT TO SCALE

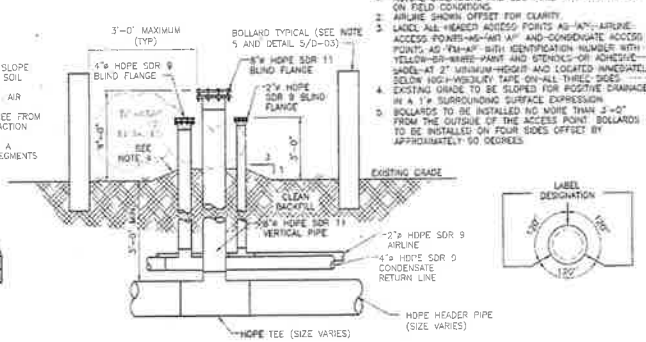
3 / D-02 / C-03



BOLLARD (TYP)

NOT TO SCALE

5 / D-03 / D-04 / D-07

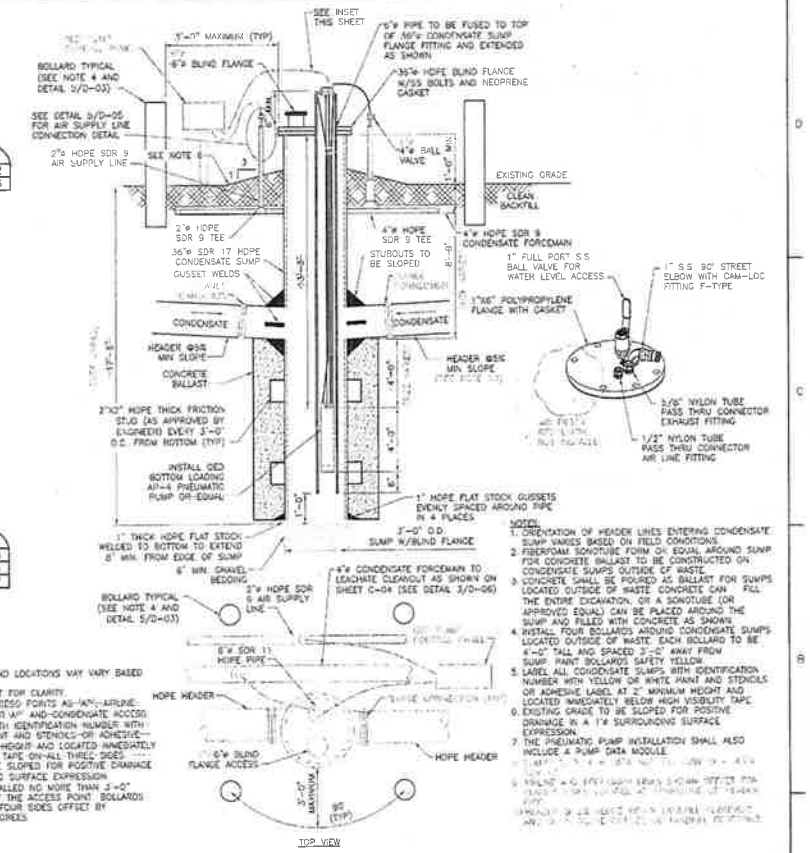


NOTES:
1. ACTUAL DIMENSIONS AND LOCATIONS MAY VARY BASED ON FIELD CONDITIONS.
2. AIRLINE SHOWN OFFSET FOR CLARITY.
3. LABEL ALL HEADER ACCESS POINTS AS "APC" AIRLINE ACCESS POINTS "HC" NOT "AP" AND CONDENSATE ACCESS POINTS AS "FM" NOT "AP" WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE ON ALL THREE SIDES.
4. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'-0" SURROUNDING SURFACE EXPRESSION.
5. BOLLARDS TO BE INSTALLED NO MORE THAN 3'-0" FROM THE OUTSIDE OF THE ACCESS POINT. BOLLARDS TO BE INSTALLED ON FOUR SIDES OFFSET BY APPROXIMATELY 90 DEGREES.

HEADER ACCESS POINT

NOT TO SCALE

4 / C-03

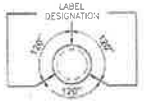


NOTES:
1. ORIENTATION OF HEADER LINES ENTERING CONDENSATE SUMP VARIES BASED ON FIELD CONDITIONS.
2. FIBERFOAM SONOTUBE FORM OR EQUAL AROUND SUMP FOR CONCRETE BALLAST TO BE CONSTRUCTED ON CONDENSATE SUMPS OUTSIDE OF WASTE.
3. CONCRETE SHALL BE POURED AS BALLAST FOR SUMPS LOCATED OUTSIDE OF WASTE. CONCRETE CAN FILL THE ENTIRE EXCAVATION, OR A SONOTUBE (OR APPROVED EQUAL) CAN BE PLACED AROUND THE SUMP AND FILLED WITH CONCRETE AS SHOWN.
4. INSTALL FOUR BOLLARDS AROUND CONDENSATE SUMPS LOCATED OUTSIDE OF WASTE. EACH BOLLARD TO BE 4'-0" TALL AND SPACED 3'-0" AWAY FROM SUMP. PAINT BOLLARDS SAFETY YELLOW.
5. LABEL ALL CONDENSATE SUMPS WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE.
6. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'-0" SURROUNDING SURFACE EXPRESSION.
7. THE PNEUMATIC PUMP INSTALLATION SHALL ALSO INCLUDE A PUMP DATA MODULE.

CONDENSATE SUMP DETAIL (TYP)

NOT TO SCALE

6 / C-03 / C-04



RECORD DRAWING

HDR ENGINEERING, INC.

SARASOTA COUNTY

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER: C. KOENIG, P.E.
DESIGNED BY: A. BARKER, E.I.
DRAWN BY: O. SOSA
CHECKED BY: C. LEBRON, P.E.
PROJECT NUMBER: 101628

CLIFFORD G. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER

Central County Solid Waste Disposal Complex

Phase 1 - Sequence 1

Landfill Gas Collection and Control System

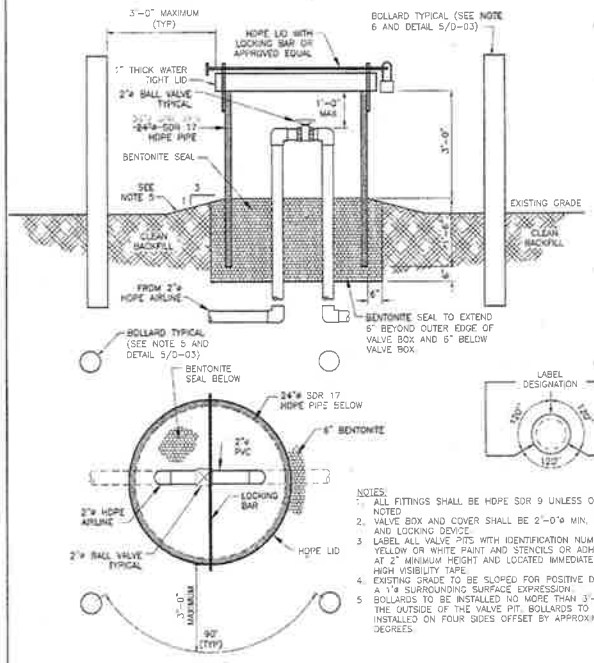
SARASOTA COUNTY — FLORIDA

GENERAL DETAILS

AUG 13 2010

FILENAME: 00D-03.dwg
SCALE: NOT TO SCALE

SHEET: 00D-03

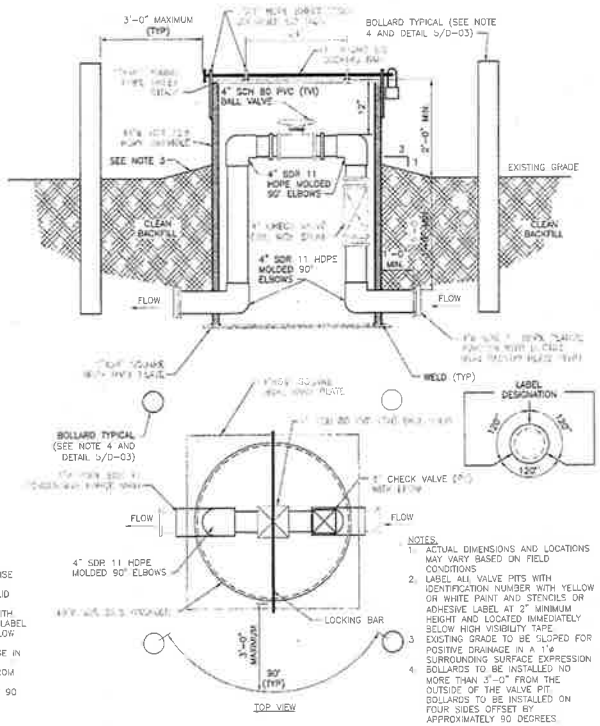


NOTES:
1. ALL FITTINGS SHALL BE HDPE SDR 9 UNLESS OTHERWISE NOTED
2. VALVE BOX AND COVER SHALL BE 2'-0"ø MIN. WITH LID AND LOCKING DEVICE.
3. LABEL ALL VALVE PITS WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE.
4. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'ø SURROUNDING SURFACE EXPRESSION.
5. BOLLARDS TO BE INSTALLED NO MORE THAN 3'-0" FROM THE OUTSIDE OF THE VALVE PIT. BOLLARDS TO BE INSTALLED ON FOUR SIDES OFFSET BY APPROXIMATELY 90 DEGREES.

AIRLINE VALVE PIT

NOT TO SCALE

1 C-03

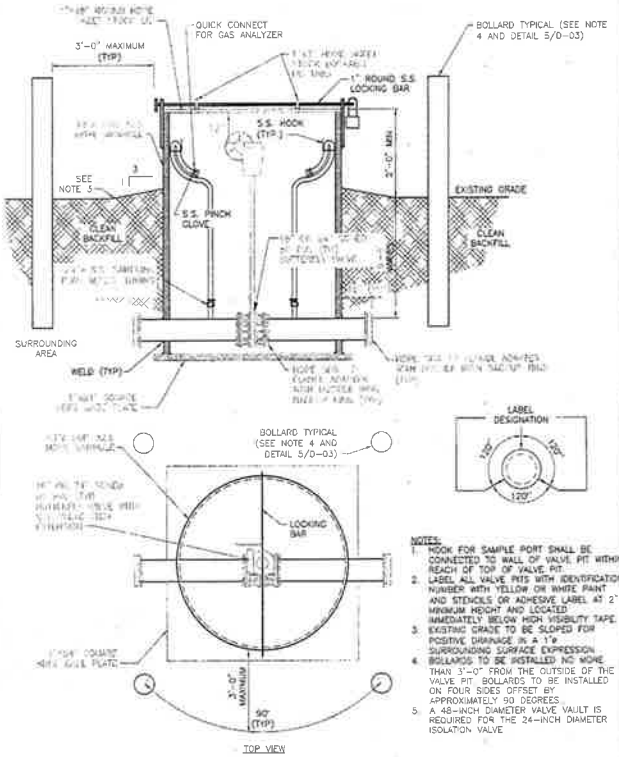


NOTES:
1. ACTUAL DIMENSIONS AND LOCATIONS MAY VARY BASED ON FIELD CONDITIONS
2. LABEL ALL VALVE PITS WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE.
3. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'ø SURROUNDING SURFACE EXPRESSION
4. BOLLARDS TO BE INSTALLED NO MORE THAN 3'-0" FROM THE OUTSIDE OF THE VALVE PIT. BOLLARDS TO BE INSTALLED ON FOUR SIDES OFFSET BY APPROXIMATELY 90 DEGREES.

FORCE MAIN VALVE PIT

NOT TO SCALE

2 C-03



NOTES:
1. HOOK FOR SAMPLE PORT SHALL BE CONNECTED TO WALL OF VALVE PIT WITHIN REACH OF TOP OF VALVE PIT.
2. LABEL ALL VALVE PITS WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE.
3. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'ø SURROUNDING SURFACE EXPRESSION.
4. BOLLARDS TO BE INSTALLED NO MORE THAN 3'-0" FROM THE OUTSIDE OF THE VALVE PIT. BOLLARDS TO BE INSTALLED ON FOUR SIDES OFFSET BY APPROXIMATELY 90 DEGREES.
5. A 48-INCH DIAMETER VALVE VAULT IS REQUIRED FOR THE 24-INCH DIAMETER ISOLATION VALVE

HEADER LINE ISOLATION VALVE PIT

NOT TO SCALE

3 C-03

RECORD DRAWING

HDR Engineering Inc

ISSUE	DATE	DESCRIPTION
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER	C. KOENIG, P.E.
DESIGNED BY	A. BARKER, E.I.
DRAWN BY	D. SOSA
CHECKED BY	C. LEBRON, P.E.
PROJECT NUMBER	101628

CLIFFORD B. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER

6-1-2010

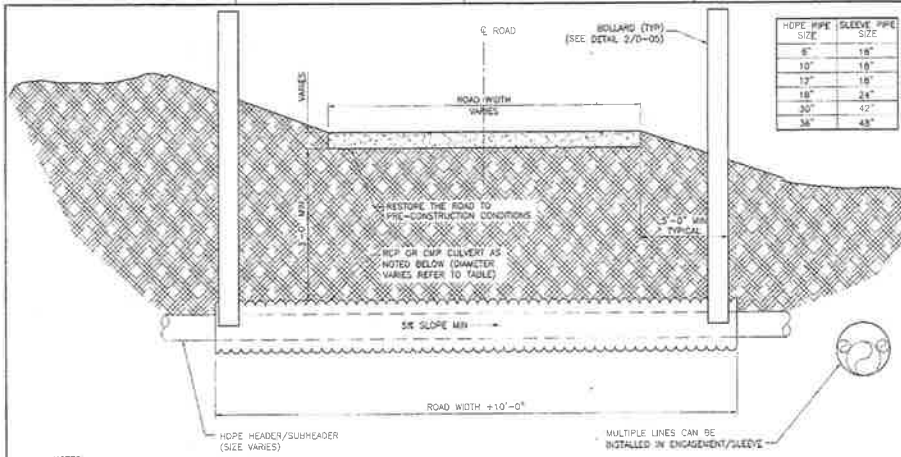
Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System

SARASOTA COUNTY FLORIDA

VALVE PIT DETAILS

AUG 13 2010

FILENAME	00D-04.dwg
SCALE	NOT TO SCALE
SHEET	00D-04



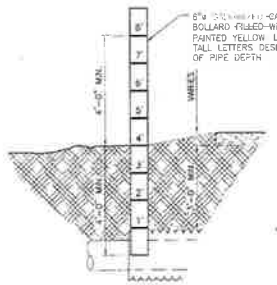
HDPE PIPE SIZE	SLEEVE PIPE SIZE
8"	18"
10"	18"
12"	18"
18"	24"
30"	42"
36"	48"

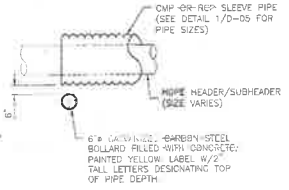
NOTES:
1. ACTUAL DIMENSIONS MAY VARY BASED ON FIELD CONDITIONS
2. CLASS V REINFORCED CONCRETE PIPE CULVERT SHALL BE USED FOR ALL ROAD CROSSING LOCATIONS LOCATED OUTSIDE OF PHASE 1 LIMITS OF WASTE
3. CORRUGATED METAL PIPE CULVERT SHALL BE USED FOR ROAD CROSSING LOCATIONS LOCATED WITHIN PHASE 1 LIMITS OF WASTE. STEEL PIPE SHALL HAVE A MINIMUM WALL THICKNESS OF 0.168 INCHES AND MINIMUM YIELD STRENGTH OF 20,000 PSI.
4. CUT ASPHALT WITH SAW TO MATCH TRENCH WIDTH PRIOR TO EXCAVATION.
5. CONTRACTOR SHALL RESTORE ROAD TO MATCH ORIGINAL CONDITIONS.
6. CONTRACTOR SHALL INSTALL 2 BOLLARDS, ONE AT EACH END OF THE [illegible] CONCRETE CASING WITHIN THE LANDFILL FOOTPRINT. THE BOLLARDS SHALL BE CONCRETE-FILLED STEEL PIPE BOLLARDS 6"ø X 8' TALL. BOLLARDS SHALL BE PAINTED SAFETY YELLOW AND LABELED "LANDFILL GAS PIPE BURIED BELOW".
7. LIMEROCK BASE COMPACTED TO 95% MODIFIED PROCTOR FOR ROAD CROSSINGS WITHIN THE LANDFILL FOOTPRINT.
8. LIMEROCK BASE COMPACTED TO 95% MODIFIED PROCTOR FOR THE PERIMETER ACCESS ROAD
9. SUBGRADE GRANULAR FILL COMPACTED TO 95% MODIFIED PROCTOR

ACCESS ROAD CROSSING DETAIL (TYP)

NOT TO SCALE

1 | C-03, C-04, D-05



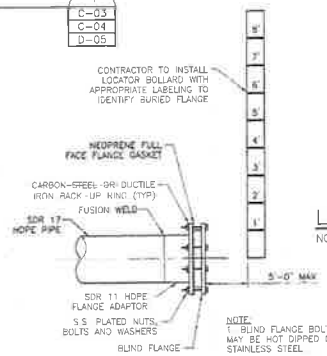


NOTE:
1. ACTUAL DIMENSIONS MAY VARY BASED ON FIELD CONDITIONS.

BOLLARD DETAIL (TYP)

NOT TO SCALE

2 | D-05

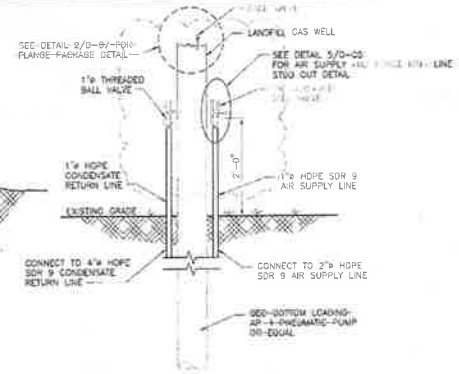


NOTE:
1. BLIND FLANGE BOLTS AND WASHERS MAY BE HOT DIPPED GALVANIZED OR STAINLESS STEEL

BLIND FLANGE WITH LOCATOR BOLLARD DETAIL

NOT TO SCALE

3 | C-03, C-05

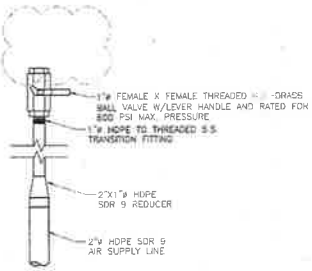


NOTES:
1. CONTRACTOR TO DIFFERENTIATE BETWEEN AIR SUPPLY LINE AND CONDENSATE RETURN LINE AT ALL STUB OUTS.
2. WELLHEAD FOR PIPES 1, 2 & 3 NOT SHOWN FOR CLARITY.
3. ALTERNATIVE ITEM TO BE INSTALLED IN SELECT VERTICAL WELLS TO BE DETERMINED BY OWNER AND ENGINEER.

WELL RISER WITH PUMP DETAIL (TYP)

NOT TO SCALE

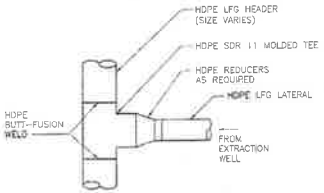
4 | D-02



AIR SUPPLY AND FORCE MAIN LINE CONNECTION DETAIL (TYP)

NOT TO SCALE

5 | D-03, D-05

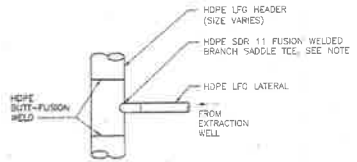


NOTES:
1. HDPE MOLDED TEES SHALL BE USED TO TIE-IN 2"ø AND LARGER LFG LATERALS TO 8"ø HEADER AND SMALLER
2. 1" MIN. OF SAND WILL BE PLACED BELOW EACH TEE. THE SAND WILL BE INSTALLED SO IT EXTENDS 3'-0" MIN. ON EACH SIDE OF THE TEE. SAND WILL BE SLIGHTLY MOISTENED AND HAND-TAMPED PROVIDING SUPPORT TO ALL POINTS OF THE TEE. CLEAN, GRADED SOIL WILL BE HAND-TAMPED ABOVE TEE (1" MIN.) BEING CAREFUL TO ELIMINATE ALL VOIDS

LATERAL TIE-IN W/TEE

NOT TO SCALE

6 | C-04



NOTES:
1. BRANCH SADDLE SHALL BE SHOP-FABRICATED (FIELD-FABRICATION WILL NOT BE ACCEPTED) AND INSTALLED TO MAINTAIN SLOPE INTO THE HEADER.
2. 1" MIN. OF SAND WILL BE PLACED BELOW EACH TEE. THE SAND WILL BE INSTALLED SO IT EXTENDS 3' MIN. IN EACH DIRECTION OF THE TEE. SAND WILL BE SLIGHTLY MOISTENED AND HAND-TAMPED PROVIDING SUPPORT TO ALL POINTS OF THE TEE. CLEAN, GRADED SOIL WILL BE HAND-TAMPED ABOVE TEE (1" MIN.) BEING CAREFUL TO ELIMINATE ALL VOIDS
3. HDPE SUPPORT GUSSETS (LOCATED AT 0, 90, 180, & 270 DEGREES) ARE REQUIRED FOR BRANCH SADDLE FITTINGS
4. HDPE BRANCH SADDLE FITTINGS SHALL BE USED TO TIE-IN 2"ø AND LARGER LANDFILL GAS LATERALS TO 10"ø HEADER AND LARGER.

LATERAL TIE-IN W/BRANCH SADDLE

NOT TO SCALE

7 | C-04

RECORD DRAWING

[illegible]
HDR ENGINEERING, INC.

SARASOTA COUNTY

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
3	02/10	[illegible]
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER	C. HOENIG, P.E.
DESIGNED BY	A. BARKER, E.I.
DRAWN BY	D. SOSA
	[illegible]
CHECKED BY	C. LEBRON, P.E.
PROJECT NUMBER	101622

CLIFFORD G. HOENIG LICENSE No. 64678 STATE OF FLORIDA PROFESSIONAL ENGINEER

Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System

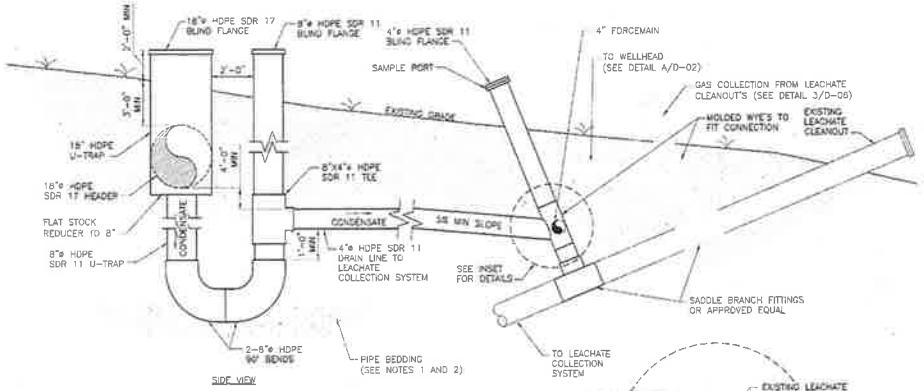
SARASOTA COUNTY — FLORIDA

ACCESS ROAD CROSSING AND BOLLARD DETAILS

[illegible] DEPARTMENT OF ENVIRONMENTAL PROTECTION AUG 13 2010 SOUTHWEST DISTRICT

FILENAME	D0D-05.dwg
SCALE	NOT TO SCALE

SHEET 00D-05



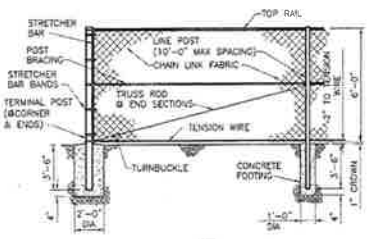
NOTES:
1. U-TRAP BEDDING TO BE COMPACTED 6" BELOW AND TO THE MIDPOINT OF ALL PIPING. ADDITIONAL SOIL BACKFILL SHALL BE PLACED AROUND U-TRAP TO PROVIDE STABILITY AND SUPPORT
2. PIPE BEDDING SHALL BE EITHER COARSE SAND, PEAGRAVEL, CRUSHED GRAVEL, GRAVEL, CRUSH STONE SCREENINGS OR CRUSHED STONE.
3. EXISTING LEACHATE CLEANOUT PIPE IS ASSUMED TO BE 6"ø HDPE. CONTRACTOR TO FIELD VERIFY.
4. ACTUAL DIMENSIONS AND LOCATIONS MAY VARY BASED ON FIELD CONDITIONS.
5. CONTRACTOR TO ADD WATER TO U-TRAP AFTER PRESSURE TEST.
6. BACKFILL AND BEDDING NOT SHOWN FOR CLARITY.
7. FORCEMAIN CONNECTION TO ACCESS RISER TO BE INSTALLED BELOW GRAVITY DRAIN LINE.

U-TRAP#	U-1	U-2	U-3
SIZE	18"	18"	18"

U-TRAP DETAIL FRONT/SIDE VIEWS (TYP)

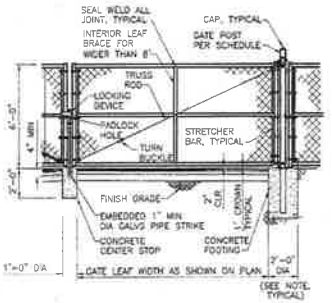
NOT TO SCALE

1 C-03



GATE POST SCHEDULE	
LEAF SPAN	NOMINAL DIA.
4'-8'	3"
8'-12'	4"
12'-18'	6"
18'-24'	8"

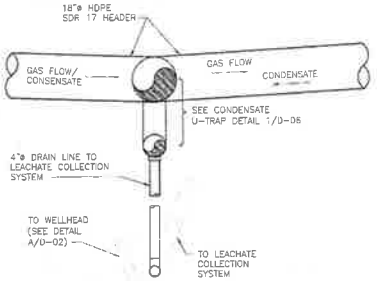
NOTE:
1. USE 4'-0" DIA CONCRETE FOOTING HOLE FOR POST DIAMETERS GREATER THAN 6"



CHAIN LINK FENCE DETAILS (TYP)

NOT TO SCALE

4 C-06

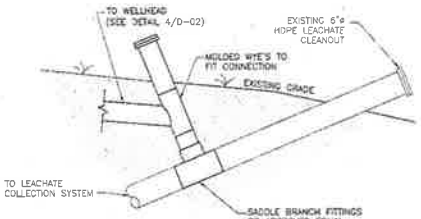


NOTES:
1. GRADE NOT SHOWN FOR CLARITY.
2. SEE SHEETS C-03 AND C-04 FOR U-TRAP LOCATIONS AND CLEANOUT LOCATIONS
3. ACTUAL DIMENSIONS AND LOCATIONS MAY VARY BASED ON FIELD CONDITIONS.
4. ORIENTATION OF HEADER PIPING ENTERING U-TRAP VARIES ON LOCATION OF U-TRAP

U-TRAP DETAIL PLAN VIEW (TYP)

NOT TO SCALE

2 C-03



GAS COLLECTION FROM LEACHATE CLEANOUT CONNECTION (TYP)

NOT TO SCALE

3 C-03 D-02 D-03

RECORD DRAWING

AUG 13 2010

SARASOTA COUNTY

HDR Engineering, Inc.

ISSUE	DATE	DESCRIPTION
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER	C. KOENIG, P.E.
DESIGNED BY	A. BARKER, E.I.
DRAWN BY	D. SOSA
CHECKED BY	C. LEBRON, P.E.
PROJECT NUMBER	101628

CLIFFORD G. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER 8-12-2010

Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System

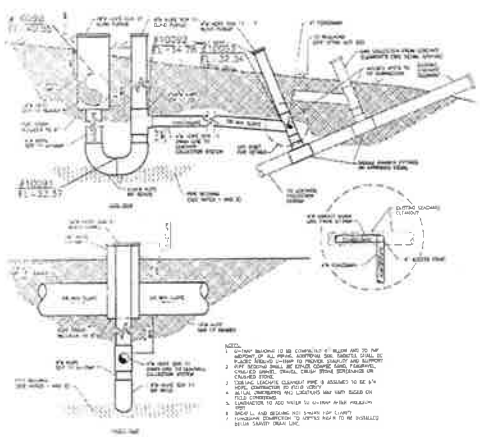
SARASOTA COUNTY FLORIDA

U-TRAP LAYOUT & DETAILS

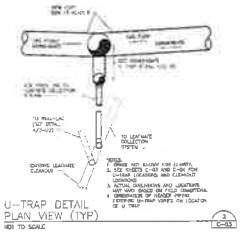
0 1" 2"

FILENAME	000-06.dwg
SCALE	NOT TO SCALE
SHEET	00D-06

U-TRAP 3

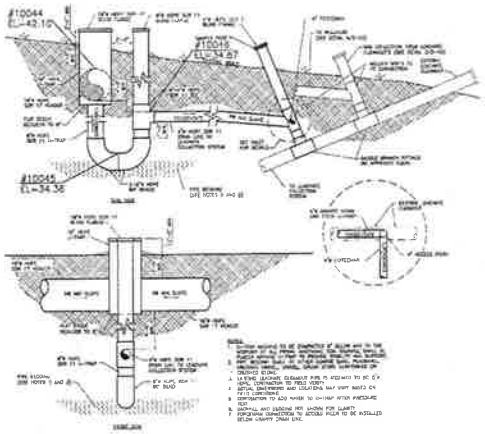


U-TRAP DETAIL
FRONT/SIDE VIEWS (TYP)
NOT TO SCALE

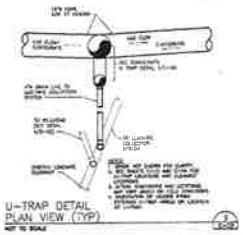


U-TRAP DETAIL
PLAN VIEW (TYP)
NOT TO SCALE

U-TRAP 2

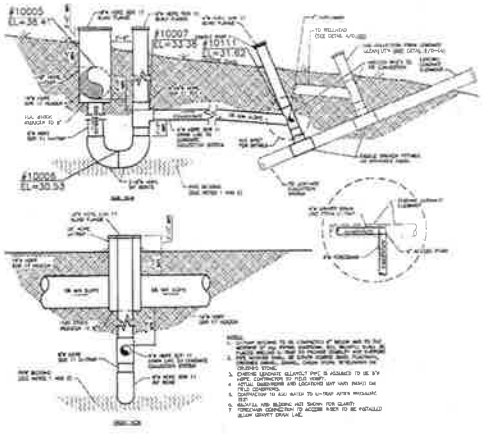


U-TRAP DETAIL
FRONT/SIDE VIEWS (TYP)
NOT TO SCALE

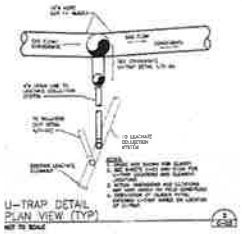


U-TRAP DETAIL
PLAN VIEW (TYP)
NOT TO SCALE

U-TRAP 1



U-TRAP DETAIL
FRONT/SIDE VIEWS (TYP)
NOT TO SCALE



U-TRAP DETAIL
PLAN VIEW (TYP)
NOT TO SCALE

U-TRAP#	U-1	U-2	U-3
SIZE	18"	18"	18"

AS-BUILT SURVEY

Hyatt Survey Services, Inc.

AS-BUILT SURVEY

SARASOTA COUNTY

HDR

2	12/09	ISSUED FOR CONSTRUCTION	
1	08/09	ISSUED FOR BID	
0	06/09	ISSUED FOR CLIENT REVIEW	
NO.	DATE	DESCRIPTION	

PROJECT MANAGER: C. KOENIG, P.E.
DESIGNED BY: A. BARKER, E.I.
DRAWN BY: D. SOSA
CHECKED BY: C. LUMSON, P.E.
PROJECT NUMBER: 101828

CLIFFORD G. KOENIG LICENSE No. 54675 STATE OF FLORIDA PROFESSIONAL ENGINEER

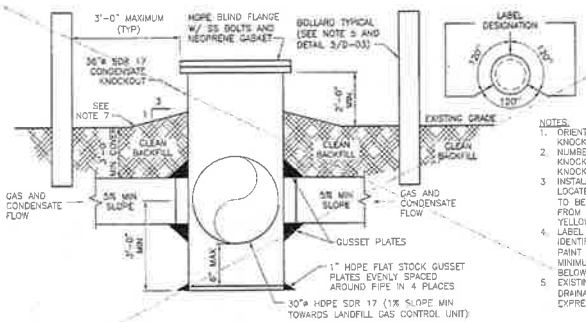
Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System
ISSUED FOR CONSTRUCTION

U-TRAP LAYOUT & DETAILS

0 1" 2"
AT FULL SIZE THIS LENGTH EQUALS 1"
UNLESS ADJUST SCALE ACCORDINGLY

FILENAME: 00D-06.dwg
SCALE: NOT TO SCALE

SHEET: 00D-06A

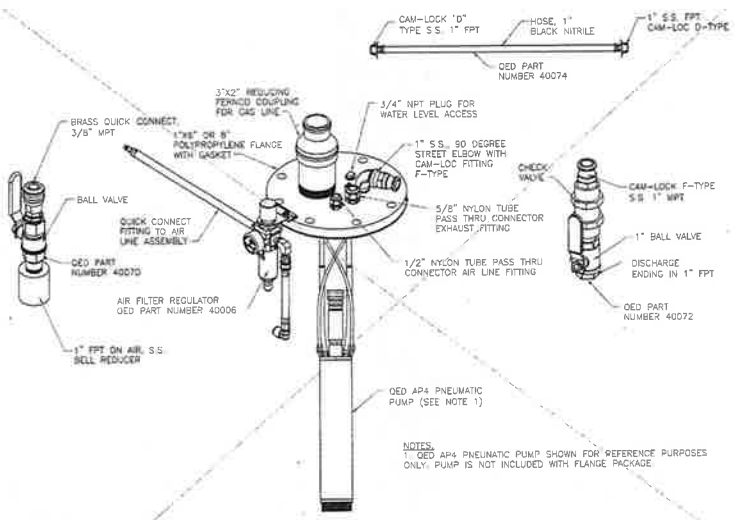


NOTES:
1. ORIENTATION OF HEADER LINES ENTERING KNOCKOUT POT VARIES.
2. NUMBER OF HEADER LINES ENTERING KNOCKOUT VARY DEPENDING ON LOCATION OF KNOCKOUT POT.
3. INSTALL 4 BOLLARDS AROUND KNOCKOUT POTS LOCATED OUTSIDE OF WASTE. EACH BOLLARD TO BE 4'-0" TALL AND SPACED 3'-0" AWAY FROM KNOCKOUT POT. PAINT BOLLARDS SAFETY YELLOW.
4. LABEL CONDENSATE KNOCKOUT POTS WITH IDENTIFICATION NUMBER WITH YELLOW OR WHITE PAINT AND STENCILS OR ADHESIVE LABEL AT 2" MINIMUM HEIGHT AND LOCATED IMMEDIATELY BELOW HIGH VISIBILITY TAPE.
5. EXISTING GRADE TO BE SLOPED FOR POSITIVE DRAINAGE IN A 1'ø SURROUNDING SURFACE EXPRESSION.

CONDENSATE KNOCKOUT POT

NOT TO SCALE

1 | C-03 | C-04

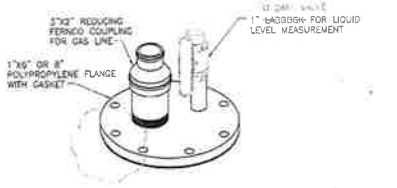


NOTES:
1. QED AP4 PNEUMATIC PUMP SHOWN FOR REFERENCE PURPOSES ONLY. PUMP IS NOT INCLUDED WITH FLANGE PACKAGE.

FLANGE PACKAGE WITH PLUG

NOT TO SCALE

2 | D-02 | D-05



VERTICAL WELL WITHOUT PUMP FLANGE PACKAGE

NOT TO SCALE

3 | C-03

RECORD DRAWING

ISSUE	DATE	DESCRIPTION
3	[illegible]	RECORD DRAWING
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR BID
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER: C. KOENIG, P.E.
DESIGNED BY: A. BARKER, E.I.
DRAWN BY: D. SOSA
CHECKED BY: C. LEBRON, P.E.
PROJECT NUMBER: 101628

CLIFFORD G. KOENIG LICENSE No. 54078 STATE OF FLORIDA PROFESSIONAL ENGINEER

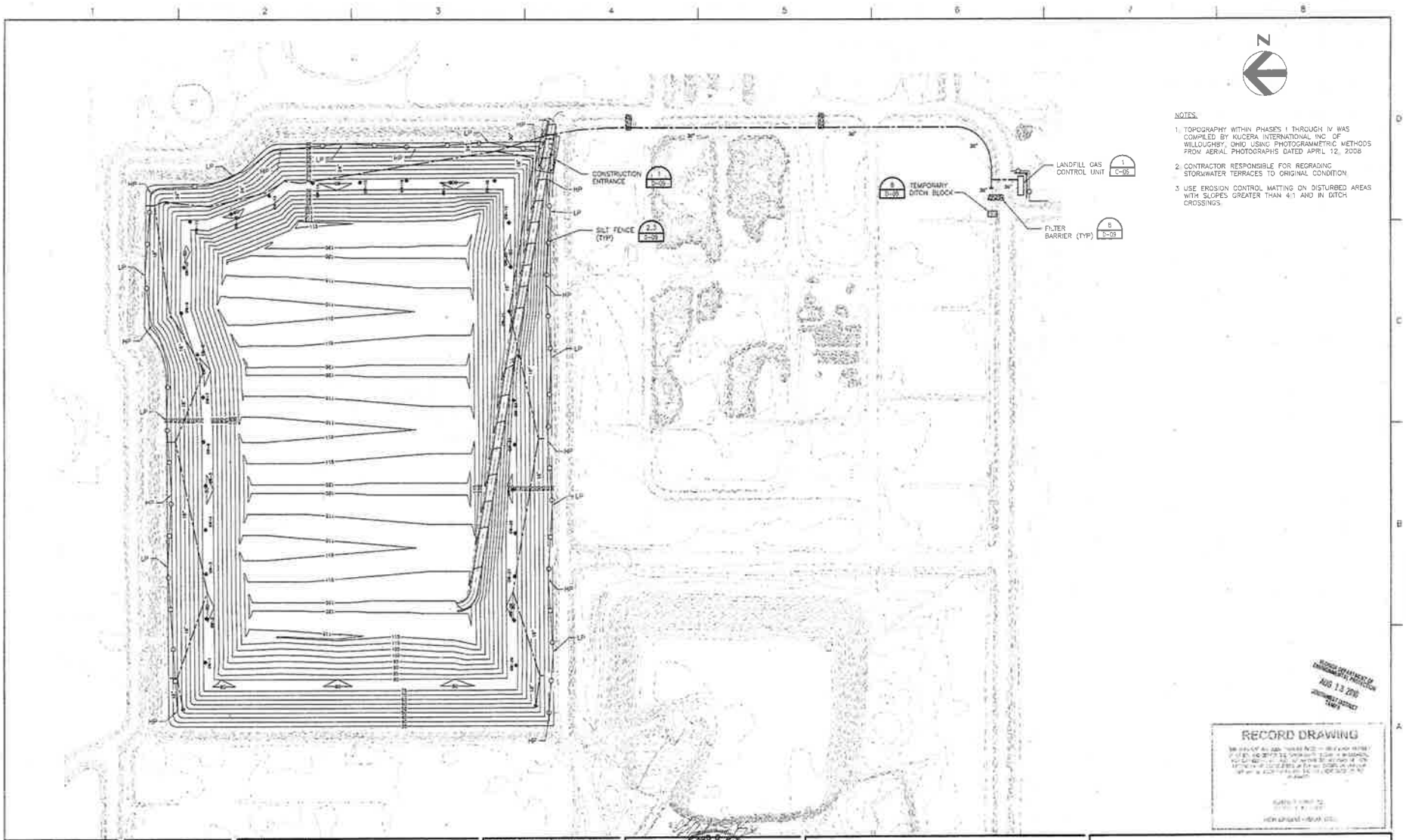
Central County Solid Waste Disposal Complex
Phase 1 - Sequence 1
Landfill Gas Collection and Control System

SARASOTA COUNTY FLORIDA

CONDENSATE KNOCKOUT POT DETAIL

AUG 13 2010

FILENAME: 00D-07.dwg
SCALE: NOT TO SCALE
SHEET: 00D-07



NOTES:

1. TOPOGRAPHY WITHIN PHASES I THROUGH IV WAS COMPILED BY KUCERA INTERNATIONAL INC OF WILLOUGHBY, OHIO USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS DATED APRIL 12, 2008
2. CONTRACTOR RESPONSIBLE FOR REGRADING STORMWATER TERRACES TO ORIGINAL CONDITION.
3. USE EROSION CONTROL MATTING ON DISTURBED AREAS WITH SLOPES GREATER THAN 4:1 AND IN DITCH CROSSINGS.

RECEIVED
AUG 13 2010
SWFWMD DISTRICT

RECORD DRAWING

SARASOTA COUNTY

HDR

ISSUE	DATE	DESCRIPTION
3	09/10	RECORD DRAWING
2	12/09	ISSUED FOR CONSTRUCTION
1	08/09	ISSUED FOR WD
0	05/09	ISSUED FOR CLIENT REVIEW

PROJECT MANAGER C. KOENIG, P.E.
DESIGNED BY A. BARKER, E.I.
DRAWN BY O. SOSA
CHECKED BY C. LEBRON, P.E.
PROJECT NUMBER 101608

CLIFFORD C. KOENIG LICENSE No. 64078 STATE OF FLORIDA PROFESSIONAL ENGINEER
8-17-2010

Central County Solid Waste Disposal Complex

Phase 1 - Sequence 1

Landfill Gas Collection and Control System

SARASOTA COUNTY FLORIDA

EROSION CONTROL LAYOUT

0 1" 2"

FILENAME 00D-08.dwg
SCALE 1" = 150'

SHEET 00D-08

APPENDIX C

EXAMPLE INSPECTION FORM

SOLID WASTE LANDFILL OPERATIONS
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
PHASE I - MONTHLY INPSECTION FORM

ITEM- INSPECTION	OK	Not OK	Unk
1) Site Access Controlled (Check any that are Not OK) _____ Fences _____ Gates _____ Signs _____ Locks			
2) Access Roads OK?			
3) Any waste within closed/long-term care areas?			
4) Stormwater System OK? (Check any that are Not OK) _____ Letdowns _____ Grout Filled Fabric _____ Ditches and Culverts _____ Slopes _____ Erosion _____ Inlets _____ Piping _____ Berms			
5) Final Cover OK?			
6) Any damage to Soil Cover?			
7) Settled areas being properly filled?			
8) Ponding of water in closed area?			
9) Vegetative Cover OK?			
10) Leachate Breakouts or Seeps?			
11) Exposed Geomembrane Cover (TPO			
(Check any that are Not OK) _____ Gas accumulation under liner controlled _____ Holes or cracks in cover _____ Seams _____ Boots _____ Structures _____ Drainage Features _____ TPO to Fabriform transitions _____ Piping _____ Grates			

SOLID WASTE LANDFILL OPERATIONS
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
PHASE I - MONTHLY INPSECTION FORM

ITEM- INSPECTION	OK	Not OK	Unk
12) Pump Stations, pumps, and control panels OK?			
(Check any that are Not OK)			
_____ Cell 1			
_____ Cell 2			
_____ Cell 3			
_____ Cell 4			
_____ Cell 5			
13) Groundwater Monitoring Wells OK?			
14) Gas Collection and Control System			
(Check any that are Not OK)			
_____ Well heads			
_____ Sumps and Manholes			
_____ Access Points			
_____ Boots			
15) Edge of Liner Markers OK?			
16) Odors?			

NOTES

ATTACHMENT K-~~5~~6

~~WASTE~~ LEACHATE PUMP DATA AND LEACHATE GENERATION FORMS

SARASOTA COUNTY CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX

DAILY PRECIPITATION DATA AND LEACHATE GENERATION/BALANCE REPORT

				Leachate Generation					Leachate Disposal				Leachate Balance
		Leachate Storage Tank Depth	Leachate Storage Tank Volume Stored	1	2	3	4	5	6	7	8	9	
				Leachate Storage Tank Direct Rainfall	Phase I Subcells 1-5	Phase II Main Pump Station	MRF Collection	TOTAL LEACHATE COLLECTED (SUM of Columns 1 thru 4)	Pumped to WWTP	Hauled to WWTP	Leachate Truck Spraying at Working Face	TOTAL LEACHATE DISPOSAL (SUM of Columns 6 thru 8)	LEACHATE COLLECTED MINUS LEACHATE DISPOSED (Column 5 MINUS Column 9)
DATE	RAINFALL[1]	DEPTH	VOLUME	LC	LC	LC and LD	PUMPED						
	(inches)	(feet)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)
1													
2													
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28													
29													
30													
31													
TOTALS													

Notes:
Precipitation recorded by the County from rain gauges or the weather station located at the CCSWDC.
Column 1: Rainfall falling into the leachate storage tank (13,275 square feet area) which is classified as leachate.
Columns 2: Based on flowmeter data, the sum amount of leachate pumped from the Phase I pump stations to the leachate storage tank.
Column 3: Based on flow meter data, the amount of leachate pumped from the Class I Landfill Phase II main pump station to the storage tank.
Column 4: Based on flow meter data, the amount of leachate pumped from the MRF leachate collection sump to the leachate storage tank.
Column 6: Based on flow meter data, the amount of leachate pumped from the leachate storage tank to the WWTP.
Column 7: Based on flow meter data, the amount of leachate pumped from the leachate storage tank to leachate tanker trucks.
Column 8: Based on flow meter data, the amount of leachate pumped from the leachate storage tank to a tanker truck to spray leachate at the working face.
NR = No Reading

SARASOTA COUNTY CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
PHASE I LEACHATE COLLECTION AND LEACHATE STORAGE TANK
DAILY PUMP METER LOG

MONTH **YEAR**

DATE	RAIN (inches)	TIME	SUBCELL NO 1			SUBCELL NO 2			SUBCELL NO 3			SUBCELL NO 4			SUBCELL NO 5			MRF			LEACHATE STORAGE TANK TO TRUCKS			LEACHATE STORAGE TANK TO WWTP			LEACHATE TANK
			Level (inches)	Flowmeter (gallons)	Pump Hours	Level (inches)	Flowmeter (gallons)	Pump Hours	Level (inches)	Flowmeter (gallons)	Pump Hours	Level (inches)	Flowmeter (gallons)	Pump Hours	Level (inches)	Flowmeter (gallons)	Pump Hours	Level (inches)	Flowmeter (gallons)	Pump Hours	Pump Hours #1	Pump Hours #2	Flowmeter (gallons)	Pump Hours #1	Pump Hours #2	Flowmeter (gallons)	Level (feet)
1																											
2																											
3																											
4																											
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SARASOTA COUNTY CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
PHASE II LEACHATE COLLECTION AND LEAK DETECTION
DAILY PUMP METER LOG

MONTH **YEAR**

DATE	RAIN (inches)	TIME	Subcell No. 1			Subcell No. 2			PHASE II MAIN PUMP STATION				
			Leak Detection Manhole Level (feet)	Leak Detection Manhole Level After Opening (feet)	Leak Detection Collected from Previous Reading (gallons)	Leak Detection Manhole Level (feet)	Leak Detection Manhole Level After Draining (feet)	Leak Detection Collected from Previous Reading (gallons)	Totalized Flowmeter Reading Leachate Collection and Detection (gallons)	Pump 1 Total Hour Meter Reading (hours)	Pump 2 Total Hour Meter Reading (hours)	Total Leak Detection Collected Subcells 1 - 4	Total Leachate Collection Subcells 1 - 4
1													
2													
3													
4													
5													
6													
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31													

Subcells 3 and 4 of Phase II are currently draining to stormwater and are hidden within the spreadsheet.
Subcell 1 Collection Area =
Subcell 2 Collection Area =
Subcell 3 Collection Area =
Subcell 4 Collection Area =

ATTACHMENT K-7

LOAD INSPECTION ~~AND REPORTING~~ FORM

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 _____ Truck No. _____

Hauler _____ 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 K-6~~

~~LEACHATE DISPOSAL COMMITMENT LETTER~~

~~ATTACHMENT K-7~~

~~LEACHATE PUMP DATA FORM~~

~~AND~~

~~METERING MANHOLE DATA FORM~~

ATTACHMENT K-8

~~LABORATORY CERTIFICATION~~

~~ATTACHMENT K-9~~

INITIAL COVER SPECIFICATIONS

ATTACHMENT K-~~9~~8

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 materials 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~~Processed yard waste, unscreened, and then mixed in the ratio of 50 percent processed yard waste~~unscreened compost~~ to 50 percent soil, and applied in a six (6) inch compacted layer may be used as initial cover within the bermed working area. ~~Ninety percent of the unscreened compost shall pass through a 3/4 inch screen prior to mixing with soil.~~
- Shredded asphalt roofing shingles, screened through a 1 inch mesh, and then mixed in the ratio of 50 percent shredded shingles to 50 percent 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. Ninety percent of the unscreened ground-up debris shall pass a 2 inch screen and 50 percent shall pass a ¼ inch screen.
- Processed yard waste~~Composted yard trash~~, screened through ½ inch mesh, and then mixed in the ratio of 75 percent screened compost to 25 percent 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 percent passes 2 inch screen, 85 percent passes a ¾ inch screen, and 70 percent passes a ¼ inch screen. The mixture shall be applied in a 6 inch compacted layer.~~
- Street sweeping which is material consisting primarily of soil, rocks, asphalt, leaves and other vegetative matter generated during routine cleaning of roads and is not mixed with any Class I waste. It does not include material generated during the ~~clean up~~cleanup of an oil of hazardous chemical spill or material that is believed to be contaminated.

ATTACHMENT K-~~10~~9

~~**LEACHATE REPORT FORM**~~

~~**AND**~~

~~**LCRS INSPECTION REPORT**~~

LFGCCS OPERATIONS AND MAINTENANCE PLAN

Sarasota County
Solid Waste Operations

Central County Solid Waste Disposal Complex LFGCCS Operations and Maintenance Plan

September 2013

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OPERATIONS AND MAINTENANCE PLAN
LANDFILL GAS COLLECTION AND CONTROL SYSTEM
SARASOTA COUNTY CCSWDC

1 INTRODUCTION

This Operations and Maintenance Plan (O&M Plan) has been prepared to summarize steps necessary to operate and maintain the Gas Collection and Control System (gas system) at the Central County Solid Waste Disposal Complex (CCSWDC) in Sarasota County, Florida. This O&M Plan is an integral part of the development and successful operation of the gas system. Therefore, a copy of this plan must be maintained with the CCSWDC records. This document is to be an attachment to the existing Operations Plan for the site.

2 FACILITY DESCRIPTION

2.1 Location and Description

The CCSWDC is a multi-function solid waste management facility which includes Class I waste disposal, construction and demolition (C&D) waste processing facility, yard waste mulching, household hazardous waste storage and processing, and storage of tires, white goods and other bulky waste materials for processing off-site by private firms. The CCSWDC was opened in 1998 and has been owned by Sarasota County and operated under the direction of the Sarasota County Solid Waste Operations Unit. The majority of waste received at the CCSWDC is mixed garbage and trash, which requires disposal in a permitted Class I waste disposal facility.

2.2 Gas Extraction and Control System Description

The gas system is designed to collect landfill gas generated within the existing Landfill at the CCSWDC as the waste decomposes. The landfill gas is collected at a proposed on-site landfill gas control facility where it will be flared.

In the absence of active control measures, positive gas pressure builds up within the landfill through the anaerobic decomposition of the waste materials, which produces primarily methane (typically 40-50%) and carbon dioxide (typically 50-60%). If not relieved, pressure within the landfill can force these gases to move laterally below the ground and eventually into the atmosphere, potentially causing hazardous conditions to develop in underground and/or above ground structures on and off the CCSWDC site. The gas system helps relieve the positive pressure by applying a vacuum throughout the landfill. The gas is then conveyed to a control unit, located near the southeast corner of the Landfill.

The vertical gas extraction wells are drilled into the landfill to a depth equivalent to two-thirds of the waste depth and leaving a minimum 15 foot buffer between the base liner and the bottom of the well. The wells are designed to be perforated below grade to extract gas from each level of the landfill, and include a slip-coupling to help negate the effects of settlement on the extraction wells. ~~Additional detailed information on the gas wells and the rest of the gas system design is available in the Engineering Report submitted with the FDEP application document.~~

The active gas system incorporates strategically placed valves and cross lateral pipelines to provide a degree of flexibility and control in the application of vacuum at the extraction wells. Therefore, the vacuum can be selectively applied based upon actual gas generation at specific gas extraction points. The placement of the valves in the network of collection pipelines allows for sections of the gas system to be segregated for maintenance while the remainder of the system is operated.

While the gas system is operating, the change in temperature of the landfill gas results in the precipitation of moisture, which produces condensate within the gas system pipelines. The condensate from the gas system flows by gravity through the gas collection pipelines into condensate sumps, condensate traps, and knock-out pots where the moisture is allowed to drop out from the gas. From the sumps, condensate traps, and knock-out pots, the condensate flows by gravity or is pumped to the existing leachate management system for removal from the site.

3 Operation Procedures

3.1 General

In general, a constant vacuum is applied from the gas control unit to collect the landfill gas from the landfill. The vacuum can be adjusted at each extraction location to either collect more or less gas, based on the quality of the gas collected. At each gas collection location (i.e. wells), methane, carbon dioxide, and oxygen concentrations are measured on a regular basis. As the concentrations of these parameters change due to landfill and environmental conditions at the site (i.e. age of waste, moisture content, cover material, etc.), the vacuum is adjusted to ensure concentrations stay within permitted ranges. The initial vacuum values indicated in this report are rules of thumb, and should only be used as a starting point. The only way to accurately determine the vacuum needed for any given well is to take readings at each well and adjust the vacuum accordingly. ~~These procedures are further described in this O&M Report.~~

Vacuum adjustments throughout the gas system can be made by adjusting the valves at each wellhead and at various locations on the pipeline. By adjusting the valves to increase or decrease the applied vacuum, the gas system can be balanced and the maximum amount of gas can be collected without pulling air into the waste, which would diminish anaerobic decomposition and increase the potential for landfill fires. To assist with system balancing and verify efficient operation of the gas extraction system, the following will be measured and recorded:

- Gas flow rates at each wellhead and to the gas control unit;
- Methane, carbon dioxide, oxygen, and balance gas concentrations at each wellhead and at the gas control unit;
- Vacuum at each wellhead; and
- Gas temperature at each wellhead

Initially, to balance the gas system, daily measurements will be necessary. As the system begins to stabilize and the built up gas stored in the landfill is removed, measurements may be taken less frequently. To maintain a balanced system once the system is stabilized, weekly well measurements of the vacuum, the gas temperature, and the methane, carbon dioxide, oxygen, and balance gas concentrations should be performed. Periodic gas flow rates at the wells must be recorded so that the correlation between the vacuum applied and the gas flow rate can be established for each well.

The amount of vacuum applied at each well will vary through time and is influenced by many factors, including the type of landfill cover. The typical values indicated below are used in the landfill gas industry and are suggested as a starting point in conjunction with validation or adjustment of this vacuum based on readings at each well for oxygen and methane concentrations. Typically, the vacuum applied at exterior gas extraction wells should be approximately 1 to 3 inches of water column to provide adequate gas control and avoid excessive air infiltration along the landfill slope. The vacuum that can typically be applied to interior gas extraction wells is 3 to 7 inches of water column without producing excessive air infiltration. Some experimentation will be required to find the proper vacuum to apply to these wellheads.

As a starting point, the valves should be nearly closed at the wellheads and opened slightly until the gas readings are within the required ranges. In this way, excessive air infiltration into the gas system can be avoided. The required ranges for each constituent of the landfill gas are discussed in the following sections.

3.2 Gas Readings

Gas readings for oxygen, carbon dioxide, and methane are commonly measured at wells using instruments such as the Landtec ~~GEM500 and GEM2000~~.GEM or other similar measurement devices. These instruments only measure percentages of methane, oxygen ~~a~~and carbon dioxide. The remaining percentage of gas is the "balance gas". Typically the balance gas ~~i~~is nearly all nitrogen, and the terms balance gas and nitrogen, are sometimes used interchangeably when talking about landfill gas.

The concentration of these various gases at each wellhead is the primary indicator of how much vacuum should be applied at each gas collection location. Landfill gas typically contains approximately 40%-50% methane and 50%-60% carbon dioxide, with trace amounts of other non-methane organic compounds (NMOCs).

If the concentration of methane is high at a particular wellhead (>50%), then the volume of gas at that location may be greater than what is currently being collected, and the vacuum applied should be increased.

If the concentration of methane is less than 45%, the concentration of oxygen is above 1%, or the balance gas concentration is above 12%, ~~excessive air may be entering the landfill.~~these conditions may indicate air leaks in the wellfield components or excessive vacuum on extraction wells. The vacuum should be decreased and the location should be monitored again later that same day. If the conditions have not changed, or have gotten worse, the vacuum will be shut off at that gas collection point until an evaluation of the cause of the variance can be performed, and the issue corrected, as necessary. A diagnostic approach includes measuring and comparing gas component concentrations at the wellhead, lateral, and the main header line.

Please note that the gas quality will not change immediately after opening or closing the valve and must be measured the next day to assure accurate methane concentrations.

The following tables may be used as general guidelines for wellhead adjustments based on gas readings:

For Gas Collection Wellheads:

Balance Gases	Oxygen	Methane	Action
<10%	<5%	>45%	Normal/Optimal Range – No Action Required
10 – 20%	5 – 10%	35 – 45%	Possible Air Intrusion – Close valve by ¼ to ½ turns
>20%	10 – 20%	<35%	Condition Should be Avoided – Close Valve Completely

For Leachate Collection Cleanouts:

Balance Gases	Oxygen	Methane	Action
<5%	<1%	>45%	Normal/Optimal Range – No Action Required
5 – 15%	1 – 5%	35 – 45%	Possible Air Intrusion – Close valve by ¼ to ½ turns
>15%	5 – 20%	<35%	Condition Should be Avoided – Close Valve Completely

The tables above are provided as guidelines to help in determining required action. The landfill gas system operator may apply these guidelines based on site specific observations of the gas system performance.

3.3 Vacuum Readings

The vacuum readings are used to develop an understanding of the relationship between the flow rate and the vacuum applied. By measuring and recording the gas flows and vacuums at each well during various weather conditions, some trends related to the gas collection on the landfill can be observed. Drastic changes in these trends, such as reduced flow or a sudden spike in oxygen or balance gas, could be an indicator that there is a problem with the gas collection system (i.e. leak or blockage in a header pipe, water in the ~~out~~gas collection well, etc.) or an issue with the landfill itself (i.e. air filtration, landfill fire, diminishing gas production, etc.). Closer evaluation of the operation of the gas system is warranted if drastic changes occur in the operational trends of the system.

3.4 Temperature Readings

The temperature of the landfill gas at each wellhead can be an indicator of the amount of air infiltrating into the landfill. The temperature at a wellhead should remain relatively constant. If the temperature at a well increase sharply or exceeds ~~130° degrees~~131° Fahrenheit, excessive air may have infiltrated into the landfill, especially if the concentration of methane has decreased and/or balance gas has increased. An elevated temperature reading at a well requires immediate attention, since over time this situation increases the possibility of a landfill fire. The well should be shut down and an evaluation of the condition around the well should be performed as soon as practical after the elevated temperature reading is recorded. Corrective actions should be performed based on the results of the evaluation.

The following table provides general guidelines for actions based on temperature readings:

Temperature	Action
<125°F	Normal/Optimal Range – No Action Required
125°F - 131°F	Possible Air Intrusion – Close valve by ¼ to ½ turns
>131°F	Condition Should be Avoided – Close Valve Completely

3.5 Isolation Valves

Valves are located at several locations throughout the header system to provide the ability to isolate portions of the gas system for maintenance or repair. Through the use of these valves, portions of the gas system can be shut down while other portions remain in operation. When portions of the system are isolated, the balance of vacuum to the wells can be affected, and must be monitored closely to ensure that excessive vacuum is not applied to the individual wells.

Additionally, individual wells can be shut down by closing the valve on the wellhead. This can be useful when conducting preventative maintenance or making repairs to individual wells.

3.6 Condensate Collection

Condensate is a by-product of the extraction of gases from the landfill. At the pressure and temperature inside the body of the landfill, gases are typically saturated with moisture. Once released or extracted, these gases are subject to different environmental conditions (i.e. lower temperature and pressure) that result in condensation within the gas collection system.

If not properly managed, condensate can accumulate to the extent where it disrupts the flow of landfill gas from the landfill by blocking pipes. To avoid this problem, all gas collection header pipelines are designed to allow the condensate to flow to the condensate collection structures prior to entering the gas control unit. Condensate forming in the wells is pumped in to condensate return lines installed with the header and lateral pipes. The condensate return lines then pump or gravity drain condensate to the leachate collection system or to condensate drop-out structures which then gravity drain or pump condensate to the leachate collection system.

Pipelines off of the landfill are designed to have a minimum one percent (1%) slope and pipelines on the landfill are designed with a minimum five percent (5%) slope, to allow for settlement. Pipes will be installed at a slope greater than these minimum requirements wherever possible to allow easier

transmission of the condensate. Additionally, the pipes have been sized to allow the condensate to flow without affecting the gas flow capacity of the pipelines.

~~At the peak gas flow and maximum temperature change, it is estimated that less than a maximum of about 7,962 gallons per day (gpd) of condensate could be generated in the gas system (see the Engineering Report of the FDEP permit application document). The actual amount of condensate generated by the gas system will be dependent on system operations and seasonal temperatures, but should be less than 7,962 gpd.~~ The condensate collected at the gas control unit is designed to drain into condensate collection structures which then drain or pump the condensate to the existing leachate collection system.

~~3.7~~4 System Start-Up and Balancing

The gas system start-up and initial balancing of the system must be conducted carefully to maximize gas flow and prevent excessive vacuum at the gas extraction points. The system must be gradually balanced by adjusting the valves at the wellheads. Initially, the wellhead valves should be adjusted according to their distance from the gas control unit. Greater vacuum will be available at the wells nearer to the facility, and the valves on these wells should be opened less than the valves further away on the opposite side of the hill. In all cases, the wells should only be opened slightly at first, and should be monitored and adjusted daily until the readings stabilize on the landfill.

The monitoring of the wells will include measurements of methane, carbon dioxide, oxygen, balance gas, pressure, temperature, and flow rate. These readings will be utilized to make vacuum adjustments at the wellheads to balance the system. The startup phase of operation requires more frequent measurements and readings in order to initially "balance" the system. These readings are typically taken weekly and some may be taken daily during the initial balancing of the system. Once balanced, the system can enter performance testing which requires less frequent measurements and readings and is the normal operational condition of the gas collection system.

Due to a buildup of gases within the landfill, the flow rates of the system will be greater when the system is first operated or turned on after a system shut down. Once this positive pressure is eliminated and the system is balanced, the gas collection will equalize and remain relatively constant. Once the system is stabilized, flow rate measurements can be performed in accordance with normal performance testing.

~~3.8~~5 System Performance Testing during Normal Operations

Once the gas system is operational following startup and the system has been balanced to a steady state of gas collection, performance testing is necessary to ensure the proper operation of the system and to troubleshoot potential problems. Performance testing is an essential component in the efficient and safe operation of the gas system. Performance testing must be conducted routinely, and the results recorded in a permanent logbook and digitally in a spreadsheet or similar program. ~~Weekly~~Monthly measurements of the following parameters should be made at the wellheads:

- Temperature
- Vacuum
- Methane concentration

- Carbon dioxide concentration
- Oxygen concentration
- Balance gas concentration

~~Weekly~~Monthly measurements of the following parameters should be made at the inlet of the gas control unit:

- Gas flow rate
- Temperature at the knockout pot
- Methane concentration
- Carbon dioxide concentration
- Oxygen concentration
- Balance gas concentration

The following sections describe performance testing in more detail.

~~3.9~~5.1 Gas Component Measurements

The measurements of the following gas components at the wellheads are the principal parameters used to balance the gas system:

- Methane concentration
- Carbon dioxide concentration
- Oxygen concentration
- Balance gas concentration

Measurements of these components at the wellheads, following initial startup and tuning of the system, should be conducted at least ~~weekly and as often as daily~~monthly to make adjustments during ~~initial system start-up and balancing~~normal operation. The concentrations of these gases should also be determined at the ~~following locations at the gas control unit:~~blower/flare station.

- ~~The knockout pot inlet~~
- ~~The blower inlet~~
- ~~The control equipment~~

The methane production at each gas extraction point (i.e. wellhead) will change over time, requiring periodic adjustments in the vacuum applied to maintain optimal system efficiency. As discussed previously and provided in guidance tables, the gas component concentrations and temperature can be used to help determine adjustments.

~~Landfill gas typically contains approximately 40%-50% methane and 50%-60% carbon dioxide. If the concentration of methane is high at a particular point, then the volume of gas at that location may be greater than the gas being collected and the vacuum applied should be increased by slightly increasing the valve opening. If the concentration of methane is 45% or less, excessive air may be entering the landfill and the vacuum should be decreased at that wellhead by slightly closing the valve, while monitoring the gas flow rate. The gas quality will not change immediately after opening or closing the valve and must be measured the next day to assure accurate methane concentrations.~~

~~The oxygen concentrations should be less than 1% at the wellheads, while the balance gas should remain below 12%. Oxygen greater than 1% and/or balance gas levels above 12% may indicate air leaks in the wellfield components or excessive vacuum on extraction wells. If the data indicates that atmospheric air is entering the system, the cause must be evaluated by performing diagnostic readings and observations at the wellheads and access ports to determine the likely source. A diagnostic approach includes measuring and comparing gas component concentrations at the wellhead, lateral, and the main header line.~~

Visual, auditory, touch, and olfactory senses may be helpful in isolating wellfield air leaks. Leaks can sometimes be heard (hissing) or smelled ("the rotten egg" smell associated with hydrogen sulfide). However, smelling or hearing gas leaks does not replace regular gas monitoring as a way to determine if there are leaks in the gas system. Air leaks in a gas collection system are typically first noticed when a sudden spike in oxygen or balance gas is observed in the gas monitoring results.

~~3.10~~5.2 Temperature Measurements

~~Weekly~~Monthly measurements of temperature must be used in conjunction with the gas component measurements to determine the positioning of the wellhead valves. The temperature of the landfill gas at each collection point can be used as an indication of air infiltration into the landfill. The temperature at a wellhead should remain relatively constant and in no case reach ~~130~~131° degrees Fahrenheit. If the temperature at a wellhead increases sharply, excessive air may have infiltrated into the landfill, especially if the concentration of methane has decreased. This situation indicates an increased possibility of a landfill fire and requires immediate attention.

If elevated temperatures are observed at any well, it should be shut down and monitored for carbon monoxide, a common by-product of combustion activities such as landfill fires. Nearby wells should also be monitored for carbon monoxide to ascertain if subsurface activities are occurring in the area. A carbon monoxide concentration of 100 parts per million (ppm) is generally a good indication that a subsurface oxidation event (i.e. landfill fire) is occurring. Wells with elevated carbon monoxide readings should be shut down and monitored regularly until the readings are reduced.

In the event that carbon monoxide readings do not decrease, or increase and spread to other wells, the proper authorities, as listed in Section 6.0, will be notified of a potential landfill fire. Other signs of landfill fires are visible smoke, open flames, burning odors, wells that have melted, or subsidence of the landfill in localized areas. Excavation around the problem area should NOT be performed, since this would introduce additional fuel (oxygen) to the fire.

~~3.11~~5.3 Vacuum Measurements

Vacuum (negative pressure) measurements indicate the amount of vacuum being applied at each gas collection point. ~~Weekly~~Monthly measurements (in inches of water column) should be taken ~~during system balancing~~ at the wellheads, the inlet to the knockout pots, and the blower inlet and outlet. The results of the vacuum measurements could indicate possible problem conditions at these locations. Reduced wellhead vacuum may be indicative of a blocked lateral pipe or of a blocked or broken header pipe if the decreased vacuum occurs at two or more well locations. Isolated low vacuum conditions may be alleviated by repeatedly closing and opening the valve, thus surging the well. In many cases, a minor blockage can be alleviated by surging, followed by re-adjusting the flow to the established optimal performance level.

~~3.1~~25.4 Flow Rate Measurements

The flow rates measured in the gas system are used to determine individual well performance, and overall system performance. ~~During initial system balancing, the flow rate must be measured weekly and more often when valve positions are changed.~~ Typical well performance will be evident over time at each location. If the flow rate drops at a particular collection point, a blockage in the well or lateral line may exist.

~~Due to a build up of gases within the landfill, the flow rates of the system will be greater when the system is first operated or turned on after a system shut down. Once this positive pressure is eliminated and the system is balanced, the gas collection will equalize and remain relatively constant. Once the system is stabilized, flow rate measurements can be performed on a monthly basis, instead of weekly.~~

~~3.1~~35.5 Water Level/Well Depth Measurements

In some cases, perched water within a landfill can cause an extraction well to clog with water. This is not expected to occur at this site since the cover soil materials used in the past have been fairly permeable and each well is installed with a pneumatic pump. However, if blockage of an extraction well is suspected for any reason, a water level measurement should be taken to make sure that the well is not filled with water.

In cases where the performance of an extraction well deteriorates over time, water level measurements can be used to determine if water within a well is covering the perforated section of the well screen and inhibiting the free flow of gas to the well. An electronic water level indicator will be used for this purpose. Well depth measurements will be used to check for well blockages due to sediments from the waste. Even partial blockages of a well can affect its ability to effectively extract gases. Water level and depth measurements should be performed promptly at wells where a blockage due to liquid or sediments is suspected. The well heads have access ports that will allow insertion of a water depth indicator. Ensure that the well head valve is closed before opening the port and inserting the depth indicator.

~~The following procedure will be followed to measure the water level and total depth at the gas extraction wells.~~

1. ~~Close the valve on the wellhead of the well being measured.~~
2. ~~Remove the well cap or wellhead as necessary.~~
3. ~~Turn on the water level indicator and lower the probe down the well until the instrument signals.~~
4. ~~Determine the top of the water by slowly raising and lower the probe and observing the point at which the instrument signals relative to the well measuring point. Read the graduated scale on the instrument cable to the nearest 0.1 feet and record the reading in the logbook.~~
5. ~~Determine the total well depth by slowly lowering the water level probe (turned to off) to the well bottom. Record the depth at which the probe can no longer be lowered.~~
6. ~~Determine the length of perforated well pipe collecting gas by performing the following calculations: Subtract the depth to water from the total depth of the well to obtain the height of water within the well. Subtract the height of water within the well from the as-built total length of the perforate pipe to obtain the length of perforated pipe collecting gas.~~

Remedial actions for blockages in extraction wells due to excessive liquids or sediments will be determined on a case by case basis and can range from no action to installation of a permanent pump in

the well. The decision on whether remedial action is necessary will be based on various factors, such as the location and past productivity of the well, and proximity of the well to gas migration pathways from the landfill.

~~3.14~~5.6 Blower Maintenance

The blower system provides the vacuum that draws the landfill gas from the extraction wells, through the header piping, and through the condensate collection equipment. The blower system also pushes the gas ~~into~~to the ~~engine~~flare stack. Therefore, it is essential to the overall system performance that the blower system is functioning properly. Some of the more common maintenance items are listed below.

1. Bearing and motor lubrication.
2. Valve operation.
3. Pipe and valve leak detection
4. Tightness of connectors that could vibrate loose.
5. Electrical connections.

~~3.15~~5.7 Condensate System Maintenance

The condensate drop-out structures, such as sumps, knock-out pot, and condensate traps, act as moisture separators and allow any condensate that collects in the gas collection pipeline to fall out from the gas and be collected separately. As the gas enters the drop-out structure or knockout pot, it slows down and allows moisture to drop out and/or collect on baffles or mesh screens. The condensate then flows by gravity or is pumped to the existing leachate management system.

The condensate drop-out structures preceding the knockout pot ~~prior~~before the blower at the gas processing unit allows a majority of the condensate to drop out of the gas collection system before it reaches the gas control unit. ~~The condensate then flows through a vacuum trap/sump to avoid applying a vacuum to the existing leachate collection system. As condensate builds up in the trap/sump, it will reach the outlet elevation and drain to the leachate collection system. The drop-out structures are also designed for the temporary storage of condensate. This storage allows the gas system to continue to operate if the condensate flow to the leachate management system is interrupted for a short period of time.~~

Knockout pots typically incorporate a sight glass that allows observation of the level of condensate within the structure. Condensate should not build up within the knockout pot during normal operations. If condensate accumulates in the knockout pot, then the outlet of the knockout pot must be cleaned. If the vacuum required to pull the gas through the knockout pot increases over time, then the baffles within the knockout pot should be cleaned. An increase in the vacuum required to draw the landfill gas through the knockout pot is a good indicator that maintenance is required.

~~3.16~~5.8 Gas Extraction Wellhead Maintenance

During the routine performance monitoring, the following will be conducted at each wellhead in addition to the monitoring previously described:

1. Check valve operation.
2. Observe piping, valves, and fittings for leakage.
3. Check the well and pipelines for accumulated liquid and repair, as necessary.

4. Check borehole seal and the condition of the landfill surface around the well.

The wellheads shall be operated and maintained in accordance with the manufacturer's specifications and operational instructions. If any problems are found at the wellheads, wells, or nearby pipeline, repairs shall be initiated at that time, if possible. ~~If the repairs require the use of additional materials, equipment, or labor, the Solid Waste Operations Manager shall be notified and the materials, equipment, and/or labor shall be made available to perform the repairs.~~ In any case, all repair activities shall be recorded in a logbook and on the well data spreadsheet prepared by the wellfield operator.

46 CONDENSATE MANAGEMENT PLAN

Condensate will be conveyed through the gas collection system and collected at condensate drop-out structures located ~~through out~~throughout the gas collection system and also at the knockout pot prior to the blower at the gas control unit. The condensate will either drain or be ~~drained~~pumped from the condensate collection trap/sump and gas control unit into the existing leachate collection system for disposal. Condensate will be collected for sampling from the condensate drop out structure (Sump S-4) located just prior to the knock out pot at the Landfill Gas Control Unit.

According to calculations performed for this site, about 7,962gallons per day of condensate is expected to be collected from the gas system during peak gas generation (year 2054). This equates to only about 5.5 gallons per minute from the entire gas collection system. This minimal amount of condensate from the gas system will not significantly impact the operations of the leachate collection and storage system, even at peak discharge.

~~5~~7 STAFFING PLAN

Sarasota County will provide adequate staff to perform the operations detailed in this plan.~~The gas system will require only routine maintenance once it is operating and balanced. Personnel assigned to the gas system will be principally concerned with routine system performance monitoring and maintenance. One technician should be devoted for approximately 8 hours per week to these duties. Additional manpower may be necessary for the initial balancing of the system. The startup, operation, and maintenance work associated with the gas system will be managed and directed by Sarasota County Solid Waste Operations Unit. Operational data and results of monitoring will be complied on a monthly basis, and more often for non-routine issues, as necessary. Any modifications, major repairs, or operational problems prior to performing any activities on the landfill shall be reported to the Solid Waste Operations Manager.~~

68 CONTINGENCY PLAN

~~6.1~~8.1 Fire Control

Please refer to ~~the~~ Attachment K-2 of the CCSWDC Operations Plan. ~~for the Landfill, as this attachment pertains solely for the Operations and Maintenance of the Landfill Gas Collection and Control System.~~

~~As with any emergency, the first thing to do is to immediately notify the proper emergency response team. In case of FIRE, immediately notify the Fire Department through the emergency phone number~~

~~991. Remember, if you are calling from a phone that is connected to the County phone system you must dial 9-911 to reach the emergency operator.~~

~~If the office or one of the scale houses 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. An Automatic Defibulator (AED) for CPR emergencies is located in the Landfill Administration Office.~~

~~The gas collection and control system will be shut down in the event of a fire at the gas control unit or on the landfill.~~

~~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 can be found in every Solid Waste Operations vehicle, on every piece of heavy equipment, and in buildings located throughout the landfill site. Landfill fires can be very dangerous due to the presence of methane, a combustible gas. Fire fighting by onsite personnel should only be attempted against relatively small and controllable 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 K.11.e of the Operations Plan shall be followed.~~

~~Procedures for handling fires must be posted at an appropriate location on site and must include names and telephone numbers of authorities to be called during an emergency. The FDEP's Southwest District, Solid Waste Section, and local police and fire departments must be notified whenever and fire, smoldering, or smoking materials are discovered at the site. Any activities shall be suspended in the vicinity of smoldering, smoking, or burning areas. Any disruption of the finished grade or covered surface as a result of fire fighting activities must be repaired or replaced immediately upon termination of the fire fighting activities.~~

~~6.2~~8.2 Wellfield Repairs

Over time, damage to the wellfield components of the gas collection system will occur due to aging equipment, accidental damage during landfill operations, or due to weather conditions. Damage to the wellheads or collection pipelines will usually result in fluctuations of the gas readings at the wellheads and/or at the gas control unit. Based on the gas monitoring results from the wellfield, the problem areas will be identified and repaired as quickly as possible after the problem is observed. Under normal conditions, broken seals or disconnected wellheads will not cause enough disruption to the gas concentrations to require the ~~engines~~flare and collection system to shut down. The valve on the wellhead

can be shut off to minimize air infiltration into the gas system. Then, repairs can be made at the well while the collection system continues to operate.

However, if the damage to the collection system is substantial enough to make the gas from the landfill unusable in the flare (due to high oxygen or low methane concentrations), the gas control unit will be shut down until repairs can be made. When the gas control unit is shut down, gas will not be allowed to vent to the atmosphere through the gas collection system where the final cover system has been installed. In the event that the gas control unit is shut down for an extended period of time, the Kkanaflex hose at each well head will be disconnected. The control valveue for each well head will also be fully turned to the open position. In areas where the final cover system has not been installed, landfill gas will vent to the atmosphere. Prior to bringing the gas control unit online, the Kkanaflex hose should be reconnected at each well head. Once the gas control unit is brought back online, the gas system will need to be balanced as provided Section 3.2.discuss in previous sections of this plan.

The main valve at the gas processing unit, located prior to the blowers, will automatically close if the gas control unit is shut down for any reason (maintenance, power outage, severe weather, engine malfunction, etc.). This is the only valve that will be closed during shutdowns. Shutting the main valve effectively contains the gas in the collection system, since the system is closed off from the atmosphere. Gas can and will build up in the gas collection system on the landfill side of the closed valves, as well as in the landfill. Excess gas will vent to the atmosphere through the landfill and well field as it does today withoutcover in those areas of the gas system in place,landfill that have not received a final cover system with liner until the system is brought back online. For those areas that have a lined final cover, in extreme instances where the landfill gas system will be offline for more than 24 to 48 hours, the gas well head caps may be removed to allow the gas wells to vent to the atmosphere.

The gas system has been designed with a loop system to allow the collection of gas from a majority of the landfill, even when one section is isolated and closed for repairs. This is accomplished by shutting off valves on the main headers and laterals to isolate sections of pipeline from the vacuum applied to the system. If sections of pipe are to be isolated in this way for an extended period of time, such as a day or more, gas readings should be taken at each well and the wellheads adjusted accordingly, since the vacuum will be distributed differently through the collection system.

6.38.3 Condensate Collection

A condensate dropknock-out structurepot located prior tobefore the gas control unit has been designed into the system to collect as much condensate as possible before the gas enters the gas control unit. The condensate drop-out is designed to hold as much as 200 gallons of condensate as a contingency, in case blockages or other problems occur in the condensate drainage system.

6.48.4 Natural Disasters

Please refer to Attachment K-2 of the CCSWDC Operations Plan. The County's Hurricane Preparedness manual will serve as the emergency procedures for hurricanes and other natural disasters. Additionally, in the event that the site is evacuated, the gas collection and processing systems will be shut down and the area will be secured. Any items that could become windborne and cause damage to structures, equipment, or emergency personnel will be secured.

~~7~~9 CONSTRUCTION PLAN

~~7.1~~9.1 Documentation

During construction, careful documentation must be maintained by the contractor and verified by an experienced construction inspector. The information to be gathered as the system is constructed includes the following:

- Extraction well locations and construction details, including borehole logs and well construction diagrams for all gas extraction wells (existing and proposed);
- Pipe sizes and types;
- As-built pipe and appurtenance locations, elevations, and slope verifications;
- Pressure testing of installed solid pipes at 10 psi for one hour (no drop in pressure allowed);
- Documentation of installation, operation, and maintenance procedures for all items supplied by the contractor; and
- As-built drawings for all materials installed.

At the completion of the construction phase of the project, a professional engineer's certification must be submitted to the FDEP in accordance with F.A.C. 62-701.310(9)(a).

~~7.2~~9.2 Construction Contingency Plan

~~7.3~~9.2.1 Health and Safety

Performing construction work on and around a landfill requires adherence to certain precautionary measures to ensure the safety of all workers. The contractor must develop and maintain a Health and Safety Plan that meets or exceeds minimum regulatory requirements and procedures. The contractor must have supervisory personnel on-site to monitor construction activities and to assess the environmental condition of the workspace. The personnel will be responsible for establishing the hazard level of the workspace and establishing hazard level classifications for different areas of the site for the contractor.

Since the project involves excavation of landfill cover materials and previously deposited solid wastes, the progress of the work should be observed to provide an indication of potential problems. The excavations should be limited to a depth necessary to install the structures and provide the desired slope on the piping systems.

Workers must undertake all necessary safety precautions and comply with all provisions of federal, state, and local safety laws, regulations, and codes to prevent accidents and injury to personnel in the vicinity of the work area.

The contractor must inform his personnel that the construction site is a landfill and that inherent dangers exist. Workers must be required to utilize appropriate personnel protective devices and to observe safe working practices. Smoking is strictly prohibited at the work site.

Workers must be advised of the hazards associate with the work to be accomplished. Of particular concern are physical hazards associated with heavy equipment and excavations, and hazards of landfill gasses including methane, carbon dioxide, hydrogen sulfide, volatile organics, and any other known or

suspected gas or vapor which may be encountered. Precautions must be taken based upon known or suspected hazards.

The contractor must designate a Site Health and Safety Officer. The Health and Safety Officer should be trained in the use of gas detection instruments, safety equipment, and health and safety procedures associated with the work conducted. The Health and Safety Officer should be present at all times when construction work is being conducted and periodically monitor the atmosphere within the breathing zone of the workers. At a minimum, the Health and Safety Officer should monitor the concentration of oxygen, the percent of the lower explosive limit for methane, and hydrogen sulfide.

Welding will not be permitted in trenches or other enclosed spaces unless properly performed over ground mats and approved by the Health and Safety Officer.

As construction progresses, valves, pipe, and other openings must be closed as soon as possible after installation to prevent gas migration though the pipeline network and to prevent foreign material from entering.

Excavation and boreholes greater than two feet in depth may not be left unattended unless covered. Storm water must be prevented from entering excavation and boreholes. Extreme caution must be exercised if manholes or other types of vaults must be entered. Confined space entry procedures must be strictly adhered to. Fire extinguishers rated at least A, B, and/or C should be readily available at the work area.

Construction equipment should be equipped with vertical exhaust and spark arrestors. Spark arrestors may not be required if motors are powered by diesel fuel. Motors used in excavated areas should be explosion proof. Start up and shut down of equipment should be conducted outside of excavations. Soil stockpiles should be situated in the vicinity of work areas for ~~fire fighting~~firefighting purposes. Refuse excavated during construction will be containerized or disposed of at the active landfill face and covered by the end of the day with at least six inches of soil.

The Contractor shall comply with Safety and Health Regulations for Construction, promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act, as set forth in Title 29, C.F.R. Copies of these regulations may be obtained from the Labor Building, 14th and Constitution Avenue N.W., Washington, DC 20013.

The Contractor shall also comply with the provisions of the Federal Occupational Safety and Health Act, as amended.

~~7.4~~9.2.2 Spoils Disposal and Handling

Spoils from excavation areas below the final cover and in areas where final cover has not been installed must be treated and handled as solid waste. This means all special handling procedures associated with normal landfill operations must be adhered to and all necessary protective clothing (hard hats, coveralls, gloves, etc.) should be worn by working personnel.

The spoils must be inspected as they are removed from the excavation to assess workspace conditions and to assure proper management of the spoils. Spoils that are deemed inappropriate for disposal at the active face of the landfill must be segregated and containerized. The FDEP and local fire department must be

notified upon the discovery of suspected hazardous materials prior to arranging for proper off-site disposal.

Spoils from the construction activities on the landfill which are comprised of municipal solid wastes must be taken from the working area to the active face of the landfill, on an as needed basis, but at least daily. During well drilling activities, spoils will be brought to the active face frequently and mixed with new waste materials. This is done to help minimize the affects of odors associated with the older waste.

~~7.5~~9.2.3 Emergency Situations

All personnel working on the landfill must be informed of the location of the closest medical facility and the telephone numbers for the local police and fire departments, and the local ambulance service. A list of emergency telephone numbers is provided in the Operations Plan for the CCSWDC. ~~below.~~

~~Ambulance Service 911~~

~~Police Department 911~~

~~Fire Department 911~~

~~CCSWDC Administration Building (941) 861-1573~~

~~Main Switchboard Sarasota County Government (941) 861-5000~~

~~Dept. of Environmental Protection (813) 632-7600~~
~~Southwest District~~

~~**Remember, if you are calling from a phone, which is connected to the County's switchboard, you must dial 9 then 911 to reach the emergency operator.**~~

~~7.6~~9.3 System Decommissioning

The gas system can be relatively easily decommissioned if the system sustains irreparable damage or the gas system is no longer needed to manage gases from the landfill. To safely and properly decommission the gas system, the following tasks will be performed.

1. Shut down the gas control unit and appurtenant equipment.
2. Open the in-line control valve at each gas well to allow gases still in the gas system to passively vent to the atmosphere and relieve residual pressure in the system.
3. Locate the inlet pipe to the blower. Once located, this pipe will be cut and sealed.
4. Measurements will be taken to be sure the location can be re-established in the future.
5. Disassemble and remove the gas processing equipment.
6. Disassemble yard piping at the gas control unit. Remove the gas processing equipment from the support base as needed for salvage or disposal.
7. Remove the disassembled equipment from site for salvage or disposal.
8. If gas collection is no longer necessary, reconstruct gas wellhead assemblies to allow passive venting.

810 ENVIRONMENTAL MONITORING

~~8.1~~ Landfill Gas Sampling and Testing

Additional source testing may be performed after the gas system is operational, to characterize the quality of the gas generated by the landfill. This testing is different than the routine monitoring of the wellheads and the inlet of the gas control unit discussed in Section 3.3, which includes taking readings for temperature, methane, oxygen, carbon dioxide and balance gas. The objective of this testing is to monitor the constituents and combustibility of the landfill gas at the inlet to the gas control unit. Testing could include measuring the concentration of volatile organic compounds, nitrogen, hydrogen sulfide, other sulfides, siloxanes, and other parameters, as necessary.

~~8.2 Condensate Sampling and Testing~~

~~Condensate samples will be taken at the locations and frequencies specified in the CCSWDC Operations Permit. The samples will be analyzed by a Florida certified laboratory for the parameters specified in the permit.~~

11 RECORDKEEPING AND REPORTING

Reports and records pertaining to the gas collection system including the information reported and collected as part of Title V EPA and FDEP requirements or other agency permitting requirements, will be maintained in accordance with the provisions provided in Section K.3 and K.13 of the CCSWDC Operations Plan.

ATTACHMENT K-~~11~~10

FDEP APPROVAL LETTER FOR LEACHATE REUSE

SOLID WASTE OPERATIONS
JAN 2 8 2000
RECEIVED

D.E.P.
JAN 14 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
Solid Waste Operations Manager

GLB:lh
Attachment
c: Anita Largent, General Manager, Solid Waste
Stephen Barton, WM/Englewood Disposal Company
Robert J. Buteri, P.E., Florida Department of Environmental Protection, Tampa
Ed Norris, Sarasota Landfill Management

ENVIRONMENTAL SERVICES, Solid Waste Operations • 4000 Knights Trail Road, Nokomis, FL 34275
Tel 941-486-2600 • Fax 941-486-2620

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

SOLID WASTE OPERATIONS
JAN 20 2000
RECEIVED

asota 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.

ATTACHMENT K-1115

PHASE II TEMPORARY GAS VENT INFORMATION

HDR | ONE COMPANY | *Many Solutions*

September 16, 2009

Mr. Steve Morgan
Florida Department of Environmental Protection
Southwest District
13051 N. Telecom Parkway
Temple Terrace, FL 33637

Re: Central County Solid Waste Disposal Complex (CCSWDC)
Phase II Expansion
Permit No.: 130542-006-SC/01
Bottom Liner Temporary Gas Vent Installation

Dear Steve:

As requested during our phone conversation earlier today, this letter discusses the proposed installation of temporary gas vents within a portion of the Phase II landfill expansion area. Areas near the Cell 2/Cell 3 interface of Phase II have exhibited gas bubbles accumulating beneath the recently installed bottom liner system. The gas pressure has led to visible lifting of portions of the protective cover over the liner system. Several of the locations have been already been vented and repaired, however, the gas generally accumulates again after the repairs are made. Analysis of the gas indicates it is naturally occurring methane and not landfill gas.

The attached sketch illustrates the proposed temporary vent design and installation instructions. The vents consist of short lengths of perforated 4-inch diameter polyethylene pipe inserted beneath the liner system and connected to a riser pipe with a tee. The riser pipe will extend 2 feet above the protective cover soil and will be perforated above the protective cover soil to allow the gas to escape. An 18-inch diameter section of open-ended polyethylene pipe will be centered over the vent to protect it. Currently we estimate a maximum of approximately 6 vents will be installed although we hope this number can be reduced based on field observations after the initial vents are installed.

The vents will be removed prior to the placement of waste in the area. CQA will be provided during vent removal to verify that all pipes are removed, all geosynthetic layers are properly patched, and that a minimum of 2-feet of protective cover soil is placed over the patched area.

We understand that you will require a minor modification for the temporary gas vent installation. Since the geosynthetics installer is going to be demobilizing from the site very soon, we would appreciate your expedited review of this proposal so the County can install the vents without incurring a remobilization charge.

Please do not hesitate to contact us if you have any questions during your review.

HDR Engineering, Inc. of the Carolinas
3733 National Drive
Suite 207
Raleigh, NC 27612-4845
Phone: (919) 785-1118
Fax: (919) 785-1187
www.hdrinc.com

Sincerely,

HDR Engineering, Inc.

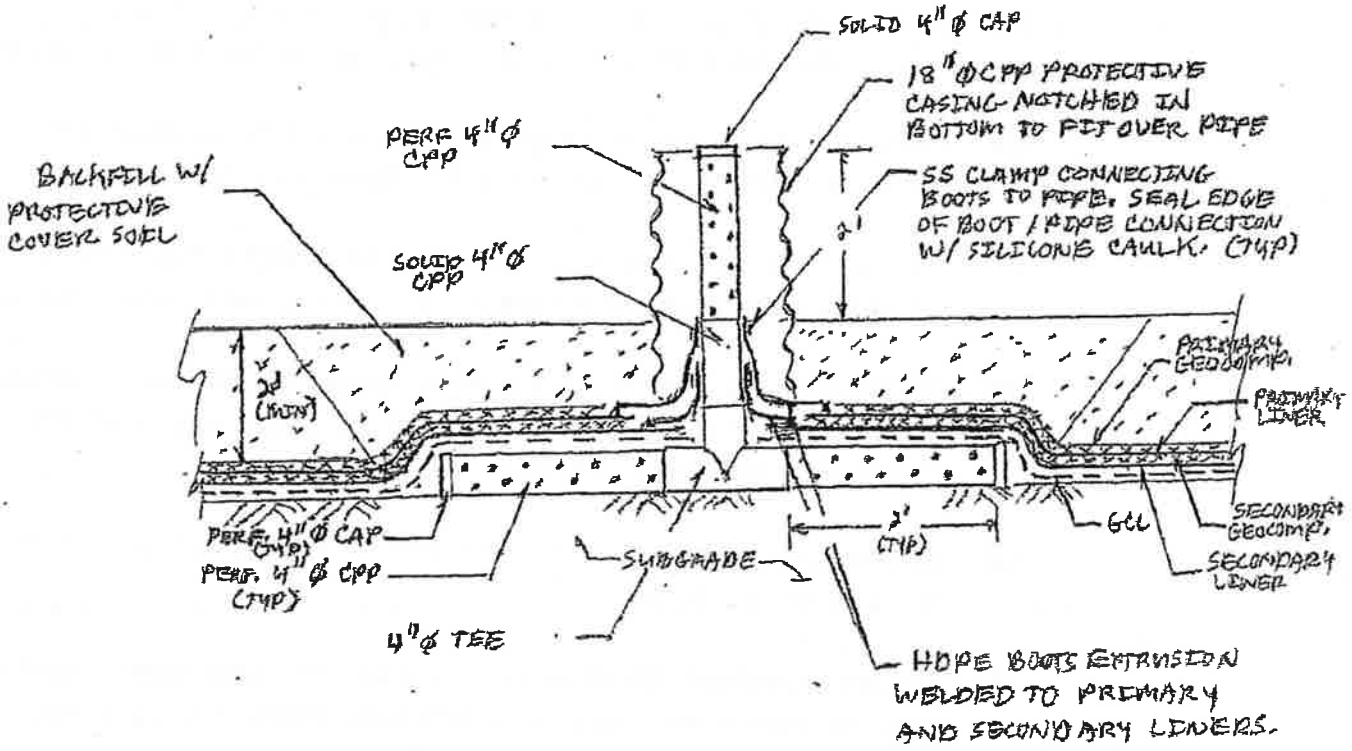
Thomas M. Yanoschak, PE, BCEE
Senior Project Manager

Enclosures as noted.

cc: Gary Bennett, Sarasota County
Frank Coggins, Sarasota County
Spencer Anderson, Sarasota County
Jack Gibson, Sarasota County
Rich Siemering, HDR
Joe Readling, HDR

HDR | ONE COMPANY *Many Solutions*®

Project: CCSWNC	Computed: TMH	Date: 4/10/09	
Subject: phase II	Checked:	Date:	
Task: Gas Vent	Page: 1	of: 2	
Job #:	No:		



TEMPORARY GAS VENT DETAIL

NTS.

NOTE: ALL PIPE AND BOOTS TO BE REMOVED, GEOSYNTHETICS REPAIRED, AND MIN. 2' PROTECTIVE COVER SOIL REPLACED PRIOR TO THE PLACEMENT OF WASTE WITHIN OR NEAR THE VENT AREA.

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Project:		Computed:	Date:
Subject:		Checked:	Date:
Task:		Page: 2	of: 2
Job #:		No:	

TEMPORARY GAS VENT CONSTRUCTION SEQUENCE

1. EXCAVATE PROTECTIVE COVER SOIL TO EXPOSE MIN. 2'x5' OF PRIMARY GEOCOMPOSITE OVER GAS BUBBLE.

2. CUT APPROX. 12" Ø HOLE THROUGH EACH LAYER OF GEOSYNTHETICS AT CENTER OF EXPOSED AREA.

3. INSERT 2 - 2' LENGTHS OF PERFORATED 4" Ø CPP W/ CAPS ON FAR ENDS BETWEEN GCL AND SUBGRADE PER DETAIL.

4. INSERT 4" Ø CPP TEE THROUGH HOLE IN GEOSYNTHETICS AND CONNECT PERFORATED PIPE TO TEE PER DETAIL. ORIENT SIDE-OUT OF TEE VERTICAL.

5. CONNECT APPROX. 1.5' LENGTH OF SOLID 4" Ø CPP TO SIDE-OUT OF TEE.

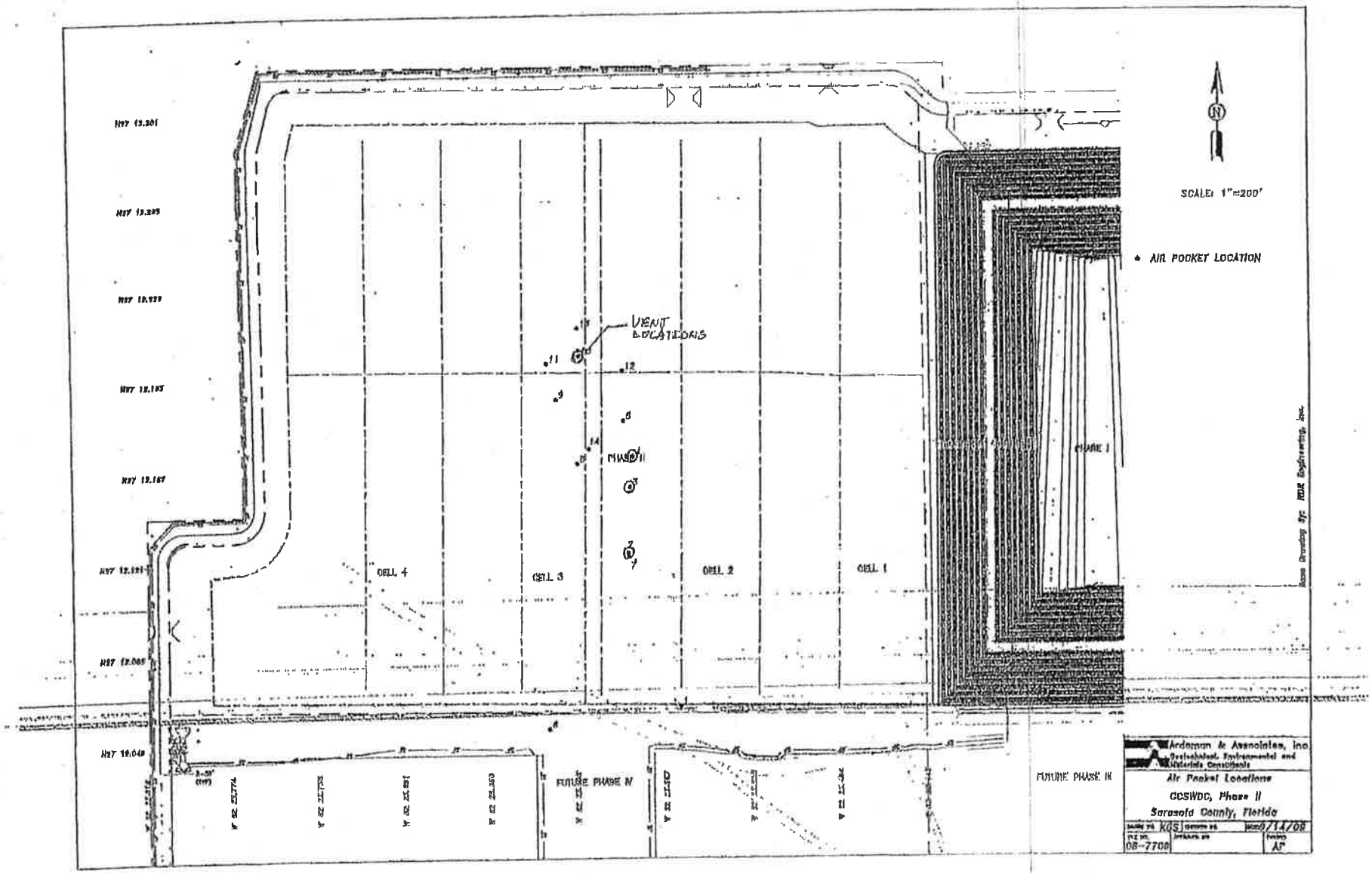
6. FABRICATE BOOT EXTRUSION WELDED TO SECONDARY HDPE LINER AND CONNECTED TO VERTICAL PIPE W/ SS CLAMP AND SEALED W/ SILICONE CAULK.

7. FABRICATE BOOT EXTRUSION WELDED TO PRIMARY HDPE LINER AND CONNECTED TO VERTICAL PIPE SAME AS ABOVE.

8. CONNECT PERF. 4" Ø CPP TO VERTICAL SOLID PIPE TO EXTEND APPROX. 2' ABOVE PROTECTIVE COVER SOIL. ATTACH SOLID CAP TO END OF PIPE.

9. CENTER 18" Ø CPP PROTECTIVE CASING OVER VERTICAL PIPE. NOTCH OUT BOTTOM OF CASING TO FIT OVER BOOTS / PIPE.

10. BACKFILL OVER PIPE AND AROUND PROTECTIVE CASING W/ MIN. 2' OF PROTECTIVE COVER SOIL.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AIR POCKET LOCATION
VENT LOCATIONS
PHASE II
PHASE I
CELL 4
CELL 3
CELL 2
CELL 1
FUTURE PHASE IV
FUTURE PHASE III
Ardaman & Associates, Inc
Geotechnical, Environmental and Materials Consultants
Air Pocket Locations
GCSWDC, Phase II
Sarasota County, Florida
KGS
7/14/08
08-7700
AP

~~ATTACHMENT K-12~~

~~LANDFILL RECYCLING PLAN~~

ATTACHMENT K-12

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.

Bagged yard waste shall not be mulched at the site unless the bags are removed prior to mulching.

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 tub 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.

Any unprocessed yard trash will be removed from the facility within six months, or within the period required to accumulate 3,000 tons or 12,000 cubic yards, whichever comes first. Processed yard trash will be removed or marketed within 18 months. Yard waste shall be managed in accordance with the facility's yard waste processing facility registration and Rule 62-709.320, F.A.C.

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. White goods that have had fluids and/or refrigerant removed from them will be clearly marked.

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.

A maximum of 1,250 (total) white goods and lawn mowers may be stored at the site at any time. The white goods shall be removed from the site at least monthly (every 30 days).

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 processing waste tires at the site for disposal. Waste tires are processed to produce tire chips for use as an alternate daily cover material or as a drainage media for the leachate recirculation trenches.

Waste tire shall be managed in accordance with Permit NO. 126775-003-WT/02.

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.

The maximum quantities of C&D wastes that may be stored at the site, and the schedule for removal from the site, shall be as required under Waste Processing Facility Permit No. 134912-004-SO/31.

BATTERIES

Waste lead-acid batteries are removed from the working face of the landfill and temporarily stored at the 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.

A maximum of 30 lead acid batteries may be stored on-site at any time. Lead acid batteries shall be removed from the site at least monthly (every 30 days).

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 the Citizens Convenience Center until collected by the recycler.

Two 500 gallon containers are provided for storage of waste oil at the Citizens Convenience Center. Waste oil shall be removed from the site at least monthly (every 30 days).

LAWN MOWERS

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, computer and monitors are collected for recycling and stored on a concrete pad until collected and removed from the site by a recycling contractor.

A maximum of 1,000 electronic devices may be stored at the site at any time. Electronics, either damaged or undamaged, shall be removed from the site at least monthly (every 30 days).

~~ATTACHMENT K-13~~

~~REVISED STAGING PLAN AND SECTIONS SHEETS~~

~~(SHEETS C-07 THROUGH C-11 AND FILL SEQUENCING SHEET 45)~~

~~(Under Separate Cover)~~

~~ATTACHMENT K-14~~

~~LFGCCS OPERATION AND MAINTENANCE PLAN~~

~~ATTACHMENT K-16~~

~~RAIN COVER SPECIFICATION~~

ATTACHMENT D

WATER QUALITY MONITORING PLAN

AND

MONITORING PLAN EVALUATION REPORT

Sarasota County
Solid Waste Operations

Central County Solid Waste Disposal Complex Water Quality Monitoring Plan

September 10, 2013

WATER QUALITY MONITORING PLAN

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY, FLORIDA
WACS ID No: SWD/58/51614
September 10, 2013

Prepared From:

Document entitled "Ground Water Monitoring Plan Addendum," prepared by SCS Engineers, dated June 28, 2002, with revisions dated July 24, 2002 [Section 2 – Leachate Sampling Parameters] and September 16, 2002 [Appendix A], received June 28, 2002, July 29, 2002, and September 20, 2002
SCS Engineers, 3012 U.S. Highway 301 North, Suite 700, Tampa, Florida 33619

"Revisions to Section 4.0 of the SCS document" – dated February 22, 2007
PBS&J, 428 South Keller Road, Orlando, Florida 32810-6101

"Water Quality Monitoring Plan Addendum" – April 23, 2009
HDR, 5426 Bay Center Drive, Suite 400, Tampa, Florida 33609-3444

"Water Quality Monitoring Plan Addendum" – dated July 2010
HDR, 5426 Bay Center Drive, Suite 400, Tampa, Florida 33609-3444

"Geotechnical Services: Soil and Groundwater Sampling Analysis, Sarasota County Central Landfill, Sarasota County, FL" dated July 12, 2010, Dunkelberger Engineering and Testing, Inc., 8260 Vico Court, Unit B, Sarasota, Florida 34240

"Natural Attenuation With Monitoring Plan" - dated August 2010, Innovative Waste Consulting Services, LLC (IWCS) and PBS&J, 6628 NW 9th Boulevard, Suite 3, Gainesville, FL 32605

"Background Groundwater Quality Assessment" - dated October 4, 2011, IWCS and Atkins, 6628 NW 9th Boulevard, Suite 3, Gainesville, FL 32605

This Water Quality Monitoring Plan was developed from information contained within the documents listed above at the request of the Florida Department of Environmental Protection (FDEP). During a meeting held on July 17, 2013, FDEP personnel requested that the Water Quality Monitoring Plan be updated and included with the facility's permit renewal application. Each of the documents were signed and sealed by a registered professional geologist or professional engineer prior to submittal to the Florida Department of Environmental Protection. During the meeting, it was noted that sampling and analysis of landfill leachate and gas condensate would no longer be required at this facility, so sampling of these liquids is not part of this Water Quality Monitoring Plan.

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ATTACHMENTS

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A	FDEP Form 62-701.900(30) – Monitoring Well Completion Report
B	FDEP Form 62-701.900(31) – Water Quality Monitoring Certification

SECTION 1.0

INTRODUCTION

The Florida Department of Environmental Protection (FDEP), Permit Number S058-299180 to operate the Central County Solid Waste Disposal Complex was issued to the Sarasota County Solid Waste Operations on July 30, 1997. Operation of the landfill began on June 15, 1998. Since this date, the original permit expired and the landfill has been further developed to include an additional Phase, know as Phase II. The current permit for the operation of the landfill is Permit Number 130542-0007-SO/01. It was issued on November 18, 2008 and expires on November 18, 2013. This document is being provided as a submittal to be included with the permit application to renew the permit.

As specified by 62-701.510(2), F.A.C., the permittee shall provide FDEP with a Water Quality Monitoring Plan (WQMP) for the landfill site that describes the ground water and surface water monitoring systems. This document satisfies this requirement.

SECTION 2.0

GROUNDWATER

2.1 MONITORING AND PIEZOMETER WELLS

The standard Solid Waste Facility groundwater monitoring program consists of collecting groundwater samples from the locations listed in Table 2-1. A separate, but related, Natural Attenuation Monitoring groundwater program is discussed below in Sections 2.4 and 2.5 that will fulfill the requirements of Consent Order 08-1728.

The standard monitoring program includes sampling one background well and nine detection wells. All of the monitoring wells are installed in the surficial aquifer. There are no intermediate aquifer (permeable beds of the Hawthorn Group) or Floridan aquifer monitoring wells used as part of the groundwater monitoring program.

Monitoring wells MW-3 and MW-5 are inactive, but are used for water level measurements. These wells are included in the groundwater monitoring program for water level data collection only. Compliance wells CW-8A, CW-9, CW-10R, CW-15, and CW-16 will be converted to piezometers, and will be used only for water level measurements.

Due to poor siting and access issues, MW-18, MW-19, and MW-20 will be abandoned. MW-18 will be replaced with a new well, MW-18R. CW-19 and CW-20 will be re-named as MW-19A and MW-20A, respectively, and will be used as detection wells. Replacement monitoring well MW-18R will be installed as discussed in Section 2.2. Monitoring wells MW-18, MW-19, and MW-20 will be abandoned as discussed in Section 2.2.

Figure 1 shows the monitoring well locations.

TABLE 2-1. GROUNDWATER MONITORING WELLS AT CCSWDC

Well Number	WACS ID#	Aquifer Monitored	Purpose	Comments
MW-1R	20585	Surficial	Background	MW-1 replaced due to groundwater level not in screen
MW-3	4503	Surficial	Piezometer	Used for water level elevation only
MW-5	4505	Surficial	Piezometer	Used for water level elevation only
MW-8A	21453	Surficial	Detection	MW-8 replaced due to groundwater level not in screen

Well Number	WACS ID#	Aquifer Monitored	Purpose	Comments
MW-9	4509	Surficial	Detection	Phase I
MW-10R	4510	Surficial	Detection	MW-10R was a replacement well for MW-10 - May 1996
MW-15	23031	Surficial	Detection	Phase II
MW-16	23032	Surficial	Detection	Phase II
MW-17	23033	Surficial	Detection	Phase II
MW-18R	TBD	Surficial	Detection	Phase II – replacement for MW-18
MW-19A	27140	Surficial	Detection	Phase II – replacement for MW-19 (formerly CW-19)
MW-20A	27141	Surficial	Detection	Phase II – replacement for MW-20 (formerly CW-20)

TBD = to be determined

2.2 MONITORING WELL INSTALLATION, DESIGN AND ABANDONMENT

Monitoring wells shall be constructed as shown on Figure 2, Typical Groundwater Monitoring Well. Record drawings for all newly installed groundwater monitoring wells shall be submitted to the FDEP on Form 62-701.900(30), Monitoring Well Completion Report, Attachment A.

An initial sampling event shall be conducted within seven (7) days of well installation and development, for the analysis of the field and laboratory parameters currently required by the facility permit.

All groundwater monitoring wells shall have protective bollards or other devices installed around them if they are located in areas of high traffic flow in order to prevent damage to the well. Wells shall be clearly labeled, visible and locked when not in use, in order to minimize the potential for unauthorized access.

FDEP shall be notified in writing when any monitoring well is damaged or site conditions require a well to be abandoned. All wells shall be plugged so that they do not act as a conduit for leachate release to the groundwater.

2.3 MONITORING WELL SAMPLING AND ANALYSIS

FDEP shall be notified 14 days prior to conducting any routine sampling event, so that the Department may collect split samples. This routine sampling applies to MW-1R, MW-8A, MW-9, MW-10R, MW-15, MW-16, MW-17, MW-18R, MW-19A, and MW-20A.

Groundwater monitoring wells are sampled semi-annually for the following parameters:

Field Parameters

- Static water level before purging
- Specific conductance
- pH
- Dissolved oxygen
- Turbidity
- Temperature
- Colors and sheens by observation

Laboratory Parameters (Unfiltered)

- Total ammonia-nitrogen (Ammonia-N)
- Chlorides
- Nitrate
- Sulfate
- Total Dissolved Solids (TDS)
- Iron
- Manganese
- Mercury
- Sodium
- Those parameters listed in 40 Code of Federal Regulations (CFR) Part 258, Appendix I

Groundwater elevations will be measured at all active wells and piezometers during all sampling events to a precision of 0.01 foot. The water surface contour maps prepared for each sampling event will include ground water elevations (measured in feet NGVD) calculated for each well and piezometer well. In addition to the water level measurements taken from the groundwater monitoring wells, surface water elevations shall also be measured at the staff gauge locations listed in Table 2-2 for each sampling event. A water table surface elevation contour map shall be prepared for each set of water level measurements and submitted to FDEP for all routine ground water sampling events and monitoring plan evaluation reports. Figure 1 shows the location of staff gauges.

TABLE 2-2. STAFF GAUGE LOCATIONS AT CCSWDC

Gauge Name	Location
STW-1	Storm Pond 1
STW-2	Storm Pond 2
STW-3	Storm Pond 3
STW-4	Storm Pond 4
STW-5A	Storm Pond 5, west side
STW-5B	Storm Pond 5, east side
STW-6	Storm Pond 6
STW-7	Storm Pond 7

2.4 NATURAL ATTENUATION MONITORING WELLS

Between 2008 and 2011, a series of studies were conducted to determine the causes of elevated iron, ammonia, and arsenic concentrations in the groundwater at this facility. The studies are summarized in the above-referenced documents: "Natural Attenuation With Monitoring Plan" and "Background Groundwater Quality Assessment", which are on file with the FDEP. The studies recommended that natural attenuation with monitoring should be used as the site rehabilitation approach for this facility. The studies indicated that the elevated concentrations of arsenic, ammonia, and other constituents were the result of reductive dissolution conditions created in the site's groundwater by development of the landfill property. The studies noted that the reductive dissolution conditions should be reversed as the groundwater flows through the undeveloped portions of the property. The FDEP agreed, in principle, with the findings of these studies, and Natural Attenuation Monitoring was discussed at the July 17, 2013 meeting between Sarasota County Solid Waste staff and the FDEP. The proposed Natural Attenuation Monitoring program consists of collecting groundwater samples from the locations listed in Table 2-3.

Since 2008, compliance monitoring has been required at the Phase I portion of the landfill, and since 2010, compliance monitoring has been required at the Phase II portion of the landfill. A total of 10 compliance wells have been installed at this facility since 2008. The compliance monitoring was required due to the detections of elevated groundwater concentrations of primarily iron, ammonia, and arsenic, but also isolated occurrences of elevated concentrations of aluminum, chloride, manganese, sodium, and sulfate. The Natural Attenuation Monitoring program is intended to replace the need for compliance monitoring.

The Natural Attenuation Monitoring program includes sampling of four monitoring wells along the south and west sides of the landfill property, but within the undeveloped portions of the property. The Natural Attenuation Monitoring wells are used as temporary points of compliance and to monitor (and in place of) the zone of discharge. These monitoring wells are downgradient of the active landfill cells and will provide monitoring of the groundwater quality as the reductive dissolution process is replaced by more natural processes, along the pathway that the groundwater flows toward the site's boundaries.

Figure 1 shows the proposed locations of the Natural Attenuation Monitoring wells. The monitoring wells will be installed as discussed in Section 2.2.

TABLE 2-3. NATURAL ATTENUATION MONITORING WELLS AT CCSWDC

Well Number	WACS ID#	Aquifer Monitored	Purpose	Comments
NAM-1	TBD	Surficial	Natural Attenuation Monitoring	Utilize existing well PW-1
NAM-2	TBD	Surficial	Natural Attenuation Monitoring	Utilize existing well PW-2
NAM-3	TBD	Surficial	Natural Attenuation Monitoring	Utilize existing well PW-3
NAM-4	TBD	Surficial	Natural Attenuation Monitoring	Location of TPOC-1 from the 2010 NAM Plan

TBD = To be determined

2.5 NATURAL ATTENUATION MONITORING WELL SAMPLING AND ANALYSIS

FDEP shall be notified 14 days prior to conducting any Natural Attenuation Monitoring sampling event, so that the Department may collect split samples. Natural Attenuation Monitoring applies to the following wells: NAM-1, NAM-2, NAM-3, and NAM-4.

The Natural Attenuation Monitoring wells will have an initial sampling event that will meet the requirements of 62-701.510(7)(a) and (c), F.A.C, including mercury and nitrate.

Natural Attenuation Monitoring wells are sampled <u>semi-annually</u> for the following parameters:

<u>Field Parameters</u>

- Static water level before purging
- Specific conductance
- pH
- Dissolved oxygen
- Turbidity
- Temperature
- Colors and sheens (by observation)

<u>Laboratory Parameters (Unfiltered)</u>

Parameters required to be sampled as part of Consent Order 08-1728:

- Ammonia-N
- Arsenic
- Iron
- TDS

Parameters required to be sampled due to periodic exceedances of Rule 62-777, F.A.C. criteria in the detection wells:

- Aluminum
- Chloride
- Manganese
- Sodium
- Sulfate

Groundwater elevations will be measured at all the Natural Attenuation Monitoring wells during all sampling events to a precision of 0.01 foot. The water surface contour maps prepared for each sampling event will include the Natural Attenuation Monitoring wells. It is expected that the Natural Attenuation Monitoring will be conducted concurrently with the standard groundwater monitoring, so that the water levels at the Natural Attenuation Monitoring wells can be used with the site-wide groundwater contour map.

The above-referenced laboratory parameters will be compared to Groundwater Cleanup Target Levels (GCTLs), per Rule 62-777, F.A.C., in order to evaluate the effectiveness of Natural Attenuation Monitoring as a remediation approach. The results for aluminum, ammonia-N, arsenic, manganese, and sulfate will be compared to their GCTLs. However, certain parameters have been detected in background monitoring wells at concentrations greater than their GCTLs. Therefore, alternate Cleanup Target Levels are proposed for those parameters. The report entitled "Geotechnical Services: Soil and Groundwater Sampling Analysis, Sarasota County Central Landfill, Sarasota County, FL", dated July 2010, documented elevated concentrations of iron, TDS, sodium, and chloride in monitoring well PW-5. PW-5 is located in the natural, undeveloped area surrounding the landfill proper. The alternate Cleanup Target Levels are proposed, as follows, based on that report:

Parameter	Alternate Cleanup Target Level
Iron	16.32 mg/l
TDS	2,520 mg/l
Sodium	580 mg/l
Chloride	888 mg/l

SECTION 3.0

SURFACE WATER

3.1 SURFACE WATER MONITORING LOCATIONS

The surface water monitoring sites include Pond 1, along the north side of the active landfill, which is a downgradient (or downstream) surface water sampling location, and Pond 2, along the west side of the active landfill, which is also a downgradient (or downstream) surface water sampling location. The site characteristics are described in Table 3-1, and surface water monitoring locations are shown on Figure 1.

TABLE 3-1. SURFACE WATER MONITORING LOCATIONS AT CCSWDC

Surface Water Monitoring Location	WACS ID#	Water Body Monitored	Purpose
Pond 1 (at STW-1)	28824	Pond 1	Surface Water Collection and Downgradient
Pond 2 (at STW-2)	28825	Pond 2	Surface Water Collection and Downgradient

3.2 SURFACE WATER SAMPLING AND ANALYSIS

Surface water locations are sampled semi-annually for the following parameters:

Field Parameters

- Specific conductivity
- pH
- Dissolved oxygen
- Turbidity
- Temperature
- Colors and sheens (by observation)

Laboratory Parameters (Unfiltered)

- Chlorophyll A
- Total hardness (as mg/L $CaCO_3$)
- Total phosphorus (as mg/L P)
- Iron
- Mercury
- Nitrate
- Total nitrogen

- Un-ionized ammonia
- Biochemical oxygen demand (BOD_5)
- Chemical oxygen demand (COD)
- Total organic carbon (TOC)
- Total dissolved solids (TDS)
- Total suspended solids (TSS)
- Fecal coliform
- Those parameters listed in 40 CFR Part 258, Appendix I

SECTION 4.0

REPORTING

4.1 WATER QUALITY MONITORING REPORTS

Results of all sampling events shall be submitted to FDEP within 60 days from completion of laboratory analyses, unless a different due date has been specified in the permit. Water quality data shall be provided to the FDEP in an electronic format, unless an alternate form of submittal is specified. Form 62-701.900(31) (Attachment B), Water Quality Monitoring Certification, shall be used to certify that the laboratory results have been reviewed and approved by the county. At a minimum, the report shall include the following:

1. The facility name and identification number, sample collection dates and analysis dates;
2. All analytical results;
3. Identification number and designation of all surface water and groundwater monitoring points;
4. Applicable water quality standards;
5. Quality assurance, quality control notations;
6. Method detection limits;
7. STORET code numbers for all parameters;
8. Water levels recorded prior to evaluating wells or sample collection;
9. Updated groundwater table contour map signed and sealed by a professional geologist or profession engineer;
10. A summary of any water quality standards or criteria that are exceeded.

4.2 EVALUATION OF WATER QUALITY MONITORING PLAN

An evaluation of the water quality monitoring plan for the Central County Solid Waste Disposal Complex shall be conducted every two and one-half years. The WQMP evaluation is required to include an assessment of the effectiveness of the existing landfill design and operation as related to the prevention of groundwater contamination. A report detailing the findings and recommendations to improve the WQMP shall be submitted to the Florida Department of Environmental Protection. The requirements of F.A.C. 62-701.510(9)(b) include the following items that, at a minimum, must be included in the evaluation:

1. Tabular and graphical displays of any data which show that a monitoring parameter has been detected, including hydrographs for all monitoring wells.

2. Trend analyses of any monitoring parameters detected.

3. Comparisons among shallow, middle, and deep zone wells.

4. Comparisons between background water quality and the water quality in detection and compliance wells.

5. Correlations between related parameters such as total dissolved solids and specific conductance.

6. Discussion of erratic and/or poorly correlated data.

7. An interpretation of the groundwater contour maps, including an evaluation of groundwater flow rates.

8. An evaluation of the adequacy of the water quality monitoring frequency and sampling locations based upon site conditions.

The following environmental professional was responsible for the preparation of this water quality monitoring plan:

Bradley J. Bayne, P.G.
Senior Geologist, Atkins

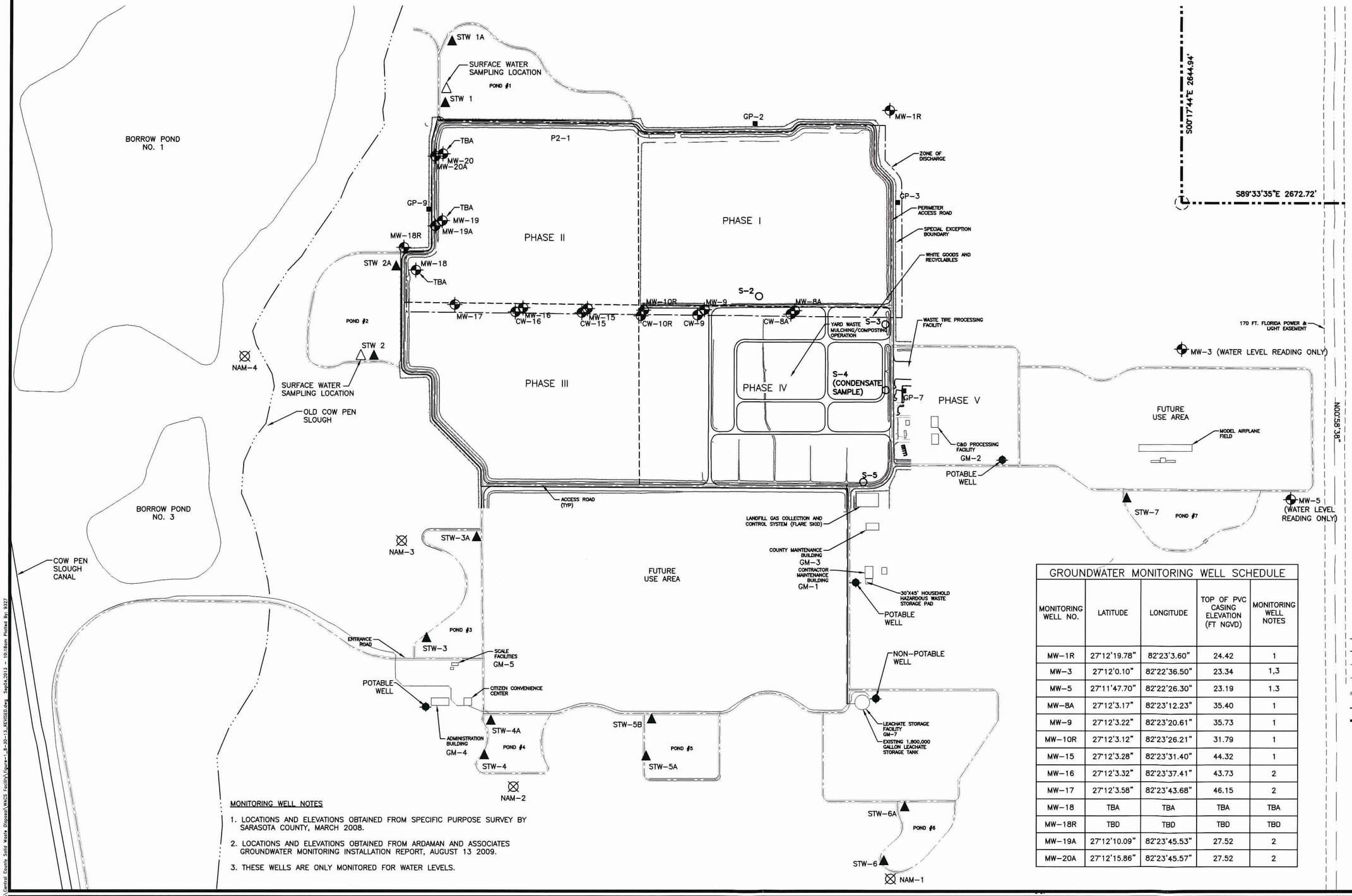
Mr. Bayne is a Florida-registered professional geologist with over 22 years of experience in the planning and performance of environmental projects.

9-10-13
Date

Bradley J. Bayne
Florida P.G. #1733

Figure 1

Site Plan – CCSWDC (figure provided as part of permit renewal submittal)



SITE PLAN NOTES

1. LOCATIONS OF EXISTING PIEZOMETERS, MONITORING WELLS AND STAFF GAUGES OBTAINED FROM SPECIFIC PURPOSE SURVEY BY SARASOTA COUNTY, MARCH 2008.
2. APPROXIMATE LOCATION OF PHASE I LEACHATE FORCEMAIN OBTAINED FROM RECORD DRAWINGS BY CAMP DRESSER & McKEE, INC. DATED APRIL 1998. VERIFY LOCATION IN FIELD.
3. APPROXIMATE LOCATION OF LEACHATE FORCEMAIN TO OFFSITE WWTP OBTAINED FROM CONFORMED DRAWINGS BY PBS&J DATED JULY 2005. VERIFY LOCATION IN FIELD.
4. LOCATION OF CONDENSATE SUMPS OBTAINED FROM PHASE I LFGCCS AS-BUILT DRAWINGS DATED AUGUST 2010.

MONITORING WELL NOTES

1. LOCATIONS AND ELEVATIONS OBTAINED FROM SPECIFIC PURPOSE SURVEY BY SARASOTA COUNTY, MARCH 2008.
2. LOCATIONS AND ELEVATIONS OBTAINED FROM ARDAMAN AND ASSOCIATES GROUNDWATER MONITORING INSTALLATION REPORT, AUGUST 13 2009.
3. THESE WELLS ARE ONLY MONITORED FOR WATER LEVELS.

GROUNDWATER MONITORING WELL SCHEDULE

MONITORING WELL NO.	LATITUDE	LONGITUDE	TOP OF PVC CASING ELEVATION (FT NGVD)	MONITORING WELL NOTES
MW-1R	27°12'19.78"	82°23'3.60"	24.42	1
MW-3	27°12'0.10"	82°22'36.50"	23.34	1,3
MW-5	27°11'47.70"	82°22'26.30"	23.19	1.3
MW-8A	27°12'3.17"	82°23'12.23"	35.40	1
MW-9	27°12'3.22"	82°23'20.61"	35.73	1
MW-10R	27°12'3.12"	82°23'26.21"	31.79	1
MW-15	27°12'3.28"	82°23'31.40"	44.32	1
MW-16	27°12'3.32"	82°23'37.41"	43.73	2
MW-17	27°12'3.58"	82°23'43.68"	46.15	2
MW-18	TBA	TBA	TBA	TBA
MW-18R	TBD	TBD	TBD	TBD
MW-19A	27°12'10.09"	82°23'45.53"	27.52	2
MW-20A	27°12'15.86"	82°23'45.57"	27.52	2

LEGEND

- S-2 — LANDFILL GAS CONDENSATE SUMP
- GP-1 — GAS PROBE
- MW-10R — GROUNDWATER MONITORING WELL
- GM-1 — GAS MONITORING LOCATION
- WATER SUPPLY WELL
- P-S-1 — PHASE II BORING/ PIEZOMETER LOCATION
- STW-1 — STORMWATER MONITORING STATION
- C-1 — LEACHATE MONITORING LOCATION
- POND 1 — SURFACE WATER MONITORING LOCATION
- ZONE OF DISCHARGE
- WATERWAY
- LIMITS OF EASEMENT
- EASEMENT CENTERLINE
- EXISTING ROADWAY
- PHASE BOUNDARY
- PROPERTY BOUNDARY
- NATURAL ATTENUATION MONITORING WELLS
- TBA = TO BE ABANDONED
- TBD = TO BE DETERMINED

FIGURE 1

ATKINS
482 SOUTH KELLER ROAD
Orlando, Fl 32810-6101
TEL. (407) 647-7275
FAX. (407) 647-0624
www.atkinsglobal.com
5300 W. BOY SCOUT BOULEVARD
TAMPA, FLORIDA 33607
FBPR CERTIFICATE OF AUTHORIZATION NO.24

CLIENT	PROJECT	TASK
SARASOTA COUNTY	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX CLASS I LANDFILL	WATER QUALITY MONITORING PLAN

ORIGINAL 8/01/2012
REVISIONS:
1. 8/19/2013
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.

Name:
Florida P.E. No.:
Address: ATKINS 482 S. Keller Road Orlando, FL 32810-6101
Signature Date

JOB NO. 00-000.00
DRAWN GG
DESIGN RS
CHECKED
Q.C.

SHEET 1/1

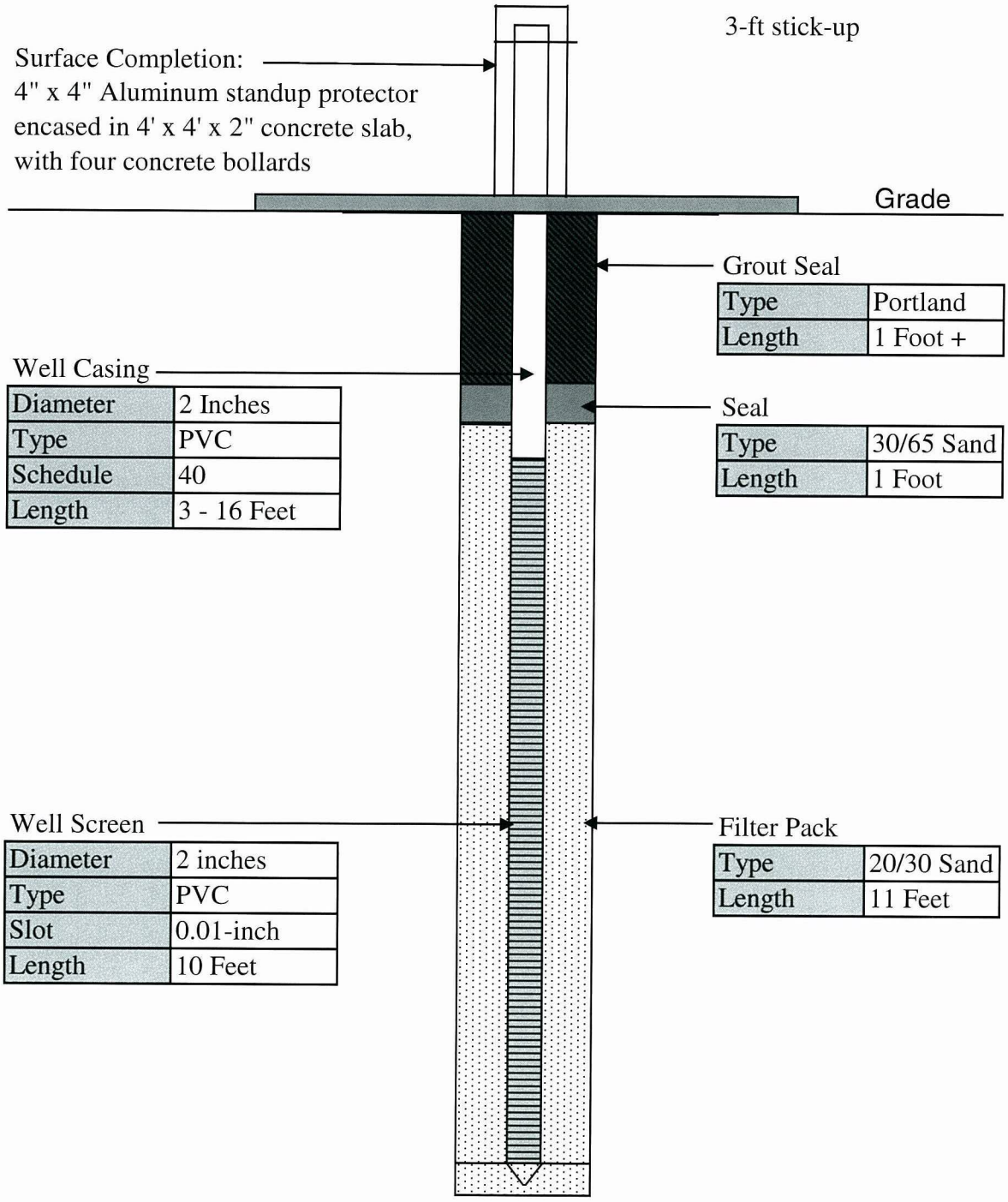
I:\Orlall_5\ENVCAD\WASTEWAY\SARASOTA\Central County Solid Waste Disposal\WaCS Facility\Figure-1_8-30-13_REVISED.dwg Sep04,2013 - 10:18am Plotted By: 9327

Figure 2

Typical Groundwater Monitoring Well

FIGURE 2: TYPICAL GROUNDWATER MONITORING WELL

Site:	Central County Solid Waste Disposal Facility
Well Identifier:	Typical Monitoring Well
Drilling Method:	Hollow-Stem Auger
Borehole Diameter:	8 Inches
Total Depth:	16 - 29 feet below land surface



Atkins

Note: Not to scale.

Attachment A

FDEP Form 62-701.900(30)

Monitoring Well Completion Report, page 1.

Department of Environmental Protection

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

DEP Form # 62-701.900(30)
Form Title: Monitoring Well Completion Report
Effective Date: January 6, 2010
Incorporated in Rule 62-701.510(3)

MONITORING WELL COMPLETION REPORT

DATE: _____

FACILITY NAME: _____

DEP PERMIT NO.: _____ WACS_FACILITY: _____

WACS MONITORING SITE_NUM.: _____ WACS_WELL: _____

WELL_TYPE: BACKGROUND _____ DETECTION _____ COMPLIANCE _____

LATITUDE AND LONGITUDE (see back for requirements): _____

Coordinate Accuracy _____ Datum _____ Elevation Datum _____

Collection Method _____ Collection Date _____

Collector Name _____ Collector Affiliation _____

AQUIFER MONITORED: _____

DRILLING METHOD: _____ DATE INSTALLED: _____

INSTALLED BY: _____

BORE HOLE DIAMETER: _____ TOTAL DEPTH: _____ (BLS)

CASING TYPE: _____ CASING DIAMETER: _____ CASING LENGTH: _____

SCREEN TYPE: _____ SCREEN SLOT SIZE: _____ SCREEN LENGTH: _____

SCREEN DIAMETER: _____ SCREEN INTERVAL: _____ TO _____ (BLS)

FILTER PACK TYPE: _____ FILTER PACK GRAIN SIZE: _____

INTERVAL COVERED: _____ TO _____ (BLS)

SEALANT TYPE: _____ SEALANT INTERVAL: _____ TO_____ (BLS)

GROUT TYPE:_____ GROUT INTERVAL: _____ TO _____ (BLS)

TOP OF CASING ELEVATION (NGVD): _____ GROUND SURFACE ELEVATION (NGVD): _____

DESCRIBE WELL DEVELOPMENT: _____

POST DEVELOPMENT WATER LEVEL ELEVATION (NGVD): _____

DATE AND TIME MEASURED: _____

REMARKS: _____

_____

NAME OF PERSON PREPARING REPORT: _____

_____

(Name, Organization, Phone No., E-mail)

NOTE: ATTACH AS-BUILT MW CONSTRUCTION DIAGRAM AND LITHOLOGIC LOG.(NGVD) NATIONAL GEODETIC VERTICAL DATUM OF 1988 (BLS) = BELOW LAND SURFACE

Attachment A

FDEP Form 62-701.900(30)

Monitoring Well Completion Report, page 2.

Latitude must be measured in degrees, minutes and seconds, to at least two (2) decimal places.

Longitude must be measured in degrees, minutes and seconds, to at least two (2) decimal places.

Eastings and northings (State Plane Coordinates) **must** be converted to latitude and longitude.

Coordinate Accuracy: the measured, estimated degree of correctness of the measurement. An accuracy of 15 feet or 5 meters is preferred.

Datum: the horizontal reference for measuring locations on the Earth's surface. NAD83-North American Datum of 1983 is preferred.

Elevation Datum: the reference datum from which elevation measurements are made. NGVD88 (National Geodetic Vertical Datum of 1988) is preferred.

Collection Method: the method or mechanism used to derive the measurements, e.g. GPS, map, aerial photo, etc.

Collection Date: the date and time on which the measurements were taken.

Collector Name: the name of the person taking the measurement.

Collector Affiliation: the agency or company for whom the collector works.

Attachment B

FDEP Form 62-701.900(31)

Water Quality Monitoring Certification

Florida Department of Environmental Protection

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

DEP Form #: 62-701.900(31), F.A.C
Form Title: Water Quality Monitoring Certification
Effective Date: January 6, 2010
Incorporated in Rule 62-701.510(9), F.A.C.

WATER QUALITY MONITORING CERTIFICATION

PART I GENERAL INFORMATION

(1) Facility Name _____

Address _____

City _____ Zip _____ County _____

Telephone Number (____) _____

(2) WACS Facility ID _____

(3) DEP Permit Number _____

(4) Authorized Representative's Name _____ Title _____

Address _____

City _____ Zip _____ County _____

Telephone Number (____) _____

Email address (if available) _____

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submission of false information including the possibility of fine and imprisonment.

_____ _____

(Date) (Owner or Authorized Representative's Signature)

PART II QUALITY ASSURANCE REQUIREMENTS

Sampling Organization _____

Analytical Lab NELAC / HRS Certification # _____

Lab Name _____

Address _____

Phone Number (____) _____

Email address (if available) _____

Water Quality Monitoring Plan Evaluation
First Half 2011 through Second Half 2012
Sarasota County Central County Solid Waste Disposal Complex
WACS ID No: SWD/58/51614
Permit No: 130542-007-SO/01

September 2013

Prepared For:

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Executive Summary

This water quality report presents the results of an evaluation of the water quality and elevation monitoring network at Sarasota County's Central County Solid Waste Disposal Complex (CCSWDC), as based on the monitoring data collected during the period between 2011 and 2012 (inclusive).

The analytical results from the review period suggest that the CCSWDC has had an effect on the groundwater quality in the immediate vicinity. However, the most serious of these effects are likely attributed to reductive dissolution in the shallow groundwater caused solely by site development activities. There are no indications of any effects associated with a release of leachate or any type of "discharge" from the active landfill cells. A summary of the detection patterns in the water quality network is as follows:

- There were numerous inorganic analytes and several organic analytes detected in the leachate during the review period, and none of the analyte concentrations exceeded the regulatory criteria.

- In the groundwater, there were numerous inorganic detections and very infrequent organic detections. The detected organic parameters were at low concentrations that did not approach their respective MCL or CTL. Ten inorganic parameters - pH, aluminum, ammonia, arsenic, chloride, iron, manganese, sodium, sulfate, and TDS - were detected at least once during the period of record at concentrations in excess of their respective MCL or CTL. Elevated arsenic, iron, manganese, and TDS concentrations were consistently detected at all or the majority of the detection wells during the period of record. pH was also consistently lower than the SDWS at most wells during the review period. The detection patterns with all of these analytes were very consistent throughout the review period, in that, in general, the exceedances occurred at the same well locations.

- Elevated aluminum concentrations were detected at wells MW-1R, MW-15, MW-16 and MW-19. Elevated chloride and sodium concentrations were detected only at MW-16, and elevated sulfate concentrations were detected only at MW-20.

- Statistical analysis of the period of record groundwater quality data using the Kendall Tau trend test identified statistically significant trends for the following parameters:

    - Arsenic at well MW-9, which exhibited a deceasing trend with a moderate correlation strength;
    - TDS at well MW-9, which exhibited an increasing trend with a moderate correlation strength;
    - TDS at well MW-18, which exhibited an increasing trend with a strong correlation strength, and;
    - Iron at well MW-20, which exhibited a deceasing trend with strong correlation strength.

- Evaluation of groundwater concentrations of TDS, conductivity, arsenic, iron and turbidity from 2010 through 2012 using scatter plots indicated poor correlations between TDS and conductivity, iron and arsenic, turbidity and arsenic, and turbidity and iron.

- Surface water sampling at locations B-2 and B-4R was discontinued after the first half of 2012 and replaced with sampling at Pond 1 and Pond 2 in the second half of 2012, in accordance with the permit modification. The parameters which were detected in the surface water at concentrations in excess of a SWQC or CTL at the Pond 1 and 2 locations were fecal coliform and dissolved oxygen.

The most significant detections in the water quality monitoring network during the review period were arsenic and iron in the groundwater. These constituents, along with pH, were investigated as part of three significant studies conducted at this facility between 2007 and 2010. A Background Groundwater Quality Assessment was completed in 2011, and no further investigations of the site's iron and arsenic impacts have been conducted since then. The conclusions of these studies were that reductive dissolution of groundwater in the surficial aquifer is causing the elevated concentrations of iron and arsenic (as well as elevated ammonia concentrations), which are found naturally in the soils at the site. The cause of the reductive dissolution phenomena appears to be associated with development of the landfill site. Reductive dissolution conditions are found throughout the areas of the site where fill material has been placed and the natural environment has been significantly altered. However, the reductive dissolution phenomena appear to be especially enhanced in the vicinity of the areas where a liner has been placed (currently the Phase I and Phase II sections of the landfill).

Based on the findings of this evaluation, the water quality and elevation monitoring network at the CCSWDC appears to be adequate in meeting the objectives of the monitoring program. The current monitoring program, monitoring well network, sampling frequency, and list of parameters to be sampled are adequate for developing relevant site data. Based on a meeting conducted with the County and the FDEP, held on July 17, 2013, the following recommendations regarding the site's water quality monitoring program were discussed:

- Discontinue sampling of leachate and gas condensate;
- Discontinue sampling of the compliance wells;
- Abandon certain poorly-sited monitoring wells, and replace them with new wells or existing compliance wells;
- Remove all Appendix II organic parameters from the groundwater sampling program;
- Propose the use of Natural Attenuation Monitoring wells to be sampled for those parameters that are associated with the reductive dissolution phenomena; and
- Provide Natural Attenuation Monitoring alternative Cleanup Target Levels for those constituents, such as iron and TDS, which are frequently found at elevated concentrations in the site's background wells.

The details of the above-mentioned recommendations and their implementation will be provided in a revised version of the site's Water Quality Monitoring Plan.

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1.0 Introduction

1.1 Background

This water quality report presents the results of an evaluation of the water quality and elevation monitoring network at Sarasota County's Central County Solid Waste Disposal Complex (CCSWDC), as based on the monitoring data collected during the period between 2011 and 2012 (inclusive). The CCSWDC facility, which is located at 4000 Knights Trail Road in Nokomis, Florida, operates under Permit Number 130542-007-SO/01, which is on file with the Florida Department of Environmental Protection (FDEP).

1.1.1 Water Quality Monitoring Network and Program

The CCSWDC is a Class I lined landfill, which has five cells in the Phase I portion and four cells in Phase II. Landfill leachate is collected by a leachate collection system. Part E of the facility's permit stipulates that the water quality program involves monitoring of the leachate, gas condensate, surface water, and the groundwater in the surficial (or shallow) aquifer. The monitoring network consists of the following components:

- Leachate samples are collected semi-annually from pump valve boxes at each active cell. The original Phase I portion of the landfill contains five cells. The recently-constructed Phase II portion of the landfill has four cells, but only one leachate monitoring location is currently required for Phase II. The leachate samples are analyzed for the field and laboratory parameters listed in Operation Permit Specific Condition Part E 9.b. semi-annually and Specific Condition Part E 9.c. annually. Leachate sampling was discontinued after the first half of 2012 in accordance with the amendments to Chapter 62-701, F.A.C. that became effective on August 12, 2012.

- Groundwater samples are collected semi-annually from a network of monitoring wells around the landfill. The current monitoring well network consists of ten shallow monitoring wells, designated, MW-1R, MW-8A, MW-9, MW-10R, MW-15, MW-16, MW-17, MW-18, MW-19, and MW-20. MW-15 through MW-20 are located around the recently-constructed Phase II portion of the landfill. All of the wells are screened within the shallow (surficial) aquifer. MW-1R is designated by the permit as a background well and the other wells are detection wells. The groundwater samples are analyzed for the field and laboratory parameters listed in Specific Condition Part E 4.c of the Operation Permit. In addition, per a March 23, 2011 letter from the FDEP Southwest District, sampling of Appendix II organic parameters were also required to be sampled annually at MW-1R, MW-15, MW-16, MW-19, and MW-20. These additional parameters were sampled during the first half sampling events of 2011 and 2012.

- There are also seven compliance wells (CW-8A, CW-9, CW-10R, CW-15, CW-16, CW-19, and CW-20), which are sampled at the same time as the detection

wells. However, analytical data from the compliance wells are not required as part of this monitoring plan evaluation.

- Surface water samples are collected semi-annually at two points. In 2011, the surface water samples were collected along Old Cow Pen Slough, which is immediately west of the landfill, at downstream location B-4R and upstream location B-2. In 2012, the operating permit was modified to change the surface water sampling locations due to the Slough being dry periodically during sampling events. Surface water sampling locations for the second half of 2012 were at Pond 1 and Pond 2, which are located near the northwest corner and southwest corner, respectively, of the Phase II portion of the landfill. Based on the evaluation of water elevation data in Section 4.0, Pond 1 is located hydraulically up-gradient and Pond 2 is located hydraulically down-gradient of the landfill. The surface water samples are analyzed for the field and laboratory parameters listed in Specific Condition Part E 8.c of the Operation Permit.

- A sample of the condensate from the landfill gas collection system was collected semi-annually from the condensate sump S-4 through the second half of 2011and analyzed for the field and laboratory parameters listed in Operation Permit Specific Condition Part E 9.b. semi-annually and Specific Condition Part E 9.c. annually. In August 2012, the Operation permit was revised. Condensate sample collection was changed from semi-annual to annual for analysis of the field and laboratory parameters listed in Operation Permit Specific Condition Part F 5.b.

A summary of the components that comprise the water quality network is presented in **Table 1-1.** The groundwater monitoring wells, compliance wells, two piezometers MW-3 and MW-5, and surface water staff gauges are used to measure the elevation of the water table. A summary of the components that comprise the water elevation network is presented in **Table 1-2.** The layout of the CCSWDC site, including the current well locations, leachate sampling locations, surface water sampling locations, and condensate sampling location, is illustrated in **Figure 1.**

Sample collection for the sampling events during the review period was performed by Sarasota County staff. The samples were analyzed by various laboratories, including Pace Analytical Services and Benchmark EnviroAnalytical, Inc. Copies of the certificates of laboratory reports for all of the sampling events are on file with the FDEP.

1.2 Objectives

This report was prepared in accordance with Rule 62-701.510(8)(b) of the FAC. This statute stipulates that the following issues be addressed in a Water Quality Monitoring Plan Evaluation:

- Tabular displays of any data which shows that a monitoring parameter has been detected and graphical displays of any leachate key indicator parameters detected (such as pH, specific conductance, TDS, TOC, sulfate, chloride, sodium, and iron);

- Trend analyses of any monitoring parameters that were consistently detected;
- Comparison between shallow, middle, and deep zone wells;
- A comparison between the detection trends in the background wells and detection wells;
- Correlation between related parameters, such as total dissolved solids and specific conductance;
- An interpretation of the groundwater contour maps, including an evaluation of groundwater flow rates;
- An evaluation of the adequacy of the water quality monitoring frequency and sampling locations based upon site conditions.

It should be noted that there are no middle or deep aquifer wells at CCSWDC.

2.0 Water Quality Analytical and Elevation Data Summary

A description of the leachate, groundwater, surface water, and gas condensate analytical results, as well as the water elevation information, for the four sampling events during the period of review is presented in this section.

2.1 Water Quality Data Summary

2.1.1 Leachate Analytical Data Summary

Leachate analytical data were available for the following semiannual sampling events during the review period:

- First Half 2011
- Second Half 2011
- First Half 2012

Leachate sampling was discontinued after the first half of 2012 in accordance with the amendments to Chapter 62-701, F.A.C. that became effective on August 12, 2012.

Summaries of the leachate analytical results for each event are presented in **Tables 2-1, 2-2, and 2-3**. Several inorganic and organic parameters were detected in the leachate samples. The concentration of every parameter that was detected in the leachate throughout the review period was compared to the regulatory levels listed in 40 CFR Part 261.24, as promulgated by the Florida solid waste regulations. A standard has not been established for every parameter. None of the parameter concentrations detected in the leachate during the review period exceeded their respective regulatory levels.

2.1.2 Groundwater Analytical Data Summary

Groundwater analytical results were available for the four semi-annual sampling events during the review period. However, the water level in MW-16 during the first half of 2012 was insufficient for sampling, so no sample was collected from that monitoring well. A summary of the groundwater analytical results for each event is presented in **Tables 2-4 through 2-7**.

The organic parameters that were detected in the groundwater monitoring network during the review period were acetone, benzene, chloromethane, ethylbenzene, toluene, total xylenes, trichloroethene, 3&4-methylphenol, dimethylphthalate, and di-N-butylphthalate. These parameters were detected at low concentration that did not approach their Maximum Contaminant Levels (MCLs) presented in Chapter 62-550 of the Florida Administrative Code (FAC) or contaminant Cleanup Target Level (CTL) presented in Chapter 62-777 FAC. A MCL is the maximum permissible level of a contaminant in water which is delivered to any user of a public water system. A CTL is not an FDEP standard as defined under the Florida Statutes, but is used as guidance for evaluating whether concentrations in groundwater exceed the minimum criteria under Rule 62-520.400 FAC and whether there may be groundwater quality concerns.

The herbicide 2,4-D (2,4-dichlorophenoxy acetic acid) was detected at monitor well MW-19 in the first half of 2012 at a concentration of 3.0 micrograms per liter (ug/l), which is below its MCL of 70 ug/l. The pesticide b-BHC (b-hexachlorocyclohexane) was detected at the background monitor well MW-1R in the first half of 2011 at a concentration of 0.013 ug/l, which is below its CTL of 0.02 ug/l.

There were numerous inorganic parameters detected in the groundwater monitoring network during the review period. The concentrations of the parameters that were detected were compared to their respective MCL or CTL. Not every parameter has an MCL or CTL. The parameters that were detected at concentrations in excess of the regulatory criteria are shaded in the analytical summary tables. Ten inorganic parameters - pH, aluminum, ammonia, arsenic, chloride, iron, manganese, sodium, sulfate, and TDS - were detected at least once during the review period at concentrations in excess of the regulatory criteria. A description of the detection patterns for each of these parameters is presented below.

pH – pH has a secondary drinking water standard (SDWS) which is any reading within the range of 6.5 to 8.5. The pH reading at all of the wells was lower than the prescribed range at least once during the review period, and it was consistently lower than the SDWS at wells MW-8A, MW-9, MW-10R, MW-15, MW-16, MW-17, MW-18, and MW-19.

Aluminum – Aluminum has a SDWS of 200 µg/l. Aluminum was detected at concentrations greater than the SDWS at monitor wells MW-1R, MW-15, MW-16 and MW-19. It was detected in MW-1R, the background monitor well, in excess of the SDWS in the first half and second half of 2011. It was detected in MW- 15 in excess of the SDWS in the first half of 2011 and second half of 2012. It was detected in MW- 16 in excess of the SDWS in the first half of 2011, second half of 2011 and second half of 2012. It was detected in MW-19 in excess of the SDWS in each semi-annual sampling event of 2011 and 2012.

Ammonia – Ammonia has a CTL of 2.8 mg/L. The concentration of ammonia (as nitrogen) consistently exceeded the standard at the detection wells during the reporting period, with the exception of the farthest down-gradient well (MW-20). However, per a December 2012 memo, the FDEP Solid Waste Department no longer considers ammonia to be a contaminant of concern in groundwater. The elevated concentrations of ammonia at this well were noted, but there is no concern. No further discussion of findings for ammonia is provided in this report.

Arsenic – Arsenic has a primary drinking water standard (PDWS) of 10 µg/l. The concentration of arsenic consistently exceeded the standard at wells MW-8A, MW-9, MW-10R, MW-15, MW-16, MW-17, MW-19, and MW-20. Arsenic was not detected at the background well, MW-1R, during the review period.

Chloride – Chloride has an SDWS of 250 milligrams per liter (mg/l). Chloride was detected at concentrations greater than the SDWS at monitor well MW-16 in the first half of 2011, second half of 2011 and second half of 2012.

Iron - Iron was detected at concentrations in excess of the SDWS of 300 µg/l at every well in the monitoring network, including the background well (MW-1R), throughout the review period.

Manganese - Manganese has a SDWS of 50 µg/l. Manganese was detected at concentrations greater than the SDWS at monitor wells MW-8A, MW-9, MW-15, MW-18, MW-19, and MW-20. It was detected at concentrations greater than the SDWS at monitor wells MW-8A, MW-18, and MW-19 in the second half of 2012. It was detected in MW-9 in excess of the SDWS in the second half of 2011 and second half of 2012. It was detected in MW- 20 in excess of the SDWS in the second half of 2011, first half of 2012, and second half of 2012. It was detected in MW-15 in excess of the SDWS in each semi-annual sampling event of 2011 and 2012.

Sodium – Sodium has a PDWS of 160 mg/l. Sodium like chloride was detected at concentrations greater than the SDWS at monitor well MW-16 in the first half of 2011, second half of 2011 and second half of 2012.

Sulfate – Sulfate has an SDWS of 250 mg/l. Sulfate was detected at concentrations greater than the SDWS at monitor well MW-20 in the second half of 2011 and second half of 2012.

TDS – TDS has an SDWS of 500 mg/l. The TDS concentrations consistently exceeded the SDWS at MW-8A, MW-9, MW-10R, MW-12R, MW-15, MW-16, MW-17, MW-18, and MW-20 throughout the review period. The TDS concentrations at background monitor well MW-1R did not exceed the SDWS during the review period.

From 2007 through 2010, at the direction of the FDEP, Sarasota County conducted three significant investigations into the potential causes of the low pH and the elevated concentrations of arsenic and iron (along with ammonia) in the groundwater at this site. Elevated concentrations of these constituents appeared to consistently occur at the same monitoring wells. A Contamination Evaluation Report was completed in October 2008, a Site Assessment Report was completed in July 2009, and a Natural Attenuation with Monitoring Plan was completed in September 2010. All of these investigations resulted in the conclusion that reductive dissolution of naturally-occurring iron and arsenic in the site's soils was likely caused by on-site development activities. In 2011, the County conducted a Background Groundwater Quality Assessment for this site. The assessment determined that data collected by the County from 1990 to 1994, prior to an disturbance of the site, indicated that arsenic, ammonia, TDS, sodium, chloride, aluminum, and manganese were all detected at concentrations greater than their GCTL at times. The results of the investigation supported that the above-referenced chemical parameters merited consideration for inclusion in a Natural Attenuation with Monitoring Plan. The above-referenced reports are on file with the FDEP, and the FDEP is aware of the County's efforts to investigate and potentially mitigate the conditions leading to the elevated concentrations of arsenic, iron, and other constituents in the groundwater at this facility.

2.1.3 Surface Water Analytical Data Summary

Surface water analytical data were available for the following semi-annual sampling events during the review period:

- First Half 2011
- Second Half 2011
- Second Half 2012

The surface water sampling locations on Old Cow Pen Slough were dry during the first half of 2012. Summaries of the surface water analytical results, including their respective surface water quality criteria (SWQC) for Class III Fresh Water presented in Chapter 62-302 FAC or CTL presented in Chapter 62-777 FAC, are presented in **Tables 2-8, 2-9, and 2-10**.

Organic constituents were not detected in the surface water samples collected during the review period. Due to the general lack of detected organic constituents in the surface water samples, consideration should be given to reducing the sampling frequency for organics.

There were numerous inorganic constituents detected in the surface water samples throughout the review period, including ammonia, arsenic, barium, cadmium, calcium, copper, iron, lead, magnesium, mercury, nitrate, potassium, sodium, sulfate, TDS, total organic carbon, total kjeldahl nitrogen, total nitrogen, phosphorus, total suspended solids, vanadium, and zinc. The concentrations of all of the constituents that were detected in the surface water were compared to their respective SWQC and CTL as a relative measure of the water quality.

The parameters that were detected in excess of a SWQC or CTL were fecal coliform, pH, and dissolved oxygen. Fecal coliform was detected at concentrations greater than the standard in the samples collected during the first half of 2011 at Old Cow Pen Slough (B-2 and B-4R) and the Second Half of 2012 at Pond 1 and Pond 2. The presence of fecal coliform in excess of the SWQC at sample locations B-2 and Pond 1, which are located upstream and up-gradient, respectively, of the landfill, shows that there are sources other than the landfill for fecal coliform.

2.1.4 Condensate Analytical Data Summary

Gas condensate analytical data were available for the following annual sampling event during the review period:

- First Half 2011
- Second Half 2011
- Second Half 2012

The gas condensate analytical results are presented in **Tables 2-11, 2-12, and 2-13**.

Parameters that were detected in the gas condensate sample during the period of review included ammonia, arsenic, calcium, chromium, copper, iron, mercury, potassium, sulfate, sulfide, TDS, nitrate, nitrite, nitrogen, zinc, 3&4 methylphenol, 2-chloeophenol, 2-methylphenol, phenol, 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, acetophenone,

anthracene, dibenzofuran, diethylphthalate, dimethylphthalate, di-n-butylphthalate, di-n-octylphthalate, flourene, isophorone, naphthalene, n-nitrosodimethylamine, ortho-toluidine, phenanathrene, pyrene, 1,4-dichlorobezene, 2-butanone, 4-methyl-2-pentanone, acetone, acetonitrile, benzene, chlorobenzene, cis-1,2-dichlorothene, ethylbenzene, isobutyl alcohol, styrene, toluene, and total xylenes. The concentration of every parameter that was detected in the gas condensate was compared to the regulatory levels listed in 40 CFR Part 261.24, as promulgated by the Florida solid waste regulations. A standard has not been established for every parameter. None of the parameter concentrations detected in the gas condensate sample exceeded their respective regulatory level.

2.2 Water Elevation Data Summary

The groundwater elevation measurements were made at each monitoring well and surface water measuring location during every sampling event of the review period and were used to generate groundwater elevation contour maps for the surficial aquifer beneath the CCSWDC. The maps were used to evaluate the groundwater flow direction and the water table gradient in the aquifer during the review period. A description of the findings is presented in Section 4.1 of this report.

3.0 Water Quality Evaluation

3.1 Water Quality Trends and Correlations

This section presents an evaluation of the general analytical data trends, statistical analysis of any prominent trends, comparisons of water quality parameters, and a comparison of the background monitoring well data with the data from the down-gradient detection monitoring wells.

3.1.1 General Trends

Descriptions of the general trends of the parameters that were consistently detected at elevated concentrations in the leachate, gas condensate, groundwater, and surface water during the period of review are presented below.

Leachate and Gas Condensate

There were no parameters detected in the leachate or gas condensate at concentrations in excess of the regulatory criteria during the review period. Most of the parameters that were detected in the leachate were present at the same general concentration range during every sampling event of the review period.

Groundwater

There were eight parameters that were regularly detected in the groundwater at concentrations in excess of their MCLs or SDWSs during the review period – pH, arsenic, iron, TDS, aluminum, manganese, chloride, and sodium. Four of these parameters– pH, arsenic, iron, and TDS – were typically detected at all of the detection monitor wells above their respective MCLs or SDWSs, but not in background monitor well MW-1R, and the concentrations of each parameter were typically within the same order of magnitude at those wells. Consistent aluminum SDWS exceedances were detected at wells MW-1R, MW-15, and MW-19 during the period of record. Consistent manganese SDWS exceedances were detected at wells MW-15 and MW-20 during the period of record. Consistent chloride and sodium MCL exceedances were detected at well MW-16 during the period of record. To better evaluate the general trends of these parameters, their concentrations at each monitor well from each sampling event for the period of record were plotted on graphs to show the changes in concentration over time. The graphs are presented in **Appendix A**. Graphs of pH, arsenic, iron, and TDS are provided for two monitor well groups. Group 1 consists of MW-1R, MW-8A, MW-9, and MW-10R, which have been graphed for the water quality data back to 2007. Group 2 consists of MW-15, MW-16, MW-17, MW-18, MW-19, and MW-20, which have water quality data available back to 2010. Evaluations of the water quality trends indicated in the graphs are presented below.

pH – With few exceptions (MW-20 in the second half of 2011 and first half of 2012), the pH readings at the detection monitor wells stayed within a very narrow range throughout

the period of record and exhibited no trend. Most of the monitor wells had pH values between 6.0 – 6.5.

Arsenic – The pattern with arsenic varied the most at those wells where the concentrations were consistently highest, including wells MW-8A, MW-9, MW-17, MW-19, and MW-20. Concentrations of arsenic during the period of record were relatively steady at background well MW-1R and detection wells MW-10R, MW-15, MW-16 and MW-18. Trends of decreasing arsenic concentrations are indicated at wells MW-8A, MW-9, MW-17, and MW-20. A trend of increasing arsenic concentrations is indicated at well MW-19.

Iron –Iron concentrations were relatively steady at background well MW-1R and detection wells MW-9, MW-10R, MW-17, and MW-19. Trends of decreasing iron concentrations are indicated at wells MW-8A, MW-16, and MW-20. Trends of increasing iron concentrations are indicated at wells MW-15 and MW-18.

TDS – TDS concentrations were relatively steady at background well MW-1R and detection wells MW-8A, MW-10R, MW-17, and MW-19. Trends of decreasing TDS concentrations are indicated at wells MW-15 and MW-16. Trends of increasing TDS concentrations are indicated at wells MW-9, MW-18, and MW-20.

Aluminum - Aluminum concentrations generally exhibited a decreasing trend at background well MW-1R and detection wells MW-15 and MW-19.

Manganese – Manganese concentrations at well MW-15 were highly variable, but overall exhibited a decreasing trend. Manganese concentrations at well MW-20 exhibited an increasing trend.

Chloride and Sodium - Chloride and Sodium concentrations at well MW-16 were variable and did not exhibit a trend over the 2-year period of record.

Surface Water

The parameters which were detected in the surface water at concentrations in excess of a SWQC or CTL during the review period were fecal coliform, pH, and dissolved oxygen. Sampling at locations B-2 and B-4R was discontinued after the first half of 2012 and replaced with sampling at Pond 1 and Pond 2 in the second half of 2012, in accordance with the permit modification. Fecal coliform counts exceed the SWQC at sampling locations B-2 and B-4R in the first half of 2011 and Pond 1 and Pond 2 in the second half of 2012. Dissolved oxygen concentrations were below the SWQC at the four sampling locations during the review period. The pH concentrations were below the SWQC at sample location B-2 in 2011 and were within the SWQC at the Pond 1 and Pond 2 sampling locations in the second half of 2012. The one sampling event at the Ponds does not provide sufficient data for trend evaluations.

3.1.2 Statistical Trend Analysis

The groundwater parameters listed in the section above were evaluated for statistically significant trends using the Kendall Tau Test (Helsel et al 2006). The Kendall Tau test is a nonparametric statistical test widely used to analyze data for trends where normality cannot be assumed. The test can be used to determine whether data values are increasing, declining, or remaining relatively level over time. This is accomplished by computing a statistic (Tau coefficient) based on the differences among all possible data pairs, thus representing the net direction of movement of the time-series data. The number of positive differences minus the number of negative differences is then determined and this is used to calculate the Tau statistic. If the time-series data are systematically increasing or decreasing over time, then the resulting computed Tau statistic will be a relatively large positive or negative value between 1 and -1. If, however, the change over time is negligible, then the number of positive pairs and the number of negative pairs will be approximately equal, and the Tau statistic will be small and near 0. As in parametric tests, hypothesis testing for a trend is based on the null hypothesis that "there is no trend." The null hypothesis can only be rejected if the Tau statistic is sufficiently large at a given level of probability (p-value), typically less than or equal to 0.05. The p value represents the estimated probability of rejecting the null hypothesis (there is no trend) when it is actually true, therefore, using a p-value of ≤ 0.5 results in a 5 % or less chance that the identification of a trend is incorrect and, therefore, the trend is statistically significant.

A summary of the calculated tau statistics and p-values are presented in **Table 3-1**. Based on the calculated Tau coefficients and p-values, statistically significant trends were identified for the following groundwater parameters:

- Arsenic at well MW-9, which exhibited a deceasing trend with a moderate correlation strength; however 6 years of data may not be sufficient to draw conclusions;
- TDS at well MW-9, which exhibited an increasing trend with a moderate correlation strength; however 6 years of data may not be sufficient to draw conclusions;
- TDS at well MW-18, which exhibited an increasing trend with a strong correlation strength; however 3 years of data is not sufficient to draw conclusions and;
- Iron at well MW-20, which exhibited a deceasing trend with strong correlation strength; however 3 years of data is not sufficient to draw conclusions.

Reference

Helsel, Dennis R., D.K. Mueller and J.R. Slack. "Computer Program for the Kendall Family of Trend Tests". U.S. Geological Survey Scientific Investigations Report 2005-5275. 2006.

3.1.3 Related Parameter Correlation

The concentrations of the parameters that were consistently detected in the monitoring network at concentrations in excess of the regulatory standards, and/or that have a natural affinity to one another, were plotted together to evaluate whether correlations existed. The evaluation was limited to groundwater and included the following correlations:

- Turbidity versus Iron
- Turbidity versus Arsenic
- Iron versus Arsenic
- Conductivity versus TDS

A summary of the evaluation results is presented below. The scatter plots associated with the above-listed parameters are provided in **Appendix B**. The primary method for visually determining whether there is a relationship between two variables for which there is a probable interaction is to create a scatter plot of the two variables. If there a clear pattern exists in the graphic, then further statistical testing may be warranted to define the extent of the relationship between the two variables.

Turbidity versus Iron

There was a poor correlation between the concentrations of iron and turbidity at the wells (with the exception of well MW-16) during the period of record, with data points typically scattered throughout the plot with no apparent pattern.

Turbidity versus Arsenic

There was a poor correlation between the concentrations of arsenic and turbidity at all of the wells during the period of record, with data points typically scattered throughout the plot with no apparent pattern.

Arsenic verses Iron

There was a poor correlation between the concentrations of iron and arsenic at the monitoring wells, with the exceptions of wells MW-8A and MW-9. At most wells, during the period of record, the data points typically scattered throughout the plot with no apparent pattern. The arsenic concentrations at background well MW-1R were typically not detected at the method detection limit of 5 ug/l, and therefore they did not provide any information on the relationship between arsenic and turbidity at this location.

Conductivity versus TDS

Unexpectedly, the correlation between TDS and conductivity was relatively poor at most of the well locations during the period of record. The exceptions were at wells MW-16 and MW-18, where conductivity and TDS generally exhibited the expected linear relationship.

3.1.4 Cross-Gradient Correlation

In order to evaluate any changes in groundwater quality on either side of the landfill in the predominant direction of groundwater flow, the concentrations of pH, arsenic, iron, and TDS from 2010 through 2012 were graphed. The graphs were constructed by plotting the data from the wells located on the predominantly up-gradient (northeast) side of the landfill on the left side of the graph, and plotting those on the downgradient (west and southwest) side of the landfill on

the right. The background well, MW-1R, was placed on the left side of the plots, and the remaining wells were placed in sequence relative to their position with respect to the predominant groundwater flow direction beneath the landfill, with MW-20 considered to be the furthest downgradient.

The box plots are presented in **Appendix C**. The box plots are a graphical representation of the data, where the upper limit of the box is the 75th percentile value of the data, the lower limit of the box is the 25th percentile of the data, and the line in the interior of the box is the median (50th percentile) of the data. In the box plots shown in **Appendix C**, the upper whisker represents the maximum value in the dataset, while the lower whisker represents the minimum value in the dataset. A summary of the observations for each parameter is presented below.

- *pH* – The pH was very consistent during the graphed 3-year period with a small range of values at each well, and exhibited a pattern whereby the pH was generally within the SDWS range at MW-1R, but was lower than the SDWS range at the other wells.

- *Arsenic* – Arsenic concentrations were generally consistent during the graphed 3-year period at background well MW-1R and wells MW-10R, MW-15, MW-16, MW-17, and MW-18 (which are centrally located), and they exhibited greater variability at wells MW-8A and MW-9, which are up-gradient of the centrally located wells, and at wells MW-19 and MW-20, which are down-gradient. The highest arsenic concentrations were detected at wells MW-9, MW-17, and MW-20.

- *Iron* – Iron concentrations were generally consistent during the graphed 3-year period at background well MW-1R and the detection wells, with the exception of well MW-8A. The highest iron concentrations were detected at well MW-8A and MW-17.

- *TDS* – TDS concentrations were generally consistent during the graphed 3-year period at background well MW-1R and the detection wells with the exception of well MW-15. The highest iron concentrations were detected at well MW-15.

The detection patterns discussed above are consistent with the findings that the arsenic and iron concentrations are highest in the areas where reductive dissolution is suspected to be occurring. Reductive dissolution is likely occurring throughout the developed portion of the landfill property, but it is significantly enhanced in areas where a liner has been placed. MW-8A and MW-9 are located immediately down-gradient of the lined areas of the Phase I portion of the landfill. As more data become available for MW-15 through MW-20, it has already become clear that the installation of a liner in the Phase II portion of the landfill is associated with elevated iron and arsenic concentrations (along with ammonia) at those wells also.

4.0 Water Elevation Data Evaluation

4.1 Rainfall Patterns

The monthly rainfall totals recorded during the review period at the Southwest Florida Water Management District (District) rain gauge, Site Identifier No. 26020, are presented in **Table 4-1**. The rain gauge is located along Rustic Road, approximately 2.3 miles south of the landfill entrance. The period of record (POR) rainfall, which began on November 20, 2000, ranged from 36.43 inches to 81.62 inches annually, and averaged 52.06 inches. The year 2011 rainfall total of 45.74 inches was the fourth lowest annual rainfall total recorded at the rain gauge and 88% of the POR average annual. The year 2012 rainfall total of 55.44 inches was above average at 106% of the POR average annual.

4.2 Groundwater Flow Patterns

The groundwater elevation data from each sampling event during the review period were plotted and contoured to illustrate the groundwater flow direction and gradient. The groundwater contour maps for April 2011, October 2011, April 2012, and September 2012 are presented as **Figures 2** through **5**.

The maps indicate that the general groundwater flow direction within the landfill property is towards the west and southwest, which is consistent with the direction of surface water flow in Old Cow Pen Slough. However, it appears that the landfill property is impacting the regional groundwater flow based on an apparent groundwater flow direction to the northeast, in addition to the southwest direction, as a result of lower water level elevations at the up-gradient background well relative to water level elevations at the landfill.

The groundwater contour maps were used to estimate the hydraulic gradient across the landfill property. The hydraulic gradients between the contour lines in the northern portion of the landfill and the southern portion of the landfill were calculated during each semi-annual sampling event. The highest hydraulic gradient was 0.00154 feet/foot in the First Half of 2012, and the lowest hydraulic gradient was 0.00062 feet/foot in the First Half of 2011. The average hydraulic gradient at the site was approximately 0.00129 feet/foot.

5.0 Summary, Conclusions and Recommendations

The analytical results from the review period suggest that the CCSWDC has had an effect on the groundwater quality in the immediate vicinity. However, the most serious of these effects are likely attributed to reductive dissolution in the shallow groundwater caused solely by site development activities. There are no indications of any effects associated with a release of leachate or any type of "discharge" from the active landfill cells. A summary of the detection patterns in the water quality network is as follows:

- Several inorganic and organic parameters were detected in the leachate and gas condensate samples during the review period. None of the parameter concentrations exceeded the regulatory criteria. Leachate sampling was discontinued after the first half of 2012 in accordance with the amendments to Chapter 62-701, F.A.C. that became effective on August 12, 2012.

- In the groundwater, there were numerous inorganic detections and very infrequent organic detections. The detected organic parameters were at low concentration that did not approach their respective MCL or CTL. Ten inorganic parameters - pH, aluminum, ammonia, arsenic, chloride, iron, manganese, sodium, sulfate, and TDS - were detected at least once during the period of record at concentrations in excess of their respective MCL or CTL. Elevated arsenic, iron, manganese, and TDS concentrations were consistently detected at all or the majority of the detection wells during the period of record. pH was also consistently lower than the SDWS at most wells during the review period. Elevated aluminum concentrations were detected at wells MW-1R, MW-15, MW-16 and MW-19. Elevated chloride and sodium concentrations were detected only at MW-16, and elevated sulfate concentrations were detected only at MW-20.

- Statistical analysis of the period of record groundwater quality data using the Kendall Tau trend test identified statistically significant trends for the following parameters:

    - Arsenic at well MW-9 which exhibited a deceasing trend with a moderate correlation strength;
    - TDS at well MW-9 which exhibited an increasing trend with a moderate correlation strength;
    - TDS at well MW-18 which exhibited an increasing trend with a strong correlation strength, and;
    - Iron at well MW-20 which exhibited a deceasing trend with strong correlation strength.

- Evaluation of groundwater TDS, conductivity, arsenic, iron and turbidity from 2010 through 2012 using scatter plots indicated poor correlations between TDS and conductivity, iron and arsenic, turbidity and arsenic, and turbidity and iron.

- Surface water sampling at locations B-2 and B-4R was discontinued after the first half of 2012 and replaced with sampling at Pond 1 and Pond 2 in the second half of 2012, in accordance with the permit modification. The parameters which were detected in the

surface water at concentrations in excess of a SWQC or CTL at the Pond #1 and #2 locations were fecal coliform and dissolved oxygen.

The most significant detections in the water quality monitoring network during the review period were arsenic and iron in the groundwater. As discussed above, these constituents, along with pH, were investigated as part of three significant studies conducted between 2007 and 2010. A Background Groundwater Quality Assessment was completed in 2011, and no further investigations of the site's iron and arsenic impacts have been conducted since then. The conclusions of these studies were that reductive dissolution of groundwater in the surficial aquifer is causing the elevated concentrations of iron and arsenic (as well as ammonia), which are found naturally in the soils at the site. The cause of the reductive dissolution phenomena appears to be associated with development of the landfill site. Reductive dissolution conditions are found throughout the areas of the site where fill material has been placed and the natural environment has been significantly altered. However, the reductive dissolution phenomena appear to be especially enhanced in the vicinity of the areas where a liner has been placed (currently the Phase I and Phase II sections of the landfill).

With regard to the hydrological data from the review period, the surficial aquifer beneath the CCSWDC was flowing generally from northeast to southwest. The average hydraulic gradient at the site was estimated to be approximately 0.00129 feet/foot. Except for MW-16 during early 2012, the water levels were within the screened intervals of all the wells in the existing network during every sampling event of the review period in which they were sampled. MW-16 was too dry for sampling in early 2012. The spacing between the monitoring wells is generally consistent with FAC requirements.

Based on the findings of this evaluation, the water quality and elevation monitoring network at the CCSWDC appears to be adequate in meeting the objectives of the monitoring program. The current monitoring program, monitoring well network, sampling frequency, and list of parameters to be sampled are adequate for developing relevant site data. Based on a meeting conducted with the County and the FDEP, held on July 17, 2013, the following recommendations regarding the site's water quality monitoring program were discussed:

- Discontinue sampling of leachate and gas condensate;
- Discontinue sampling of the compliance wells;
- Abandon certain poorly-sited monitoring wells, and replace them with new wells or existing compliance wells;
- Remove all Appendix II organic parameters from the groundwater sampling program;
- Propose the use of Natural Attenuation Monitoring wells to be sampled for those parameters that are associated with the reductive dissolution phenomena; and
- Provide Natural Attenuation Monitoring alternative Cleanup Target Levels for those constituents, such as iron and TDS, which are frequently found at elevated concentrations in the site's background wells.

The details of the above-mentioned recommendations and their implementation will be provided in a revised version of the site's Water Quality Monitoring Plan.

6.0 Environmental Professional Qualifications and Signatures

The following environmental professional was responsible for the preparation of this water quality monitoring plan evaluation report.

Bradley J. Bayne, P.G.
Senior Geologist, Atkins

Mr. Bayne is a Florida-registered professional geologist with over 22 years of experience in the planning and performance of environmental projects.

9-10-13
Date

Bradley J. Bayne
Florida P.G. #1733

TABLES

TABLE 1-1
WATER QUALITY MONITORING NETWORK
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX

Leachate Sampling Points		
Location (Sample ID)	**Landfill Cell**	**WACS Testsite Identification Number**
C-1	Cell #1	20580
C-2	Cell #2	20581
C-3	Cell #3	20582
C-4	Cell #4	20583
C-5	Cell #4	20584
P2-1	Cells # 1-4, Phase II	23037

Groundwater Sampling Points (Monitoring Wells)			
Location/Well Identifier	**Aquifer Monitored**	**Designation**	**WACS Testsite ID No.**
MW-1R	Surficial	Background	20585
MW-8A	Surficial	Detection	21453
MW-9	Surficial	Detection	4509
MW-10R	Surficial	Detection	4510
MW-15	Surficial	Detection	23031
MW-16	Surficial	Detection	23032
MW-17	Surficial	Detection	23033
MW-18	Surficial	Detection	23034
MW-19	Surficial	Detection	23035
MW-20	Surficial	Detection	23036

Surface Water Sampling Points		
Identifier	**Location**	**WACS Testsite Identification Number**
B-2	Old Cowpen Slough– Upstream	4519
B-4R	Old Cowpen Slough - Downstream	20060
Pond 1	Adjacent to staff gauge STW-1	28824
Pond 2	Adjacent to staff gauge STW-2	28825

Condensate Sampling Point		
Identifier	**Location**	**WACS Testsite Identification Number**
S-4	Condensate Sump S-4	23346

TABLE 1-2
CURRENT WATER ELEVATION MONITORING NETWORK
CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX

Well Identifier	Top-of-Casing Elevation (Ft-NGVD)	Total Depth (Ft-TOC)	Screen Interval Elevation (Ft-NGVD)
MW-1R	24.42	15.74	9.43-19.43
MW-8A	35.40	15.07	13.65-23.65
MW-9	35.73	NA	NA
MW-10R	31.79	NA	NA
MW-11R#	25.80	14.35	11.59-21.59
MW-12R#	26.20	15.20	11.46-21.46
MW-15	44.32	30.50	14.42-23.92
MW-16	43.73	30.30	14.13-23.63
MW-17	46.15	32.60	14.15-23.65
MW-18	39.14	25.70	14.14-23.64
MW-19	36.81	23.00	14.41-23.91
MW-20	35.96	22.50	14.06-23.56
MW-3*	23.34	NA	NA
MW-5*	23.19	NA	NA

Compliance Well	Top-of-Casing Elevation (Ft-NGVD)
CW-8A	35.04
CW-9	26.58
CW-10R	26.98
CW-15	30.17
CW-16	29.58
CW-19	27.52
CW-20	27.38

Staff Gauge	Measuring Point Elevation (Ft-NGVD)
STW-1	21.19
STW-2	20.31
STW-3	20.19
STW-4	19.34
STW-5A	19.79
STW-5B	18.04
STW-6	19.37
STW-7	22.29

Abandoned in 2009 NA = Data not available or applicable

*Piezometers. Horizontal Datum: Florida State Plane NAD83(90); Vertical Datum: 1929 NGVD.

Table 2-1
Leachate Analytical Summary
Central County Solid Waste Disposal Complex
First Half 2011

Analyte	Location:		C-1	C-2	C-3	C-4	C-5	P2-1
	Date of Test:		04/11/11	04/11/11	04/11/11	04/11/11	04/11/11	04/11/11
	Standard(1)	Units						
Field Measurements								
Temperature		Celcius	30.72	34.82	39.93	38.64	38.48	26.96
Turbidity		NTU	8.33	46.8	16	14.3	22.8	11.8
pH		Std. Unit	7.26	7.38	7.72	7.56	7.47	6.42
Conductivity		umhos/cm	8240	14319	25574	22424	20102	834
Dissolved Oxygen (DO)		mg/l	1.7	0.90	0.88	0.75	0.36	2.41
Inorganics								
Carbonate Alkalinity		mg/l	BDL	BDL	BDL	BDL	BDL	BDL
Biochemical Oxygen Demand		mg/l	69.9 I	106	213	139	141	BDL
Chemical Oxygen Demand		mg/l	949	2510	5370	4470	3750	69.7
Calcium		mg/l	235	223	111	118	207	132
Chloride		mg/l	658	1540	2860	2720	2390	16.9
Iron		ug/l	1860	2800	4520	3540	5090	5310
Magnesium		mg/l	53.2	74.2	73.1	65.8	79.7	17
Mercury	200	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Nitrate		mg/l	0.013 I	0.005 I	0.237	0.172	0.064	0.073
Nitrite		mg/l	0.004 I	0.028	0.015	0.044	0.062	0.004 I
Nitrate-Nitrilte		mg/l	0.017	0.033	0.252	0.216	0.126	0.077
Potassium		mg/l	209	494	1070	880	914	7.2
Sodium		mg/l	578	1320	2340	2110	1700	15.9
Sulfate		mg/l	54.1	91.2	17.5 I	BDL	BDL	16.9
Total Ammonia - N		mg/l	521	975	1830	1520	1390	3.9
Total Alkalinity		mg/l	2990	4370	9640	8260	7310	390
Total Dissolved Solids (TDS)		mg/l	3000	6460	8480	9360	8900	467

Notes: (1) - Regulatory standard listed in 40 CFR Part 261.24. shading = exceedance of the regulatory level.

I = between MDL and PQL

Abbreviations: BDL = below detection limits; mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nepholometric turbidity units.

Table 2-2
Leachate Analytical Summary
Central County Solid Waste Disposal Complex
Second Half 2011

Analyte		Location:	C - 1	C -2	C- 3	C -4	C - 5	P2-1
		Date of Test:	10/05/11	10/05/11	10/05/11	10/05/11	10/05/11	10/05/11
	Standard(1)	Units						
Field Measurements								
Temperature		Celcius	31.51	34.62	39.91	37.32	35.82	28.66
Turbidity		NTU	14.4	41.1	36.1	16.8	36.2	28.8
pH		Std. Unit	7.15	7.34	7.65	7.57	7.52	7.23
Conductivity		umhos/cm	7887	10930	21183	24989	22213	2120
Dissolved Oxygen (DO)		mg/l	0.73	0.28	0.29	0.39	0.67	3.24
Inorganics								
Antimony		ug/l	101	9.7 I	37	5.6 I	10.3	0.54 I
Arsenic	5000	ug/l	169	265	528	215	214	11.1
Barium	100000	ug/l	159	115	103	104	129	52
Beryllium		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Biochemical Oxygen Demand		mg/l	77.2	284	394	420	415	389
Chemical Oxygen Demand		mg/l	1000	1970	4210	4850	4110	210
Cadmium		ug/l	0.56 I	0.59 I	0.82 I	BDL	0.70 I	BDL
Carbonate Alkalinity		mg/l	BDL	BDL	BDL	BDL	BDL	BDL
Calcium		mg/l	322	344	184	99.8	201	185
Chloride		mg/l	691	1120	2070	2640	2440	204
Chromium	5000	ug/l	36.1	276	418	467	436	2.9 I
Cobalt		ug/l	19.7	27.8	49.2	55.1	49.7	BDL
Copper		ug/l	BDL	2.9 I	3.0 I	2.8 I	4.4 I	BDL
Cyanide		mg/l	BDL	0.013 I	0.023	0.023	0.021	BDL
Iron		ug/l	1580	1420	2300	1890	3280	3420
Lead	5000	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Magnesium		mg/l	86.5	94.9	94.5	61.6	116	42.5
Mercury	200	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Nickel		ug/l	48.7	80.2	136	168	161	6.2
Nitrate		mg/l	BDL	BDL	BDL	BDL	BDL	BDL
Nitrite		mg/l	BDL	BDL	BDL	BDL	BDL	BDL
Nitrate-Nitrilte		mg/l	BDL	BDL	BDL	BDL	BDL	BDL
Potassium		mg/l	200	396	744	722	1080	40.2
Selenium	1000	ug/l	BDL	BDL	BDL	BDL	8.9 I	BDL
Silver	5000	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Sodium		ug/l	636000	1120000	1620000	1770000	1810000	82000
Sulfate		mg/l	53.0 I	97.3 I	BDL	BDL	BDL	32.2
Total Ammonia - N		mg/l	505	593	1400	1580	1260	25.9
Thallium		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Tin as SN		ug/l	BDL	43.3 I	67.9	80.2	35.9 I	BDL
Total Alkalinity		mg/l	2740	3650	6970	6790	6440	557
Total Dissolved Solids (TDS)		mg/l	2940	4280	7620	9080	7960	1030
Total Sulfide		mg/l	9.4	13.9	25.4	27.8	20.4	BDL
Vanadium		ug/l	29.9	84.2	169	124	144	7.9 I
Zinc		ug/l	BDL	20.2	113	64.2	92.7	BDL
Pesticides & Herbicides								
2,4-D	10,000	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2,4,5-T		ug/l	0.5	0.8	1.5	BDL	BDL	BDL
3 & 4 methylphenol	200,000	ug/l	37.1	3.7 I	BDL	17.3	13.2	BDL
A-BHC		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Aldrin		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
B-BHC		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Chlordane	30	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
D-BHC		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Dieldrin		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Dinoseb		ug/l	BDL	0.061 I	0.85	BDL	BDL	BDL
Endosulfan Sulfate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Endosulfan-I		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Endosulfan-II		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Endrin	20	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Endrin Aldehyde		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
G-BHC(Lindane)	400	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Heptachlor	130	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Heptachlor Epoxide	130	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Methoxychlor	10,000	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
PCB-1016		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
PCB-1221		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
PCB-1232		ug/l	BDL	BDL	BDL	BDL	BDL	BDL

Analyte		Location:	C - 1	C -2	C- 3	C -4	C - 5	P2-1
		Date of Test:	10/05/11	10/05/11	10/05/11	10/05/11	10/05/11	10/05/11
	Standard(1)	Units						
PCB-1242		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
PCB-1248		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
PCB-1254		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
PCB-1260		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
PP-DDD		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
PP-DDE		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
PP-DDT		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Silvex	1,000	ug/l	0.25	0.15 I	0.34	0.65	BDL	BDL
Toxaphene	500	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Organics, Acid Extractables								
2,4,6-Trichlorophenol	2,000	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2,3,4,6-Tetrachlorophenol		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2,4,5-Trichlorophenol	400,000	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2,4-Dichlorophenol		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2,4-Dimethylphenol		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2,4-Dinitrophenol		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2,6-Dichlorophenol		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2-Chlorophenol		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2-Methylphenol	200,000	ug/l	BDL	3.1 I	9.6	18.1	15.6	BDL
2-Nitrophenol		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
4,6-Dinitro-2-methylphenol		ug/l	BDL	BDL	BDL	BDL	4.2 I	BDL
4-Chloro-3-methylphenol		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
4-Nitrophenol		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Pentachlorophenol	100,000	ug/l	BDL	BDL	0.11	0.071	BDL	BDL
Phenol		ug/l	21.1	BDL	BDL	BDL	BDL	BDL
Base Neutrals								
1,2,4,5-Tetrachlorobenzene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,2,4-Trichlorobenzene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,3,5-Trinitrobenzene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,3-Dinitrobenzene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1-Methylnaphthalene		ug/l	0.87 I	0.59 I	0.99 I	0.55 I	0.45 I	BDL
1,4-Naphthoquinone		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1-Naphthylamine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2,4-Dinitrotoluene	130	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2,6-Dinitrotoluene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2-Acetylaminoflourene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2-Chloronaphthalene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2-Methylnaphthalene		ug/l	2.2 I	1.1 I	2.3	1.0 I	1.5 I	BDL
2-Naphthylamine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2-Nitroaniline		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
3,3-Dichlorobenzidine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
3,3-Dimethylbenzidine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
3-Methylcholanthrene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
3-Nitroaniline		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
4-Aminobiphenyl		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
4-Bromophenyl-phenylether		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
4-Chloroaniline		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
4-Chlorophenylphenylether		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
4-Nitronaline		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
5-Nitro-o-toluidine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
7,12-Dimethylbenz(a)anthracene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Acenaphthene		ug/l	0.15 I	0.33 I	0.19 I	0.22 I	BDL	BDL
Acenaphthylene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Acetophenone		ug/l	4.3 I	2.7 I	BDL	BDL	BDL	BDL
Anthracene		ug/l	BDL	0.064 I	BDL	BDL	BDL	BDL
Benzo(a)anthracene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Benzo(a)pyrene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Benzo(b)flouranthene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Benzo(g,h,i)perylene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Benzo(k)flouranthene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Benzyl alcohol		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Bis(2-chloroethoxy)methane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Bis(2-chloroethyl)ether		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Bis(2-chloro-1-methylethyl)ether		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Bis(2-ethylhexyl)phthalate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Butylbenzylphthalate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzilate		ug/l	BDL	BDL	BDL	1.5	0.59 I	BDL
Chrysene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Diallate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Dibenz(a,h)anthracene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL

Analyte		Location:	C - 1	C -2	C- 3	C -4	C - 5	P2-1
		Date of Test:	10/05/11	10/05/11	10/05/11	10/05/11	10/05/11	10/05/11
	Standard(1)	Units						
Dibenzofuran		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Diethylphthalate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Dimethoate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Dimethylphthalate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Di-N-butylphthalate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Di-N-octylphthalate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Disulfoton		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Ethylmethanesulfonate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Famphur		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Flouranthene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Flourene		ug/l	0.13 I	0.26 I	0.13 I	0.23 I	BDL	BDL
Hexachlorobenzene	130	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Hexachlorobutadiene	500	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Hexachlorocyclopentadiene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Hexachloroethane	3,000	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Hexylchloropropene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Indeno(1,2,3-cd)pyrene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Isodrin		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Isophorone		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Isosafrole		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Kepone		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Methapyrilene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Methyl parathion		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Methylmethanesulfonate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Naphthalene		ug/l	14.2	12.6	17.2	11.2	6.1	0.099 I
Nitrobenzene	2,000	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
N-Nitrosodiethylamine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
N-Nitrosodimethylamine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
N-Nitrosodi-n-butylamine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
N-Nitroso-di-n-propylamine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
N-Nitrosodiphenylamine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
N-Nitrosoethylmethylamine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
N-Nitrosopiperidine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
N-Nitrosopyrrolidine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
0,0,0-Triethylphosphorothioate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Ortho-toluidine		ug/l	3.0 I	BDL	13.2	BDL	5.8	0.58 I
Para-Phenylenediamine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Parathion		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
P-Dimethlaminoazobenzene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Pentachlorobenzene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Pentachloronitrobenzene		ug/l	0.49 I	1.2	0.39	0.21 I	0.15 I	BDL
Phenacetin		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Phenanathrene		ug/l	0.048 I	0.27 I	0.33 I	0.33 I	BDL	0.018 I
Phorate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Pronamide		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Pyrene	5,000	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Safrole		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Thionazin		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Volatile Organics								
1,1,1,2-Tetrachloroethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dibromo-3-chloropropane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethene	700	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloropropene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,2,3-Trichloropropane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	500	ug/l	BDL	BDL	BDL	BDL	BDL	1.8
1,2-Dichloropropane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,3-Dichlorobenzene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,3-Dichloropropane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	7,500	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2,2-Dichloropropane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
2-Butanone	200,000	ug/l	219	54.8	27.2 I	BDL	BDL	BDL
2-Hexanone		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
4-Methlyl-2-pentanone		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Acetone		ug/l	308	BDL	BDL	BDL	BDL	256
Acetonitrile		ug/l	90.9	127	174	133	156	28.8

Analyte		Location:	C - 1	C -2	C- 3	C -4	C - 5	P2-1
		Date of Test:	10/05/11	10/05/11	10/05/11	10/05/11	10/05/11	10/05/11
	Standard(1)	Units						
Acrolein		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Acrylonitrile		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Allyl chloride		ug/l	BDL	BDL	BDL	3.4 I	BDL	BDL
Benzene	500	ug/l	3.5	3.6	2.8 I	4.9 I	7.1	BDL
Bromochloromethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Bromodichloromethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Bromomethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Carbon disulfide		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Carbon tetrachloride	500	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	100,000	ug/l	1.4 I	1.1 I	BDL	BDL	BDL	BDL
Chloroethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Chloromethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Chloroprene		ug/l	BDL	BDL	BDL	3.4 I	BDL	BDL
cis-1,2-Dichloroethene		ug/l	2.5	2.2	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Dibromochloromethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Dibromochloropropane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Dibromomethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Dichlorodiflouromethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Dichloromethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl methacrylate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Ethylbenzene		ug/l	42.9	38.1	32.6	30.3	40.1	BDL
Ethylene dibromide		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Iodomethane		ug/l	BDL	BDL	BDL	4.2 I	BDL	BDL
Isobutyl Alcohol		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Methacrylonitrile		ug/l	BDL	BDL	BDL	35.1 I	BDL	BDL
Methyl methacrylate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Propionitrile		ug/l	BDL	BDL	BDL	32.9 I	BDL	BDL
Styrene		ug/l	1.7 I	3.2	BDL	3.0 I	3.0 I	BDL
t-1,4-Dichloro-2-butene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene	700	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Toluene		ug/l	14.5	31.9	44.2	52	37.6	BDL
Total Xylenes		ug/l	31.9	61.8	84.1	68.1	81.9	2.1
trans-1,2-Dichloroethene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Tribromomethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethene	500	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Trichlorofluoromethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Trichloromethane	6,000	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl acetate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl chloride	200	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
1,2 diphenylhydrazine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL

Notes: (1) - Regulatory standard listed in 40 CFR Part 261.24. Analyte concentrations shown with shading represent an exceedance ot the regulatory level.

I = between MDL and PQL

Abbreviations: BDL = below detection limits; mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nepholometric turbidity units.

Table 2-3
Leachate Analytical Summary
Central County Solid Waste Disposal Complex
First Half 2012

Analyte		Location:	C-1	C-2	C-3	C-4	C-5	P2-1
		Date of Test:	04/02/12	04/02/12	04/02/12	04/02/12	04/02/12	04/02/12
	Standard(1)	Units						
Field Measurements								
Temperature		Celcius	30.99	32.25	34.53	37.00	36.57	29.11
Turbidity		NTU	12.1	43.2	17.7	10.5	24.6	4.04
pH		Std. Unit	7.06	7.48	7.51	7.53	7.53	6.52
Conductivity		umhos/cm	8054	15020	14321	19847	23255	2014
Dissolved Oxygen (DO)		mg/l	0.68	0.74	0.64	0.54	0.66	2.21
Inorganics								
Carbonate Alkalinity		mg/l	BDL	BDL	BDL	BDL	BDL	BDL
Biochemical Oxygen Demand		mg/l	248	242	323	311	258	58.6
Chemical Oxygen Demand		mg/l	1010	2930	2930	4290	5080	246
Calcium		mg/l	167	182	76.3	124	159	171
Chloride		mg/l	704	1830	1270	2740	3020	219
Iron		ug/l	1730	2470	3960	2700	3400	3890
Magnesium		mg/l	49.9	57.8	36.6	64.1	81.9	40.0
Mercury	200	ug/l	BDL	BDL	BDL	BDL	BDL	BDL
Nitrate		mg/l	1.1	BDL	BDL	BDL	BDL	BDL
Nitrite		mg/l	BDL	BDL	BDL	BDL	BDL	BDL
Nitrate-Nitrilte		mg/l	1.1	BDL	BDL	BDL	BDL	BDL
Potassium		mg/l	212	523	506	817	1110	51.4
Sodium		mg/l	664	1650	1160	2080	NS	96.0
Sulfate		mg/l	56.5	BDL	BDL	BDL	BDL	10.2
Total Ammonia - N		mg/l	717	902	1040	1420	1340	22.5
Total Alkalinity		mg/l	3170	5060	3890	7020	7100	575
Total Dissolved Solids (TDS)		mg/l	2750	14600	10000	10100	10800	1130

Notes: (1) - Regulatory standard listed in 40 CFR Part 261.24. NS = not sampled for that parameter

I = between MDL and PQL

Abbreviations: BDL = below detection limits; mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nepholometric turbidity units.

Table 2-4
Goundwater Analytical Summary
Central County Solid Waste Disposal Complex
First Half 2011

Analyte			Surficial Aquifer Wells									
		Well:	MW-1R	MW-8A	MW-9	MW-10R	MW- 15	MW-16	MW- 17	MW-18	MW-19	MW-20
		Date Sampled:	4/20/2013	4/13/2011	4/13/2011	4/13/2011	4/25/2011	4/25/2011 & # 6/14/2011	4/25/2011	4/13/2011	4/21/2011	4/21/2011
	MCL/ CTL[1]	Units										
Field Parameters												
Temperature		Celcius	23.59	23.98	25.4	24.39	25.44	26.13#	25.70	24.75	25.76	24.05
pH	6.5-8.5*	Std. Units	6.75	6.34	6.48	6.36	6.27	6.36#	6.3	6.32	6.03	6.52
Conductivity		umhos/cm	661	1801	1645	1577	2308	2486#	1740	1374	724	1920
Dissolved Oxygen (DO)		mg/l	0.35	0.19	0.41	0.39	0.17	0.28#	0.22	0.25	0.22	0.29
Turbidity		NTU	8.32	1.31	1.80	1.05	6.97	14.8#	1.87	0.62	10.7	1.56
Inorganics												
Aluminum	200*	ug/l	678	149	BDL	78.8 I	848	1450#	177	53.3 I	1300	BDL
Antimony	6	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Arsenic	10	ug/l	BDL	54.4	42.8	11.3	45.9	55.7	78.0	5.9 I	49.5	81.7
Barium	2000	ug/l	20.5	69.5	105	86.9	151	242	104	40.5	29.6	94.0
Beryllium	4	ug/l	BDL	BDL	BDL	BDL	BDL	1.2	BDL	BDL	BDL	BDL
Bicarbonate Alkalinity		mg/l	230	914	1060	687	920	954	723	725	300	833
Cadmium	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Calcium		mg/l	101	201	302	157	338	244	224	259	49.5	218
Carbonate Alkalinity		mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloride	250*	mg/l	82.3	30.1	39.5	68.9	130	372	68.4	18.8	13.9	96.1
Chromium	100	ug/l	BDL	5.5	BDL	BDL	2.9 I	56.7	2.5 I	BDL	3.2 I	BDL
Cobalt		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Copper	1000*	ug/l	BDL	BDL	BDL	BDL	BDL	4.9 I	BDL	BDL	BDL	BDL
Iron	300*	ug/l	3090	86000	42500	66400	75300	70500#	123000	30400	66200	38700
Lead	15	ug/l	BDL	BDL	BDL	BDL	BDL	BDL#	BDL	BDL	BDL	BDL
Magnesium		mg/l	20.9	76.6	57.6	47.5	85700	80.3	20.9	24.4	22.0	74.7
Manganese	50*	ug/l	BDL	17.0	35.7	12.5	462	14.5	14.7	31.2	18.0	12.1
Mercury	2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nickel	100	ug/l	BDL	BDL	BDL	BDL	BDL	13.8	2.6 I	BDL	BDL	BDL
Nitrate	10	mg/l	0.088	0.005 I	BDL	0.010 I	BDL	0.016	0.009 I	BDL	0.011 I	0.02
Nitrite	1	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nitrogen- NO3/NO2	10	mg/l	0.088	0.005 I	BDL	0.01 I	BDL	0.016	0.009 I	BDL	0.011 I	0.02
Potassium		mg/l	BDL	3.1	4.7	1.2	7.7	BDL	5.2	0.86 I	2.5	0.65 I
Selenium	50	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Silver	100*	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sodium	160	mg/l	26.6	59.2	47.8	80.7	77.2	285#	60.0	6.7	17.9	103
Sulfate	250*	mg/l	19.0	BDL	BDL	BDL	198	BDL	BDL	BDL	BDL	BDL
Sulfide (Appendix II)		mg/l	BDL	NS	NS	NS	BDL	2.3	NS	NS	BDL	BDL
Thallium	2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Total Alkalinity		mg/l	230	914	1060	687	920	954	723	725	300	833
Total Ammonia-N	2.8	mg/l	0.035 I	13.0	13.0	6.5	7.6	11.8	25.1	2.2	14.3	3.0
Total Dissolved Solids (TDS)	500*	mg/l	468	886	1100	810	1400	1490	880	746	440	1030
Vanadium	49	ug/l	BDL	9.7 I	BDL	5.0 I	8.4 I	13.5#	5.3 I	BDL	9.7 I	BDL
Zinc	5000*	ug/l	BDL	BDL	BDL	BDL	BDL	15.1 I	BDL	BDL	BDL	BDL
Volatile Organics (Appendix I and Appendix II Parameters)												
Acetone	6300	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	6.4 I	BDL
Acrylonitrile		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	1	ug/l	BDL	BDL	BDL	BDL	BDL	0.64 I	0.65 I	BDL	BDL	BDL
Bromochloromethane	91	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromoform (Tribromomethane)	4.4	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromodichloromethane	0.6	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromomethane (Methyl bromide)	9.8	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2-Butanone (MEK)	4200	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon disulfide	700	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon tetrachloride	3	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	100	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroethane (ethylene chloride)	140	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloromethane (Methyl chloride)	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dibromochloromethane	0.4	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dibromochloropropane	0.2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dibromomethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dichloromethane (Methylene chloride)	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethylene dibromide	0.02	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	600	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	75	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	700	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	3	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethene	7	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	70	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,2-Dichloroethene	100	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloropropane	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	1	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	1	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,4-Dichloro-2-butene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethylbenzene	700	ug/l	BDL	BDL	BDL	BDL	BDL	1.1	1.0	BDL	BDL	BDL
2-Hexanone		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Iodomethane (Methyl iodide)		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
4-Methlyl-2-pentanone	350	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Styrene	100	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1,2-Tetrachloroethane	1	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane	0.2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene	3	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Analyte			Surficial Aquifer Wells									
	Well:		MW-1R	MW-8A	MW-9	MW-10R	MW- 15	MW-16	MW- 17	MW-18	MW-19	MW-20
	Date Sampled:		4/20/2013	4/13/2011	4/13/2011	4/13/2011	4/25/2011	4/25/2011 & * 6/14/2011	4/25/2011	4/13/2011	4/21/2011	4/21/2011
	MCL/ CTL[1]	Units										
Toluene	1000	ug/l	BDL	BDL	BDL	BDL	0.52 I	BDL	0.56 I	BDL	BDL	0.54 I
1,1,1-Trichloroethane	200	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethene	3	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloromethane (chloroform)	6	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichlorofluoromethane	2100	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2,3-Trichloropropane	42	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl acetate	88	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl chloride	1	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Xylenes	10000	ug/l	3.8	3.8	BDL	BDL	BDL	4.7	4.7	BDL	BDL	BDL
Pesticides & Herbicides (Appendix II Parameters)												
2,4-D	70	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2,4,5-TP (Silvex)	50	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
3 & 4 methylphenol	3.5	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
A-BHC	0.006	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Aldrin	0.002	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
B-BHC	0.02	ug/l	0.013	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Chlordane	2	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
D-BHC	2.1	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Dieldrin	0.002	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Dinoseb	7	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Endosulfan Sulfate	42	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Endosulfan-I	42	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Endosulfan-II	42	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Endrin	2	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Endrin Aldehyde		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
G-BHC(Lindane)	2	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Heptachlor	0.4	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Heptachlor Epoxide	0.2	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Methoxychlor	40	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
PCB-1016	0.5	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
PCB-1221	0.5	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
PCB-1232	0.5	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
PCB-1242	0.5	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
PCB-1248	0.5	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
PCB-1254	0.5	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
PCB-1260	0.5	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
PP-DDD	0.1	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
PP-DDE	0.1	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
PP-DDT	0.1	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Toxaphene	3	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Organics, Acid Extractables (Appendix II Parameters)												
2,4,6-Trichlorophenol	3.2	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2,3,4,6-Tetrachlorophenol	210	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2,4,5-Trichlorophenol	1	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2,4-Dichlorophenol	0.3	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2,4-Dimethylphenol	140	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2,4-Dinitrophenol	14	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2,6-Dichlorophenol	0.2	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2-Chlorophenol	35	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2-Methylphenol		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
3&4-Methylphenol		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	3.8 I	BDL
2-Nitrophenol		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
4,6-Dinitro-2-methylphenol		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
4-Chloro-3-methylphenol		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
4-Nitrophenol	56	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Pentachlorophenol	1	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Phenol	10	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Base Neutrals (Appendix II Parameters)												
1,2,4,5-Tetrachlorobenzene	2.1	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
1,2,4-Trichlorobenzene	70	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
1,3,5-Trinitrobenzene	40	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
1,3-Dinitrobenzene	0.7	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
1-Methylnaphthalene	28	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
1,4-Naphthoquinone		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
1-Naphthylamine		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2,4-Dinitrotoluene	0	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2,6-Dinitrotoluene	0.05	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2-Acetylaminoflourene		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2-Chloronaphthalene		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2-Methylnaphthalene	28	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2-Naphthylamine	0.0003	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2-Nitroaniline		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
3,3-Dichlorobenzidine	0.08	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
3,3-Dimethylbenzidine	0.004	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
3-Methylcholanthrene		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
3-Nitroaniline		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
4-Aminobiphenyl		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
4-Bromophenyl-phenylether		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
4-Chloroaniline		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
4-Chlorophenylphenylether		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
4-Nitronaline		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
5-Nitro-o-toluidine		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
7,12-Dimethylbenz(a)anthracene		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Acenaphthene	20	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Acenaphthylene	210	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Acetophenone		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL

Analyte			Surficial Aquifer Wells									
		Well:	MW-1R	MW-8A	MW-9	MW-10R	MW- 15	MW-16	MW- 17	MW-18	MW-19	MW-20
		Date Sampled:	4/20/2013	4/13/2011	4/13/2011	4/13/2011	4/25/2011	4/25/2011 & * 6/14/2011	4/25/2011	4/13/2011	4/21/2011	4/21/2011
	MCL/ CTL[1]	Units										
Anthracene	2100	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Benzo(a)anthracene		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Benzo(a)pyrene		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Benzo(b)flouranthene	0.05	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Benzo(g,h,i)perylene	210	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Benzo(k)flouranthene	0.5	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Benzyl alcohol	2100	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Bis(2-chloroethoxy)methane		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Bis(2-chloroethyl)ether	0.03	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Bis(2-chloro-1-methylethyl)ether		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Bis(2-ethylhexyl)phthalate	**400**	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Butylbenzylphthalate	140	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Chlorobenzilate	0.1	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Chrysene	4.8	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Diallate	0.6	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Dibenz(a,h)anthracene	0.005	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Dibenzofuran	28	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Diethylphthalate	5600	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Dimethoate	1.4	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Dimethylphthalate	70000	ug/l	2.4 I	NA	NA	NA	BDL	BDL	NA	NA	3.1 I	4.6 I
Di-N-butylphthalate		ug/l	BDL	NA	NA	NA	0.22 I	BDL	NA	NA	BDL	BDL
Di-N-octylphthalate	140	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Disulfoton	0.3	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Ethylmethanesulfonate		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Famphur	3.5	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Fluoranthene	280	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Fluorene	280	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Hexachlorobenzene	**1**	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Hexachlorobutadiene		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Hexachlorocyclopentadiene		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Hexachloroethane	3	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Hexylchloropropene		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Indeno(1,2,3-cd)pyrene	0.05	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Isodrin		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Isophorone	37	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Isosafrole		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Kepone	0.004	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Methapyrilene		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Methyl parathion		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Methylmethanesulfonate		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Naphthalene	14	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Nitrobenzene	3.5	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
N-Nitrosodiethylamine		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
N-Nitrosodimethylamine	0.0007	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
N-Nitrosodi-n-butylamine	0.006	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
N-Nitroso-di-n-propylamine	0.005	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
N-Nitrosodiphenylamine	7.1	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
N-Nitrosoethylmethylamine	0.002	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
N-Nitrosopiperidine		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
N-Nitrosopyrrolidine	0.02	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
0,0,0-Triethylphosphorothioate		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Ortho-toluidine		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Para-Phenylenediamine		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Parathion	4.2	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
P-Dimethlaminoazobenzene		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Pentachlorobenzene	5.6	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Pentachloronitrobenzene	0.1	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Phenacetin		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Phenanathrene	210	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Phorate	1.4	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Pronamide	53	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Pyrene	210	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Safrole		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Thionazin		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Volatile Organics (Additinal Appendix II Parameters)												
1,1-Dichloropropene		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
1,2,3-Trichloropropane	42	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
2,2-Dichloropropane		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Acrolein		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Allyl chloride	35	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Chloroprene	140	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Dibromochloromethane	5	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Dichlorodiflouromethane	1400	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Ethyl methacrylate	630	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Isobutyl Alcohol	2100	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Methacrylonitrile	0.7	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Methyl methacrylate	25	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
Propionitrile		ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL
1,2 diphenylhydrazine	0.04	ug/l	BDL	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL

[1] Maximum Contaminant Levels (MCL) presented in Chapter 62-550, FAC in **bold font** and Cleanup Target Levels (CTL) presented in Chapter 62-777 FAC. * indicates secondary drinking water standard.
Analyte concentrations shown with shading identify exceedance of a MCL or CTL.

NTU = nephelometric turbidity units; ug/l = migrogram per liter; mg/l = milligram per liter; I = between Method Detection Limit and Practical Quantitation Limit; NA = Not Analyzed; BDL = Below Detection Limit

Table 2-5
Groundwater Analytical Summary
Central County Solid Waste Disposal Complex
Second Half 2011

Analyte	Well:		MW-1R	MW-8A	MW-9	MW-10R	MW-15	MW-16	MW-17	MW-18	MW-19	MW-20
	Date Sampled:		09/30/11	09/29/11	09/30/11	09/29/11	10/04/11	10/04/11	10/04/11	10/03/11	10/03/11	10/03/11
	MCL/ CTL[1]	Units										
Field Parameters												
Temperature		Celcius	27.69	27.76	28.87	27.87	26.39	27.68	27.6	27.79	26.94	26.16
Turbidity		NTU	1.39	1.77	1.4	7.5	2.11	3.45	1.16	5.79	6.35	1.15
pH	6.5-8.5*	Std. Units	6.22	6.35	6.44	6.36	6.47	6.24	6.20	6.38	6.1	6.56
Conductivity		umhos/cm	406	1875	2084	1583	3272	2448	1774	1719	1076	2262
Dissolved Oxygen (DO)		mg/l	0.08	0.38	0.29	0.26	0.23	0.15	1.09	1.04	0.4	0.31
Inorganics												
Aluminum	200*	ug/l	529	181 J	62.9 I	85.3 I	114	451	128	70.2 I	468	65.0 I
Antimony	6	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Arsenic	10	ug/l	BDL	54	38.6	15.2	37.1	43.9	71.5	13.6	57.1	24.9
Barium	2000	ug/l	35.1	75.8	127	72.8	232	85.4	101	65.5	30.6	115
Beryllium	4	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bicarbonate alkalinity		mg/l	184	944	1100	664	1890	842	688	1030	458	1300
Cadmium	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.54	BDL
Carbonate Alkalinity		mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Calcium		ug/l	55600	234000	366000	184000	635000	195000	225000	347000	87800	470000
Chloride	250*	mg/l	10.8	24.6	34.7	78	165	355	68.5	36.8	25.6	79.9
Chromium	100	ug/l	BDL	4.4 I	BDL	BDL	BDL	3.4 I	3.3 I	BDL	BDL	BDL
Cobalt		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	7.7 I
Copper	1000*	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	10.1	BDL	BDL	BDL
Cyanide		mg/l	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300*	ug/l	3260	71700	40500	56900	51300	42700	109000	38000	71800	25500
Lead	15	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Magnesium		ug/l	13200	79400	53100	50600	146000	62700	20400	43500	37800	113000
Manganese	50*	ug/l	16.6	25.4	62.8	32	706	11.2	10.2	32.6	28.9	472
Mercury	2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nickel	100	ug/l	BDL	BDL	BDL	BDL	5.3	BDL	BDL	5.1	BDL	3.6 I
Nitrate	10	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nitrite		mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nitrate-Nitrilte		mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Potassium		ug/l	4.30 V	3.4 V	5.7	1.6	18.8	7.9	6.4	1.8	3.1	4.0
Selenium	50	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Silver	100*	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sodium	160	ug/l	14.4 V	47.5 V	34.9	80.9	81.4	241	64.1	16.0	24.9	128
Sulfate	250*	mg/l	BDL	BDL	65.3	BDL	198	BDL	BDL	BDL	BDL	435
Total Ammonia - N	2.8	mg/l	0.64	10.6	12	6.4	14.4	37.3	31.4	4	20.1	1.8
Thallium	2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Total Alkalinity		mg/l	184	944	1100	664	NA	842	688	1030	458	1300
Total Dissolved Solids (TDS)	500*	mg/l	279	916	1210	828	2410	1360	796	1120	508	2020
Vanadium	49	ug/l	BDL	5.2 I	BDL	BDL	6.9 I	9.2 I	BDL	BDL	BDL	BDL
Zinc	5000*	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Volatile Organics												
1,1,1,2-Tetrachloroethane	1	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	200	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane	0.2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dibromo-3-chloropropane	0.2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	700	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethene	7	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloropropene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2,3-Trichloropropane	42	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	600	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	3	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloropropane	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3-Dichlorobenzene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3-Dichloropropane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	75	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,2-Dichloropropane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2-Butanone	4,200	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2-Hexanone		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
4-Methlyl-2-pentanone	350	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Acetone	6300	ug/l	BDL	BDL	BDL	BDL	5.2	5.6	5.1 I	BDL	5.7	6.1
Acetonitrile	8	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Acrolein		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Acrylonitrile		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	1	ug/l	BDL	BDL	BDL	BDL	BDL	0.6 I	BDL	BDL	BDL	BDL
Bromochloromethane	91	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromodichloromethane	0.6	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromomethane	9.8	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon disulfide	700	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon tetrachloride	3	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	100	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroethane	140	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloromethane	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroprene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	70	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	1	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dibromochloromethane	0.4	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dibromochloropropane	0.2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dibromomethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dichlorodiflouromethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dichloromethane	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl methacrylate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Analyte	Well:		MW-1R	MW-8A	MW-9	MW-10R	MW-15	MW-16	MW-17	MW-18	MW-19	MW-20
	Date Sampled:		09/30/11	09/29/11	09/30/11	09/29/11	10/04/11	10/04/11	10/04/11	10/03/11	10/03/11	10/03/11
	MCL/ CTL[1]	Units										
Ethylbenzene	**700**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethylene dibromide	**0.02**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Iodomethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Isobutyl Alcohol		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methacrylonitrile		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methyl methacrylate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Propionitrile		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Styrene	**100**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,4-Dichloro-2-butene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene	**3**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toluene	**1000**	ug/l	1.6	0.88 I	1.2	BDL	1.8	1.4	1.9	0.94 I	BDL	1.5
Total Xylenes	**10000**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.58
trans-1,2-Dichloroethene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tribromomethane	4.4	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethene	**3**	ug/l	BDL	4.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichlorofluoromethane	2100	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloromethane	6	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl acetate	88	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl chloride	**1**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2 diphenylhydrazine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

[1] Maximum Contaminant Levels (MCL) presented in Chapter 62-550, FAC in **bold font** and Cleanup Target Levels (CTL) presented in Chapter 62-777 FAC. * indicates secondary drinking water standard. Analyte concentrations shown with shading identify exceedance of a MCL or CTL.

NTU = nephelometric turbidity units; ug/l = migrogram per liter; mg/l = milligram per liter; I = between Method Detection Limit and Practical Quantitation Limit; BDL = Below Detection Limit

Table 2-6
Goundwater Analytical Summary
Central County Solid Waste Disposal Complex
First Half 2012

Analyte			Surficial Aquifer Wells									
	Well:		MW-1R	MW-8A	MW-9	MW-10R	MW- 15	MW-16	MW- 17	MW-18	MW-19	MW-20
	Date Sampled:		4/2/2012	3/29/2012	3/29/2012	3/29/2012	3/30/2012		3/30/2012	3/28/2012	3/27/2012	3/28/2012
	MCL/ CTL[1]	Units										
Field Parameters												
Temperature		Celcius	22.4	25.75	25.53	25.94	27.24	NS	26.21	25.41	26.58	25.07
pH	6.5-8.5*	Std. Units	6.86	6.34	6.46	6.32	6.19	NS	6.24	6.31	6.03	6.57
Conductivity		umhos/cm	611	1335	1856	1228	1926	NS	1515	1361	879	1899
Dissolved Oxygen (DO)		mg/l	1.54	0.39	0.70	0.44	0.21	NS	0.25	1.17	1.92	1.9
Turbidity		NTU	12.2	3.72	4.41	1.2	6.36	NS	7.06	5.5	5.04	1.37
Inorganics												
Aluminum	200*	ug/l	74.4 I	124	BDL	57.0 I	142	NS	84.0 I	BDL	447	BDL
Antimony	6	ug/l	0.8 I	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Arsenic	10	ug/l	BDL	53.9	47.4	10.3	46.7	NS	46.7	10.3	32.6	22.0
Barium	2000	ug/l	25.2	65.2	120	76.3	120	NS	86.6	59.3	29.3	87.5
Beryllium	4	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Bicarbonate Alkalinity		mg/l	212	910	1120	601	903	NS	660	774	323	908
Cadmium	5	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Calcium		mg/l	92.8	201	345	125	260	NS	191	316	66.3	233
Carbonate Alkalinity		mg/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Chloride	250*	mg/l	56.1	28.5	64.3	89.2	129	NS	86.6	34.4	23.3	103
Chromium	100	ug/l	BDL	4.5 I	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Cobalt		ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Copper	1000*	ug/l	BDL	5.8	3.9 I	4.8 I	5.9	NS	8.7	5.0 I	5.1	BDL
Iron	300*	ug/l	2020	72200	46900	55600	71200	NS	107000	34900	62200	22500
Lead	15	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Magnesium		mg/l	15.9	69.6	59.9	42.4	71.3	NS	26.1	29.2	26.9	76.5
Manganese	50*	ug/l	6.1	22	33	10.6	235	NS	10.5	33	27	161
Mercury	2	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Nickel	100	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Nitrate	10	mg/l	BDL	2.3	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Nitrite	1	mg/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Nitrogen- NO3/NO2	10	mg/l	BDL	2.3	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Potassium		mg/l	0.51 I	2.9	5.2	0.98 I	6.9	NS	3.9	0.96 I	1.8	1.3
Selenium	50	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Silver	100*	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Sodium	160	mg/l	26.3	43.9	37.8	72.5	79.5	NS	58.0	9.3	15.4	98.5
Sulfate	250*	mg/l	10.6	BDL	49.0	BDL	31.9	NS	BDL	BDL	BDL	102
Sulfide (Appendix II)		mg/l	NA	NA	NA	NA	NA	NS	NA	NA	BDL	BDL
Thallium	2	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Total Alkalinity		mg/l	212	910	1120	601	903	NS	687	774	323	908
Total Ammonia-N	2.8	mg/l	0.064	8.9	10.3	4.8	6.8	NS	11.8	1.8	11.1	1.8
Total Dissolved Solids (TDS)	500*	mg/l	420	916	1280	772	1230	NS	832	898	561	1310
Vanadium	49	ug/l	BDL	7.3 I	BDL	BDL	5.1 I	NS	BDL	BDL	7.5 I	BDL
Zinc	5000*	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Volatile Organics (Appendix I and Appendix II Parameters)												
Acetone	6300	ug/l	8.2 I	BDL	BDL	BDL	8.3	NS	BDL	BDL	5.7 I	BDL
Acrylonitrile		ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Benzene	1	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Bromochloromethane	91	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Bromoform (Tribromomethane)	4.4	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Bromodichloromethane	0.6	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Bromomethane (Methyl bromide)	9.8	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
2-Butanone (MEK)	4200	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Carbon disulfide	700	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Carbon tetrachloride	3	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Chlorobenzene	100	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Chloroethane (ethylene chloride)	140	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Chloromethane (Methyl chloride)	5	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Dibromochloromethane	0.4	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Dibromochloropropane	0.2	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Dibromomethane		ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Dichloromethane (Methylene chloride)	5	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Ethylene dibromide	0.02	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
1,2-Dibromo-3-chloropropane (DBCP)	0.2	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	600	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	75	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
1,1-Dichloroethane	700	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
1,2-Dichloroethane	3	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
1,1-Dichloroethene	7	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	70	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
trans-1,2-Dichloroethene	100	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
1,2-Dichloropropane	5	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	1	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	1	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
trans-1,4-Dichloro-2-butene		ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Ethylbenzene	700	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
2-Hexanone		ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Iodomethane (Methyl iodide)		ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
4-Methlyl-2-pentanone	350	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Styrene	100	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
1,1,1,2-Tetrachloroethane	1	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane	0.2	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Tetrachloroethene	3	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL

Analyte			Surficial Aquifer Wells									
	Well:		MW-1R	MW-8A	MW-9	MW-10R	MW- 15	MW-16	MW- 17	MW-18	MW-19	MW-20
	Date Sampled:		4/2/2012	3/29/2012	3/29/2012	3/29/2012	3/30/2012		3/30/2012	3/28/2012	3/27/2012	3/28/2012
	MCL/ CTL[1]	Units										
Toluene	1000	ug/l	BDL	0.68	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	200	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	5	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Trichloroethene	3	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Trichloromethane (chloroform)	6	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Trichlorofluoromethane	2100	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
1,2,3-Trichloropropane	42	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Vinyl acetate	88	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Vinyl chloride	1	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	BDL	BDL	BDL
Xylenes	10000	ug/l	BDL	BDL	BDL	BDL	BDL	NS	BDL	0.81 I	BDL	BDL
Pesticides & Herbicides (Appendix II Parameters)												
2,4-D	70	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	3.0	BDL
2,4,5-TP (Silvex)	50	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
3 & 4 methylphenol	3.5	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
A-BHC	0.006	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Aldrin	0.002	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
B-BHC	0.02	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Chlordane	2	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
D-BHC	2.1	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Dieldrin	0.002	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Dinoseb	7	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Endosulfan Sulfate	42	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Endosulfan-I	42	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Endosulfan-II	42	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Endrin	2	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Endrin Aldehyde		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
G-BHC(Lindane)	2	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Heptachlor	0.4	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Heptachlor Epoxide	0.2	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Methoxychlor	40	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
PCB-1016	0.5	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
PCB-1221	0.5	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
PCB-1232	0.5	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
PCB-1242	0.5	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
PCB-1248	0.5	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
PCB-1254	0.5	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
PCB-1260	0.5	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
PP-DDD	0.1	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
PP-DDE	0.1	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
PP-DDT	0.1	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Toxaphene	3	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Organics, Acid Extractables (Appendix II Parameters)												
2,4,6-Trichlorophenol	3.2	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2,3,4,6-Tetrachlorophenol	210	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2,4,5-Trichlorophenol	1	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2,4-Dichlorophenol	0.3	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2,4-Dimethylphenol	140	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2,4-Dinitrophenol	14	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2,6-Dichlorophenol	0.2	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2-Chlorophenol	35	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2-Methylphenol		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
3&4-Methylphenol		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	3.8 I	BDL
2-Nitrophenol		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
4,6-Dinitro-2-methylphenol		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
4-Chloro-3-methylphenol		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
4-Nitrophenol	56	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Pentachlorophenol	1	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Phenol	10	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Base Neutrals (Appendix II Parameters)												
1,2,4,5-Tetrachlorobenzene	2.1	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
1,2,4-Trichlorobenzene	70	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
1,3,5-Trinitrobenzene	40	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
1,3-Dinitrobenzene	0.7	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
1-Methylnaphthalene	28	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
1,4-Naphthoquinone		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
1-Naphthylamine		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2,4-Dinitrotoluene	0	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2,6-Dinitrotoluene	0.05	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2-Acetylaminoflourene		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2-Chloronaphthalene		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2-Methylnaphthalene	28	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2-Naphthylamine	0.0003	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2-Nitroaniline		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
3,3-Dichlorobenzidine	0.08	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
3,3-Dimethylbenzidine	0.004	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
3-Methylcholanthrene		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
3-Nitroaniline		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
4-Aminobiphenyl		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
4-Bromophenyl-phenylether		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
4-Chloroaniline		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
4-Chlorophenylphenylether		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
4-Nitronaline		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
5-Nitro-o-toluidine		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
7,12-Dimethylbenz(a)anthracene		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Acenaphthene	20	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Acenaphthylene	210	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Acetophenone		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL

Analyte			Surficial Aquifer Wells									
	Well:		MW-1R	MW-8A	MW-9	MW-10R	MW- 15	MW-16	MW- 17	MW-18	MW-19	MW-20
	Date Sampled:		4/2/2012	3/29/2012	3/29/2012	3/29/2012	3/30/2012		3/30/2012	3/28/2012	3/27/2012	3/28/2012
	MCL/ CTL[1]	Units										
Anthracene	2100	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Benzo(a)anthracene		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Benzo(a)pyrene		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Benzo(b)flouranthene	0.05	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Benzo(g,h,i)perylene	210	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Benzo(k)flouranthene	0.5	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Benzyl alcohol	2100	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Bis(2-chloroethoxy)methane		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Bis(2-chloroethyl)ether	0.03	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Bis(2-chloro-1-methylethyl)ether		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Bis(2-ethylhexyl)phthalate	**400**	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Butylbenzylphthalate	140	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Chlorobenzilate	0.1	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Chrysene	4.8	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Diallate	0.6	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Dibenz(a,h)anthracene	0.005	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Dibenzofuran	28	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Diethylphthalate	5600	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Dimethoate	1.4	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Dimethylphthalate	70000	ug/l	2.4 I	NA	NA	NA	BDL	NS	NA	NA	3.1 I	4.6 I
Di-N-butylphthalate		ug/l	BDL	NA	NA	NA	0.22 I	NS	NA	NA	BDL	BDL
Di-N-octylphthalate	140	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Disulfoton	0.3	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Ethylmethanesulfonate		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Famphur	3.5	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Fluoranthene	280	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Fluorene	280	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Hexachlorobenzene	**1**	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Hexachlorobutadiene		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Hexachlorocyclopentadiene	**50**	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Hexachloroethane	3	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Hexylchloropropene		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Indeno(1,2,3-cd)pyrene	0.05	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Isodrin		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Isophorone	37	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Isosafrole		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Kepone	0.004	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Methapyrilene		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Methyl parathion		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Methylmethanesulfonate		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Naphthalene	14	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Nitrobenzene	3.5	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
N-Nitrosodiethylamine		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
N-Nitrosodimethylamine	0.0007	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
N-Nitrosodi-n-butylamine	0.006	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
N-Nitroso-di-n-propylamine	0.005	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
N-Nitrosodiphenylamine	7.1	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
N-Nitrosoethylmethylamine	0.002	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
N-Nitrosopiperidine		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
N-Nitrosopyrrolidine	0.02	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
0,0,0-Triethylphosphorothioate		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Ortho-toluidine		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Para-Phenylenediamine		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Parathion	4.2	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
P-Dimethlaminoazobenzene		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Pentachlorobenzene	5.6	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Pentachloronitrobenzene	0.1	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Phenacetin		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Phenanathrene	210	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Phorate	1.4	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Pronamide	53	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Pyrene	210	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Safrole		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Thionazin		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Volatile Organics (Additinal Appendix II Parameters)												
1,1-Dichloropropene		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
1,2,3-Trichloropropane	42	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
2,2-Dichloropropane		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Acrolein		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Allyl chloride	35	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Chloroprene	140	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Dibromochloromethane	5	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Dichlorodiflouromethane	1400	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Ethyl methacrylate	630	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Isobutyl Alcohol	2100	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Methacrylonitrile	0.7	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Methyl methacrylate	25	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
Propionitrile		ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL
1,2 diphenylhydrazine	0.04	ug/l	BDL	NA	NA	NA	BDL	NS	NA	NA	BDL	BDL

[1] Maximum Contaminant Levels (MCL) presented in Chapter 62-550, FAC in **bold font** and Cleanup Target Levels (CTL) presented in Chapter 62-777 FAC. * indicates secondary drinking water standard.
Analyte concentrations shown with shading identify exceedance of a MCL or CTL. NS = Not Sampled

NTU = nephelometric turbidity units; ug/l = migrogram per liter; mg/l = milligram per liter; I = between Method Detection Limit and Practical Quantitation Limit; NA = Not Analyzed; BDL = Below Detection Limit

Table 2-7
Groundwater Analytical Summary
Central County Solid Waste Disposal Complex
Second Half 2012

Analyte	Well		MW-1R	MW-8A	MW-9	MW-10R	MW-15	MW-16	MW-17	MW-18	MW-19	MW-20
	Date Sampled:		09/14/12	09/12/12	09/11/12	09/12/12	09/13/12	09/13/12	09/13/12	09/14/12	9/14/112	09/14/12
	MCL/ CTL[1]	Units										
Field Measurements												
Temperature		Celcius	28.26	28.78	28	27.65	26.53	27.12	27.0	28.89	27.79	27.12
Turbidity		NTU	1.19	6.61	1.8	4.96	7.51	2.66	1.23	4.49	2.6	0.84
pH	6.5-8.5*	Std Units	6.4	6.13	6.36	6.23	6.38	6.05	6.10	6.28	5.98	6.29
Conductivity		umhos/cm	486	1920	2300	1559	3673	2493	1774	1968	1272	2580
Dissolved Oxygen (DO)		mg/l	0.22	0.56	0.74	0.33	1.18	0.77	0.67	0.65	0.49	0.62
Inorganics												
Aluminum	200*	ug/l	151	91.4 I	BDL	78.0 I	361	608	106	53.5 I	235	51.5 I
Antimony	6	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Arsenic	10	ug/l	BDL	25.9	18.4	9.5 I	42.6	41.5	61.8	7.6 I	57.1	23.2
Barium	2000	ug/l	33	58.7	131	68.1	258	78.8	99.7	69.4	46.3	212
Beryllium	4	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bicarbonate alkalinity		mg/l	208	966	1100	664	1920	769	743	1130	556	990
Cadmium	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbonate Alkalinity		mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Calcium		mg/l	76.2	226	396	159	640	153	219	398	130	473
Chloride	250*	mg/l	31.1	55.6	35.5	87.7	152	308	78.4	34.3	39.3	51.5
Chromium	100	ug/l	BDL	BDL	BDL	BDL	2.7 I	3.7 I	2.7 I	BDL	BDL	BDL
Cobalt		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	13.8
Copper	1000*	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Iron	300*	ug/l	2150	27200	30300	53200	58300	36600	104000	36200	62500	20600
Lead	15	ug/l	BDL	6.2 I	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Magnesium		ug/l	10700	66100	43000	43400	164000	55900	19400	46200	47500	108000
Manganese	50*	ug/l	9.3	69.5	71.2	32	802	16.5	11.8	64	358	492
Mercury	2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nickel	100	ug/l	BDL	BDL	BDL	BDL	2.6 I	BDL	BDL	BDL	BDL	5.4
Nitrate	10	mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nitrite		mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nitrate-Nitrilte		mg/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Potassium		mg/l	1.1	5.0	5.66	1.4	18.7	7.8	5.9	1.5	3.8	5.2
Selenium	50	ug/l	BDL	BDL	BDL	BDL	10.2 I	BDL	18	BDL	12.2 I	BDL
Silver	100*	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sodium	160	mg/l	15.9	68.5	27.1	79.3	86.7	242	59.9	17.0	25.3	86.2
Sulfate	250*	mg/l	5.5	BDL	159	BDL	81	BDL	BDL	BDL	BDL	601
Total Ammonia - N	2.8	mg/l	0.36	28.6	8.9	6.6	6.3	35.6	26.3	4.1	17.8	2.4
Thallium	2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Total Alkalinity		mg/l	208	966	1100	645	1920	769	743	1130	458	990
Total Dissolved Solids (TDS)	500*	mg/l	311	1019	1460	810	2260	1450	876	1220	566	2000
Total Sulfide		mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	49	ug/l	BDL	BDL	BDL	BDL	6.2 I	8.9 I	BDL	BDL	BDL	BDL
Zinc	5000*	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Volatile Organics												
1,1,1,2-Tetrachloroethane	1	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	200	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane	0.2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dibromo-3-chloropropane	0.2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	700	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethene	7	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloropropene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2,3-Trichloropropane	42	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	600	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	3	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloropropane	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3-Dichlorobenzene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3-Dichloropropane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	75	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,2-Dichloropropane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2-Butanone	4,200	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2-Hexanone		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
4-Methlyl-2-pentanone	350	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Acetone	6300	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Acetonitrile	8	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Acrolein		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Acrylonitrile		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Allyl chloride		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	1	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromochloromethane	91	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromodichloromethane	0.6	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromomethane	9.8	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon disulfide	700	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon tetrachloride	3	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	100	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroethane	140	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloromethane	5	ug/l	0.68 I	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroprene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	70	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	1	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dibromochloromethane	0.4	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dibromochloropropane	0.2	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dibromomethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dichlorodiflouromethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dichloromethane	5	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Analyte	Well		MW-1R	MW-8A	MW-9	MW-10R	MW-15	MW-16	MW-17	MW-18	MW-19	MW-20
	Date Sampled:		09/14/12	09/12/12	09/11/12	09/12/12	09/13/12	09/13/12	09/13/12	09/14/12	9/14/112	09/14/12
	MCL/ CTL[1]	Units										
Ethyl methacrylate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethylbenzene	**700**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethylene dibromide	**0.02**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Iodomethane		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Isobutyl Alcohol		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methacrylonitrile		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methyl methacrylate		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Propionitrile		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Styrene	**100**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
t-1,4-Dichloro-2-butene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene	**3**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toluene	**1000**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Total Xylenes	**10000**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,2-Dichloroethene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tribromomethane	4.4	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethene	**3**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichlorofluoromethane	2100	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloromethane	6	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl acetate	88	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl chloride	**1**	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2 diphenylhydrazine		ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

[1] Maximum Contaminant Levels (MCL) presented in Chapter 62-550, FAC in **bold font** and Cleanup Target Levels (CTL) presented in Chapter 62-777 FAC. * indicates secondary drinking water standard. Analyte concentrations shown with shading identify exceedance of a MCL or CTL.

NTU = nephelometric turbidity units; ug/l = nigrogram per liter; mg/l = milligram per liter; I = between Method Detection Limit and Practical Quantitation Limit; BDL = Below Detection Limit

Table 2-8
Surface Water Analytical Summary
Central County Solid Waste Disposal Complex
First Half 2011

Analyte	Location:		B-2	B-4R
	Date of Test:		03/31/11	03/31/11
	Criteria/ CTL[1]	Units		
Field Measurements				
Temperature		Celcius	23.31	24.95
pH	**6 - 8.5**	Std. Unit	4.39	6.25
Conductivity	**1250**	umhos/cm	170	369
Dissolved Oxygen (DO)	**≥5**	mg/l	1.47	3.09
Turbidity	**≤29 above BG**	NTU	2.61	8.2
Inorganics				
Ammonia		mg/l	0.11	0.075
Antimony	**4300**	ug/l	BDL	BDL
Arsenic	**50**	ug/l	BDL	8.2 I
Barium		ug/l	15.6	19.6
Beryllium	**0.13**	ug/l	BDL	BDL
Bicarbonate Alkalinity		mg/l	BDL	102
Biochemical Oxygen Demand (BOD)		mg/l	5.95	4.1
Cadmium	**Note 2**	ug/l	0.056 I	BDL
Calcium		mg/l	8.5	42.7
Carbonate Alkalinity		mg/l	BDL	BDL
Chemical Oxygen Demand (COD)		mg/l	187	74.5
Chlorophyll A		mg/m3	2.8	32.0
Chromium	**Note 3**	ug/l	BDL	BDL
Cobalt		ug/l	BDL	BDL
Copper	**Note 4**	ug/l	2.6	1.3
Fecal coliforms	**800**	cfu/100ml	8300	3700
Iron	**1000**	ug/l	184	300
Lead	**Note 5**	ug/l	1.7	BDL
Magnesium		mg/l	4.4	6.9
Mercury	0.012	ug/l	0.0125	0.00613
Nickel	**Note 6**	ug/l	BDL	BDL
Nitrate as N		mg/l	0.082	0.064
Nitrite as N		mg/l	BDL	BDL
Nitrogen, Nitrate-Nitrite		mg/l	0.15	0.032 I
Potassium		ug/l	5.9	22.9
Selenium	5.0	ug/l	BDL	BDL
Silver	**0.07**	ug/l	BDL	BDL
Sodium		ug/l	11.6	14.5
Sulfate		mg/l	9.4	37.8
Thallium	**6.3**	ug/l	BDL	BDL
Total Alkalinity		mg/l	BDL	102
Total Dissolved Solids (TDS)		mg/l	184	240
Total Hardness		mg/l	135	135
Total Kjeldahl Nitrogen (TKN)		mg/l	2.4	1.7
Total Nitrogen		mg/l	2.6	1.7
Total Organic Carbon (TOC)		mg/l	60	19.8
Total Phosphorus		mg/l	0.30	0.67
Total Suspended Solids (TSS)		mg/l	11.0	5.0
Unionized ammonia	**0.02**	mg/l	BDL	BDL
Vanadium		ug/l	BDL	8.5 I
Zinc	**Note 7**	ug/l	27.6	6.4
Organics				
1,1,1,2-Tetrachloroethane		ug/l	BDL	BDL
1,1,1-Trichloroethane	270	ug/l	BDL	BDL
1,1,2,2-Tetrachloroethane	**10.8**	ug/l	BDL	BDL
1,1,2-Trichloroethane	16	ug/l	BDL	BDL

Analyte	Location:		B-2	B-4R
	Date of Test:		03/31/11	03/31/11
	Criteria/ CTL[1]	Units		
1,1-Dichloroethane		ug/l	BDL	BDL
1,1-Dichloroethene	**3.2**	ug/l	BDL	BDL
1,2,3-Trichloropropane	0.2	ug/l	BDL	BDL
1,2-Dichlorobenzene	99	ug/l	BDL	BDL
1,2-Dichloroethane	37	ug/l	BDL	BDL
1,2-Dichloropropane	14	ug/l	BDL	BDL
1,4-Dichlorobenzene	3	ug/l	BDL	BDL
2-Butanone (MEK)	120000	ug/l	BDL	BDL
2-Hexanone		ug/l	BDL	BDL
4-Methlyl-2-pentanone	23000	ug/l	BDL	BDL
Acetone	1700	ug/l	BDL	BDL
Acrylonitrile	0.2	ug/l	BDL	BDL
Benzene	**71.28**	ug/l	BDL	BDL
Bromochloromethane		ug/l	BDL	BDL
Bromodichloromethane	**22**	ug/l	BDL	BDL
Bromomethane	35	ug/l	BDL	BDL
Carbon disulfide	110	ug/l	BDL	BDL
Carbon tetrachloride	**4.42**	ug/l	BDL	BDL
Chlorobenzene	17	ug/l	BDL	BDL
Chloroethane		ug/l	BDL	BDL
Chloromethane	**470.8**	ug/l	BDL	BDL
cis-1,2-Dichloroethene	3.2	ug/l	BDL	BDL
cis-1,3-Dichloropropene	12	ug/l	BDL	BDL
Dibromochloromethane	**22**	ug/l	BDL	BDL
Dibromochloropropane		ug/l	BDL	BDL
Dibromomethane		ug/l	BDL	BDL
Dichloromethane	1580	ug/l	BDL	BDL
Ethylbenzene	610	ug/l	BDL	BDL
Ethylene dibromide	13	ug/l	BDL	BDL
Iodomethane		ug/l	BDL	BDL
Styrene	460	ug/l	BDL	BDL
t-1,4-Dichloro-2-butene		ug/l	BDL	BDL
Tetrachloroethene	**8.85**	ug/l	BDL	BDL
Toluene	480	ug/l	BDL	BDL
Total xylenes	370	ug/l	BDL	BDL
trans-1,2-Dichloroethene	11000	ug/l	BDL	BDL
trans-1,3-Dichloropropene	12	ug/l	BDL	BDL
Tribromoethane		ug/l	BDL	BDL
Trichloroethene	**80.7**	ug/l	BDL	BDL
Trichlorofluoromethane		ug/l	BDL	BDL
Trichloromethane	470.8	ug/l	BDL	BDL
Vinyl acetate	700	ug/l	BDL	BDL
Vinyl chloride	2.4	ug/l	BDL	BDL

Abbreviations: BDL = below detection limits; mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nepholometric turbidity units, I = eported value is between MDL and PQL, NS = no sample available from this location

Note (1) Surface water quality criteria presented in Chapter 62-302, FAC in **bold font** and Cleanup Target levels (CTL) presented in Chapter 62-777 FAC. Analyte concentrations shown with shading identify exceedance of a criteria or CTL.

Note (2) Cd less than or equal to e(0.7409(InH)-4.719)

Note (3) Cr less than or equal to e(0.819(InH)+0.6848)

Note (4) Cu less than or equal to e(0845(InH)-1.702)

Note (5) Pb less than or equal to e(1.273(InH)-4.705)

Note (6) Ni less than or equal to e(0.846(InH)+0.0584)

Note (7) Zn less than or equal to e(0.8473(InH)+0.884)

Table 2-9
Surface Water Analytical Summary
Central County Solid Waste Disposal Complex
Second Half 2011

Analyte	Location:		B-2	B-4R
	Date of Test:		10/06/11	10/06/11
	Criteria/ CTL[1]	Units		
Field Measurements				
Temperature		Celcius	25.59	26.27
pH	**6 - 8.5**	Std. Unit	4.79	6.09
Conductivity	**1250**	umhos/cm	64	126
Dissolved Oxygen (DO)	**≥5**	mg/l	4.05	3.39
Turbidity	**≤29 above BG**	NTU	0.59	1.4
Inorganics				
Ammonia		mg/l	BDL	BDL
Antimony	**4300**	ug/l	BDL	BDL
Arsenic	**50**	ug/l	BDL	BDL
Barium		ug/l	7.3 I	BDL
Beryllium	**0.13**	ug/l	BDL	BDL
Bicarbonate Alkalinity		mg/l	BDL	27.1
Biochemical Oxygen Demand (BOD)		mg/l	0.931	2.37
Cadmium	**Note 2**	ug/l	BDL	BDL
Calcium		mg/l	4.6	13.3
Carbonate Alkalinity		mg/l	BDL	BDL
Chemical Oxygen Demand (COD)		mg/l	178	160
Chlorophyll A		mg/m3	3.5	3.2
Chromium	**Note 3**	ug/l	BDL	BDL
Cobalt		ug/l	BDL	BDL
Copper	**Note 4**	ug/l	BDL	BDL
Fecal coliforms	**800**	cfu/100ml	60	90
Iron	**1000**	ug/l	475	724
Lead	**Note 5**	ug/l	3	BDL
Magnesium		mg/l	1.7	3.5
Mercury	0.012	ug/l	0.00597	0.00468
Nickel	**Note 6**	ug/l	BDL	BDL
Nitrate as N		mg/l	0.022	0.15 I
Nitrite as N		mg/l	BDL	BDL
Nitrogen, Nitrate-Nitrite		mg/l	0.045 I	BDL
Potassium		ug/l	BDL	3.3
Selenium	5.0	ug/l	BDL	BDL
Silver	**0.07**	ug/l	BDL	BDL
Sodium		ug/l	5.4	7.1
Sulfate		mg/l	BDL	6.1 I
Thallium	**6.3**	ug/l	BDL	BDL
Total Alkalinity		mg/l	BDL	27.1
Total Dissolved Solids (TDS)		mg/l	121	125
Total Hardness		mg/l	18.4	47.6
Total Kjeldahl Nitrogen (TKN)		mg/l	1.8	1.7
Total Nitrogen		mg/l	1.8	1.7
Total Organic Carbon (TOC)		mg/l	47.4	36.3
Total Phosphorus		mg/l	0.055 I	0.23
Total Suspended Solids (TSS)		mg/l	BDL	20.5
Unionized ammonia	**0.02**	mg/l	BDL	BDL
Vanadium		ug/l	BDL	BDL
Zinc	**Note 7**	ug/l	14.2	8.7
Organics				
1,1,1,2-Tetrachloroethane		ug/l	BDL	BDL
1,1,1-Trichloroethane	270	ug/l	BDL	BDL
1,1,2,2-Tetrachloroethane	**10.8**	ug/l	BDL	BDL
1,1,2-Trichloroethane	16	ug/l	BDL	BDL

Analyte	Location:		B-2	B-4R
	Date of Test:		10/06/11	10/06/11
	Criteria/ CTL[1]	Units		
1,1-Dichloroethane		ug/l	BDL	BDL
1,1-Dichloroethene	**3.2**	ug/l	BDL	BDL
1,2,3-Trichloropropane	0.2	ug/l	BDL	BDL
1,2-Dichlorobenzene	99	ug/l	BDL	BDL
1,2-Dichloroethane	37	ug/l	BDL	BDL
1,2-Dichloropropane	14	ug/l	BDL	BDL
1,4-Dichlorobenzene	3	ug/l	BDL	BDL
2-Butanone (MEK)	120000	ug/l	BDL	BDL
2-Hexanone		ug/l	BDL	BDL
4-Methyl-2-pentanone	23000	ug/l	BDL	BDL
Acetone	1700	ug/l	BDL	BDL
Acrylonitrile	0.2	ug/l	BDL	BDL
Benzene	**71.28**	ug/l	BDL	BDL
Bromochloromethane		ug/l	BDL	BDL
Bromodichloromethane	**22**	ug/l	BDL	BDL
Bromomethane	35	ug/l	BDL	BDL
Carbon disulfide	110	ug/l	BDL	BDL
Carbon tetrachloride	**4.42**	ug/l	BDL	BDL
Chlorobenzene	17	ug/l	BDL	BDL
Chloroethane		ug/l	BDL	BDL
Chloromethane	**470.8**	ug/l	BDL	BDL
cis-1,2-Dichloroethene	3.2	ug/l	BDL	BDL
cis-1,3-Dichloropropene	12	ug/l	BDL	BDL
Dibromochloromethane	**22**	ug/l	BDL	BDL
Dibromochloropropane		ug/l	BDL	BDL
Dibromomethane		ug/l	BDL	BDL
Dichloromethane	1580	ug/l	BDL	BDL
Ethylbenzene	610	ug/l	BDL	BDL
Ethylene dibromide	13	ug/l	BDL	BDL
Iodomethane		ug/l	BDL	BDL
Styrene	460	ug/l	BDL	BDL
t-1,4-Dichloro-2-butene		ug/l	BDL	BDL
Tetrachloroethene	**8.85**	ug/l	BDL	BDL
Toluene	480	ug/l	BDL	BDL
Total xylenes	370	ug/l	BDL	BDL
trans-1,2-Dichloroethene	11000	ug/l	BDL	BDL
trans-1,3-Dichloropropene	12	ug/l	BDL	BDL
Tribromoethane		ug/l	BDL	BDL
Trichloroethene	**80.7**	ug/l	BDL	BDL
Trichlorofluoromethane		ug/l	BDL	BDL
Trichloromethane	470.8	ug/l	BDL	BDL
Vinyl acetate	700	ug/l	BDL	BDL
Vinyl chloride	2.4	ug/l	BDL	BDL

Abbreviations: BDL = below detection limits; mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nepholometric turbidity units, I = eported value is between MDL and PQL, NS = no sample available from this location

Note (1) Surface water quality criteria presented in Chapter 62-302, FAC in **bold font** and Cleanup Target levels (CTL) presented in Chapter 62-777 FAC. Analyte concentrations shown with shading identify exceedance of a criteria or CTL.

Note (2) Cd less than or equal to e(0.7409(lnH)-4.719)

Note (3) Cr less than or equal to e(0.819(lnH)+0.6848)

Note (4) Cu less than or equal to e(0845(lnH)-1.702)

Note (5) Pb less than or equal to e(1.273(lnH)-4.705)

Note (6) Ni less than or equal to e(0.846(lnH)+0.0584)

Note (7) Zn less than or equal to e(0.8473(lnH)+0.884)

Table 2-10
Surface Water Analytical Summary
Central County Solid Waste Disposal Complex
Second Half 2012

Analyte	Location:		Pond 1	Pond 2
	Date of Test:		09/19/12	09/19/12
	Criteria/ CTL[1]	Units		
Field Measurements				
Temperature		Celcius	27.02	26.64
pH	**6 - 8.5**	Std. Unit	6.82	6.82
Conductivity	**1250**	umhos/cm	359	381
Dissolved Oxygen (DO)	**≥5**	mg/l	2.76	1.97
Turbidity	**≤29 above BG**	NTU	6.01	29.4
Inorganics				
Ammonia		mg/l	0.12	0.040 I
Antimony	**4300**	ug/l	BDL	BDL
Arsenic	**50**	ug/l	6.3 I	5.2 I
Barium		ug/l	28.0	16.5
Beryllium	**0.13**	ug/l	BDL	BDL
Bicarbonate Alkalinity		mg/l	127	128
Biochemical Oxygen Demand (BOD)		mg/l	2.2	2.0
Cadmium	**Note 2**	ug/l	BDL	BDL
Calcium		mg/l	55.1	45.9
Carbonate Alkalinity		mg/l	BDL	BDL
Chemical Oxygen Demand (COD)		mg/l	46.3	50.6
Chlorophyll A		mg/m3	24.8	9.2
Chromium	**Note 3**	ug/l	BDL	BDL
Cobalt		ug/l	BDL	BDL
Copper	**Note 4**	ug/l	BDL	BDL
Fecal coliforms	**800**	cfu/100ml	20000	1200
Iron	**1000**	ug/l	187	454
Lead	**Note 5**	ug/l	BDL	BDL
Magnesium		mg/l	10.2	8.2
Mercury	0.012	ug/l	0.00119	0.00176
Nickel	**Note 6**	ug/l	BDL	BDL
Nitrate as N		mg/l	BDL	BDL
Nitrite as N		mg/l	BDL	BDL
Nitrogen, Nitrate-Nitrite		mg/l	0.14	BDL
Potassium		ug/l	14.2	25.5
Selenium	5.0	ug/l	BDL	BDL
Silver	**0.07**	ug/l	BDL	BDL
Sodium		ug/l	20.4	13.4
Sulfate		mg/l	34.2	21.0
Thallium	**6.3**	ug/l	BDL	BDL
Total Alkalinity		mg/l	127	128
Total Dissolved Solids (TDS)		mg/l	267	268
Total Hardness		mg/l	179	149
Total Kjeldahl Nitrogen (TKN)		mg/l	1.3	1.4
Total Nitrogen		mg/l	1.3	1.4
Total Organic Carbon (TOC)		mg/l	15.1	20.1
Total Phosphorus		mg/l	0.096 I	0.67
Total Suspended Solids (TSS)		mg/l	BDL	9.5
Unionized ammonia	**0.02**	mg/l	BDL	BDL
Vanadium		ug/l	BDL	BDL
Zinc	**Note 7**	ug/l	4.3 I	6.5
Organics				
1,1,1,2-Tetrachloroethane		ug/l	BDL	BDL
1,1,1-Trichloroethane	270	ug/l	BDL	BDL
1,1,2,2-Tetrachloroethane	**10.8**	ug/l	BDL	BDL
1,1,2-Trichloroethane	16	ug/l	BDL	BDL

Analyte	Location:		Pond 1	Pond 2
	Date of Test:		09/19/12	09/19/12
	Criteria/ CTL[1]	Units		
1,1-Dichloroethane		ug/l	BDL	BDL
1,1-Dichloroethene	**3.2**	ug/l	BDL	BDL
1,2,3-Trichloropropane	0.2	ug/l	BDL	BDL
1,2-Dichlorobenzene	99	ug/l	BDL	BDL
1,2-Dichloroethane	37	ug/l	BDL	BDL
1,2-Dichloropropane	14	ug/l	BDL	BDL
1,4-Dichlorobenzene	3	ug/l	BDL	BDL
2-Butanone (MEK)	120000	ug/l	BDL	BDL
2-Hexanone		ug/l	BDL	BDL
4-Methlyl-2-pentanone	23000	ug/l	BDL	BDL
Acetone	1700	ug/l	BDL	BDL
Acrylonitrile	0.2	ug/l	BDL	BDL
Benzene	**71.28**	ug/l	BDL	BDL
Bromochloromethane		ug/l	BDL	BDL
Bromodichloromethane	**22**	ug/l	BDL	BDL
Bromomethane	35	ug/l	BDL	BDL
Carbon disulfide	110	ug/l	BDL	BDL
Carbon tetrachloride	**4.42**	ug/l	BDL	BDL
Chlorobenzene	17	ug/l	BDL	BDL
Chloroethane		ug/l	BDL	BDL
Chloromethane	**470.8**	ug/l	BDL	BDL
cis-1,2-Dichloroethene	3.2	ug/l	BDL	BDL
cis-1,3-Dichloropropene	12	ug/l	BDL	BDL
Dibromochloromethane	**22**	ug/l	BDL	BDL
Dibromochloropropane		ug/l	BDL	BDL
Dibromomethane		ug/l	BDL	BDL
Dichloromethane	1580	ug/l	BDL	BDL
Ethylbenzene	610	ug/l	BDL	BDL
Ethylene dibromide	13	ug/l	BDL	BDL
Iodomethane		ug/l	BDL	BDL
Styrene	460	ug/l	BDL	BDL
t-1,4-Dichloro-2-butene		ug/l	BDL	BDL
Tetrachloroethene	**8.85**	ug/l	BDL	BDL
Toluene	480	ug/l	BDL	BDL
Total xylenes	370	ug/l	BDL	BDL
trans-1,2-Dichloroethene	11000	ug/l	BDL	BDL
trans-1,3-Dichloropropene	12	ug/l	BDL	BDL
Tribromoethane		ug/l	BDL	BDL
Trichloroethene	**80.7**	ug/l	BDL	BDL
Trichlorofluoromethane		ug/l	BDL	BDL
Trichloromethane	470.8	ug/l	BDL	BDL
Vinyl acetate	700	ug/l	BDL	BDL
Vinyl chloride	2.4	ug/l	BDL	BDL

Abbreviations: BDL = below detection limits; mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nepholometric turbidity units, I = eported value is between MDL and PQL, NS = no sample available from this location

Note (1) Surface water quality criteria presented in Chapter 62-302, FAC in **bold font** and Cleanup Target levels (CTL) presented in Chapter 62-777 FAC. Analyte concentrations shown with shading identify exceedance of a criteria or CTL.

Note (2) Cd less than or equal to e(0.7409(InH)-4.719)

Note (3) Cr less than or equal to e(0.819(InH)+0.6848)

Note (4) Cu less than or equal to e(0845(InH)-1.702)

Note (5) Pb less than or equal to e(1.273(InH)-4.705)

Note (6) Ni less than or equal to e(0.846(InH)+0.0584)

Note (7) Zn less than or equal to e(0.8473(InH)+0.884)

Table 2-11
Gas Condensate Analytical Summary
Central County Solid Waste Disposal Complex
First Half 2011

Analyte	Location:		Gas Condensate (S-4)
	Date of Test:		04/11/11
	Standard(1)	Units	
Field Measurements			
Temperature		Celcius	28.93
pH		Std. Unit	7.13
Conductivity		umhos/cm	6209
Dissolved Oxygen (DO)		mg/l	2.93
Turbidity		NTU	1.31
Inorganics			
Ammonia as N		mg/l	784
Calcium		mg/l	BDL
Carbonate Alkalinity		mg/l	BDL
Chloride		mg/l	BDL
Chemical Oxygen Demand (COD)		mg/l	389
Iron		mg/l	36.2 I
Magnesium		mg/l	BDL
Mercury	200	ug/l	BDL
Nitrate as N		mg/l	0.095
Nitrite as N		mg/l	0.004 I
Nitrogen, Nitrate-Nitrite		mg/l	0.099
Potassium		mg/l	0.59 I
Sodium		mg/l	BDL
Sulfate		mg/l	BDL
Total Alkalinity		mg/l	2960
Total Dissolved Solids (TDS)		mg/l	BDL

Abbreviations: BDL = below detection limits; mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nephelometric turbidity units I = between MDL and PQL

Notes: (1) - Regulatory standard listed in 40 CFR Part 261.24.

Table 2-12
Gas Condensate Analytical Summary
Central County Solid Waste Disposal Complex
Second Half 2011

Analyte		Location:	Gas Condensate
			(S-4)
		Date of Test:	10/11/11
	Standard(1)	Units	
Field Measurements			
Temperature		Celcius	28.88
Turbidity		NTU	2.95
pH		Std. Unit	7.37
Conductivity		umhos/cm	7975
Dissolved Oxygen (DO)		mg/l	2.17
Inorganics			
Antimony		ug/l	462
Arsenic	5000	ug/l	377
Barium	100000	ug/l	BDL
Beryllium		ug/l	BDL
Biochemical Oxygen Demand		mg/l	298
Chemical Oxygen Demand		mg/l	461
Cadmium		ug/l	BDL
Carbonate Alkalinity		mg/l	BDL
Calcium		mg/l	0.37 I
Chloride		mg/l	BDL
Chromium	5000	ug/l	BDL
Cobalt		ug/l	BDL
Copper		ug/l	2.7 I
Cyanide		mg/l	BDL
Iron		ug/l	81.1
Lead	5000	ug/l	BDL
Magnesium		mg/l	BDL
Mercury	200	ug/l	BDL
Nickel		ug/l	BDL
Nitrate		mg/l	BDL
Nitrite		mg/l	BDL
Nitrate-Nitrilte		mg/l	BDL
Potassium		mg/l	BDL
Selenium	1000	ug/l	BDL
Silver	5000	ug/l	BDL
Sodium		ug/l	BDL
Sulfate		mg/l	BDL
Total Ammonia - N		mg/l	28
Thallium		ug/l	BDL
Tin as SN		ug/l	BDL
Total Alkalinity		mg/l	638
Total Dissolved Solids (TDS)		mg/l	390
Total Sulfide		mg/l	26.8
Vanadium		ug/l	BDL
Zinc		ug/l	20.3
Pesticides & Herbicides			
2,4-D	10,000	ug/l	BDL
2,4,5-T		ug/l	BDL
3 & 4 methylphenol	200,000	ug/l	530
A-BHC		ug/l	BDL
Aldrin		ug/l	BDL

Analyte	Location:		Gas Condensate (S-4)
		Date of Test:	10/11/11
	Standard(1)	Units	
B-BHC		ug/l	BDL
Chlordane	30	ug/l	BDL
D-BHC		ug/l	BDL
Dieldrin		ug/l	BDL
Dinoseb		ug/l	BDL
Endosulfan Sulfate		ug/l	BDL
Endosulfan-I		ug/l	BDL
Endosulfan-II		ug/l	BDL
Endrin	20	ug/l	BDL
Endrin Aldehyde		ug/l	BDL
G-BHC(Lindane)	400	ug/l	BDL
Heptachlor	130	ug/l	BDL
Heptachlor Epoxide	130	ug/l	BDL
Methoxychlor	10,000	ug/l	BDL
PCB-1016		ug/l	BDL
PCB-1221		ug/l	BDL
PCB-1232		ug/l	BDL
PCB-1242		ug/l	BDL
PCB-1248		ug/l	BDL
PCB-1254		ug/l	BDL
PCB-1260		ug/l	BDL
PP-DDD		ug/l	BDL
PP-DDE		ug/l	BDL
PP-DDT		ug/l	BDL
Silvex	1,000	ug/l	BDL
Toxaphene	500	ug/l	BDL
Organics, Acid Extractables			
2,4,6-Trichlorophenol	2,000	ug/l	BDL
2,3,4,6-Tetrachlorophenol		ug/l	BDL
2,4,5-Trichlorophenol	400,000	ug/l	BDL
2,4-Dichlorophenol		ug/l	BDL
2,4-Dimethylphenol		ug/l	BDL
2,4-Dinitrophenol		ug/l	BDL
2,6-Dichlorophenol		ug/l	BDL
2-Chlorophenol		ug/l	0.96 I
2-Methylphenol	200,000	ug/l	18.3
2-Nitrophenol		ug/l	BDL
4,6-Dinitro-2-methylphenol		ug/l	BDL
4-Chloro-3-methylphenol		ug/l	BDL
4-Nitrophenol		ug/l	BDL
Pentachlorophenol	100,000	ug/l	BDL
Phenol		ug/l	348
Base Neutrals			
1,2,4,5-Tetrachlorobenzene		ug/l	BDL
1,2,4-Trichlorobenzene		ug/l	BDL
1,3,5-Trinitrobenzene		ug/l	BDL
1,3-Dinitrobenzene		ug/l	BDL
1-Methylnaphthalene		ug/l	1.1 I
1,4-Naphthoquinone		ug/l	BDL
1-Naphthylamine		ug/l	BDL
2,4-Dinitrotoluene	130	ug/l	BDL
2,6-Dinitrotoluene		ug/l	BDL

Analyte	Location:		Gas Condensate (S-4)
		Date of Test:	10/11/11
	Standard(1)	Units	
2-Acetylaminoflourene		ug/l	BDL
2-Chloronaphthalene		ug/l	BDL
2-Methylnaphthalene		ug/l	1.9
2-Naphthylamine		ug/l	BDL
2-Nitroaniline		ug/l	BDL
3,3-Dichlorobenzidine		ug/l	BDL
3,3-Dimethylbenzidine		ug/l	BDL
3-Methylcholanthrene		ug/l	BDL
3-Nitroaniline		ug/l	BDL
4-Aminobiphenyl		ug/l	BDL
4-Bromophenyl-phenylether		ug/l	BDL
4-Chloroaniline		ug/l	BDL
4-Chlorophenylphenylether		ug/l	BDL
4-Nitronaline		ug/l	BDL
5-Nitro-o-toluidine		ug/l	BDL
7,12-Dimethylbenz(a)anthracene		ug/l	BDL
Acenaphthene		ug/l	1.2
Acenaphthylene		ug/l	0.071 I
Acetophenone		ug/l	26.7
Anthracene		ug/l	BDL
Benzo(a)anthracene		ug/l	BDL
Benzo(a)pyrene		ug/l	BDL
Benzo(b)flouranthene		ug/l	BDL
Benzo(g,h,i)perylene		ug/l	BDL
Benzo(k)flouranthene		ug/l	BDL
Benzyl alcohol		ug/l	63.7
Bis(2-chloroethoxy)methane		ug/l	31.2
Bis(2-chloroethyl)ether		ug/l	16.1
Bis(2-chloro-1-methylethyl)ether		ug/l	BDL
Bis(2-ethylhexyl)phthalate		ug/l	BDL
Butylbenzylphthalate		ug/l	BDL
Chlorobenzilate		ug/l	BDL
Chrysene		ug/l	BDL
Diallate		ug/l	BDL
Dibenz(a,h)anthracene		ug/l	BDL
Dibenzofuran		ug/l	BDL
Diethylphthalate		ug/l	5.1
Dimethoate		ug/l	BDL
Dimethylphthalate		ug/l	3.5 I
Di-N-butylphthalate		ug/l	0.63 I
Di-N-octylphthalate		ug/l	0.54 I
Disulfoton		ug/l	BDL
Ethylmethanesulfonate		ug/l	BDL
Famphur		ug/l	BDL
Flouranthene		ug/l	BDL
Flourene		ug/l	0.77 I
Hexachlorobenzene	130	ug/l	BDL
Hexachlorobutadiene	500	ug/l	BDL
Hexachlorocyclopentadiene		ug/l	BDL
Hexachloroethane	3,000	ug/l	BDL
Hexylchloropropene		ug/l	BDL
Indeno(1,2,3-cd)pyrene		ug/l	BDL

Analyte		Location:	Gas Condensate (S-4)
		Date of Test:	10/11/11
	Standard(1)	Units	
Isodrin		ug/l	BDL
Isophorone		ug/l	BDL
Isosafrole		ug/l	BDL
Kepone		ug/l	BDL
Methapyrilene		ug/l	BDL
Methyl parathion		ug/l	BDL
Methylmethanesulfonate		ug/l	BDL
Naphthalene		ug/l	17.0
Nitrobenzene	2,000	ug/l	BDL
N-Nitrosodiethylamine		ug/l	BDL
N-Nitrosodimethylamine		ug/l	BDL
N-Nitrosodi-n-butylamine		ug/l	BDL
N-Nitroso-di-n-propylamine		ug/l	BDL
N-Nitrosodiphenylamine		ug/l	BDL
N-Nitrosoethylmethylamine		ug/l	BDL
N-Nitrosopiperidine		ug/l	BDL
N-Nitrosopyrrolidine		ug/l	2.7 I
0,0,0-Triethylphosphorothioate		ug/l	BDL
Ortho-toluidine		ug/l	9.4
Para-Phenylenediamine		ug/l	BDL
Ethyl Parathion		ug/l	BDL
P-Dimethlaminoazobenzene		ug/l	BDL
Pentachlorobenzene		ug/l	BDL
Pentachloronitrobenzene		ug/l	0.14
Phenacetin		ug/l	BDL
Phenanathrene		ug/l	0.55 I
Phorate		ug/l	BDL
Pronamide		ug/l	BDL
Pyrene	5,000	ug/l	0.031 I
Safrole		ug/l	BDL
Thionazin		ug/l	BDL
Volatile Organics			
1,1,1,2-Tetrachloroethane		ug/l	BDL
1,1,1-Trichloroethane		ug/l	BDL
1,1,2,2-Tetrachloroethane		ug/l	BDL
1,1,2-Trichloroethane		ug/l	BDL
1,2-Dibromo-3-chloropropane		ug/l	BDL
1,1-Dichloroethane		ug/l	BDL
1,1-Dichloroethene	700	ug/l	BDL
1,1-Dichloropropene		ug/l	BDL
1,2,3-Trichloropropane		ug/l	BDL
1,2-Dichlorobenzene		ug/l	BDL
1,2-Dichloroethane	500	ug/l	BDL
1,2-Dichloropropane		ug/l	BDL
1,3-Dichlorobenzene		ug/l	BDL
1,3-Dichloropropane		ug/l	BDL
1,4-Dichlorobenzene	7,500	ug/l	BDL
2,2-Dichloropropane		ug/l	BDL
2-Butanone	200,000	ug/l	2960
2-Hexanone		ug/l	BDL
4-Methlyl-2-pentanone		ug/l	127
Acetone		ug/l	3460

Analyte	Location:		Gas Condensate (S-4)
		Date of Test:	10/11/11
	Standard(1)	Units	
Acetonitrile		ug/l	384
Acrolein		ug/l	BDL
Acrylonitrile		ug/l	BDL
Allyl chloride		ug/l	BDL
Benzene	500	ug/l	3.8
Bromochloromethane		ug/l	BDL
Bromodichloromethane		ug/l	BDL
Bromomethane		ug/l	BDL
Carbon disulfide		ug/l	BDL
Carbon tetrachloride	500	ug/l	BDL
Chlorobenzene	100,000	ug/l	1.4
Chloroethane		ug/l	BDL
Chloromethane		ug/l	BDL
Chloroprene		ug/l	BDL
cis-1,2-Dichloroethene		ug/l	2.9
cis-1,3-Dichloropropene		ug/l	BDL
Dibromochloromethane		ug/l	BDL
Dibromochloropropane		ug/l	BDL
Dibromomethane		ug/l	BDL
Dichlorodiflouromethane		ug/l	BDL
Dichloromethane		ug/l	BDL
Ethyl methacrylate		ug/l	BDL
Ethylbenzene		ug/l	43.8
Ethylene dibromide		ug/l	BDL
Iodomethane		ug/l	BDL
Isobutyl Alcohol		ug/l	BDL
Methacrylonitrile		ug/l	BDL
Methyl methacrylate		ug/l	BDL
Propionitrile		ug/l	BDL
Styrene		ug/l	5.7
t-1,4-Dichloro-2-butene		ug/l	BDL
Tetrachloroethene	700	ug/l	BDL
Toluene		ug/l	71.3
Total Xylenes		ug/l	126
trans-1,2-Dichloroethene		ug/l	BDL
trans-1,3-Dichloropropene		ug/l	BDL
Tribromomethane		ug/l	BDL
Trichloroethene	500	ug/l	BDL
Trichlorofluoromethane		ug/l	BDL
Trichloromethane	6,000	ug/l	BDL
Vinyl acetate		ug/l	BDL
Vinyl chloride	200	ug/l	BDL
1,2 diphenylhydrazine		ug/l	BDL

Notes: (1) - Regulatory standard listed in 40 CFR Part 261.24. Analyte concentrations shown with shading represent

I = between MDL and PQL

Abbreviations: BDL = below detection limits; mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nepholo

Table 2-13
Gas Condensate Analytical Summary
Central County Solid Waste Disposal Complex
Second Half 2012

Analyte	Location:		Gas Condensate (S-4)
		Date of Test:	09/18/12
	Standard(1)	Units	
Field Measurements			
Temperature		Celcius	32.81
Turbidity		NTU	4.2
pH		Std. Unit	7.45
Conductivity		umhos/cm	7515
Dissolved Oxygen (DO)		mg/1	2.12
Inorganics			
Antimony		ug/l	774
Arsenic	5000	ug/l	729
Barium	100000	ug/l	BDL
Beryllium		ug/l	BDL
Biochemical Oxygen Demand		mg/1	487
Chemical Oxygen Demand		mg/l	1650
Cadmium		ug/l	BDL
Carbonate Alkalinity		mg/1	BDL
Calcium		mg/l	0.40 I
Chloride		mg/1	BDL
Chromium	5000	ug/l	3.4 I
Cobalt		ug/l	BDL
Copper		ug/l	3.4 I
Cyanide		mg/l	BDL
Iron		ug/l	72.7
Lead	5000	ug/l	BDL
Magnesium		mg/l	BDL
Mercury	200	ug/l	0.58
Nickel		ug/l	BDL
Nitrate		mg/1	BDL
Nitrite		mg/1	BDL
Nitrate-Nitrilte		mg/1	BDL
Potassium		mg/l	BDL
Selenium	1000	ug/l	BDL
Silver	5000	ug/l	BDL
Sodium		ug/l	BDL
Sulfate		mg/1	7.1
Total Ammonia - N		mg/1	1090
Thallium		ug/l	BDL
Tin as SN		ug/l	BDL
Total Alkalinity		mg/1	3970
Total Dissolved Solids (TDS)		mg/1	BDL
Total Sulfide		mg/1	13.8
Vanadium		ug/l	BDL
Zinc		ug/l	BDL
Pesticides & Herbicides			
2,4-D	10,000	ug/l	BDL
2,4,5-T		ug/l	BDL
3 & 4 methylphenol	200,000	ug/l	5690
A-BHC		ug/l	BDL
Aldrin		ug/l	BDL

Analyte	Location:		Gas Condensate
			(S-4)
		Date of Test:	09/18/12
	Standard(1)	Units	
B-BHC		ug/l	BDL
Chlordane	30	ug/l	BDL
D-BHC		ug/l	BDL
Dieldrin		ug/l	BDL
Dinoseb		ug/l	BDL
Endosulfan Sulfate		ug/l	BDL
Endosulfan-I		ug/l	BDL
Endosulfan-II		ug/l	BDL
Endrin	20	ug/l	BDL
Endrin Aldehyde		ug/l	BDL
G-BHC(Lindane)	400	ug/l	BDL
Heptachlor	130	ug/l	BDL
Heptachlor Epoxide	130	ug/l	BDL
Methoxychlor	10,000	ug/l	BDL
PCB-1016		ug/l	BDL
PCB-1221		ug/l	BDL
PCB-1232		ug/l	BDL
PCB-1242		ug/l	BDL
PCB-1248		ug/l	BDL
PCB-1254		ug/l	BDL
PCB-1260		ug/l	BDL
PP-DDD		ug/l	BDL
PP-DDE		ug/l	BDL
PP-DDT		ug/l	BDL
Silvex	1,000	ug/l	BDL
Toxaphene	500	ug/l	BDL
Organics, Acid Extractables			
2,4,6-Trichlorophenol	2,000	ug/l	BDL
2,3,4,6-Tetrachlorophenol		ug/l	BDL
2,4,5-Trichlorophenol	400,000	ug/l	BDL
2,4-Dichlorophenol		ug/l	BDL
2,4-Dimethylphenol		ug/l	BDL
2,4-Dinitrophenol		ug/l	BDL
2,6-Dichlorophenol		ug/l	BDL
2-Chlorophenol		ug/l	BDL
2-Methylphenol	200,000	ug/l	62.6
2-Nitrophenol		ug/l	BDL
4,6-Dinitro-2-methylphenol		ug/l	BDL
4-Chloro-3-methylphenol		ug/l	BDL
4-Nitrophenol		ug/l	BDL
Pentachlorophenol	100,000	ug/l	BDL
Phenol		ug/l	4650
Base Neutrals			
1,2,4,5-Tetrachlorobenzene		ug/l	BDL
1,2,4-Trichlorobenzene		ug/l	BDL
1,3,5-Trinitrobenzene		ug/l	BDL
1,3-Dinitrobenzene		ug/l	BDL
1-Methylnaphthalene		ug/l	0.67 I
1,4-Naphthoquinone		ug/l	BDL
1-Naphthylamine		ug/l	BDL
2,4-Dinitrotoluene	130	ug/l	BDL
2,6-Dinitrotoluene		ug/l	BDL

Analyte	Location:		Gas Condensate (S-4)
		Date of Test:	09/18/12
	Standard(1)	Units	
2-Acetylaminoflourene		ug/l	BDL
2-Chloronaphthalene		ug/l	BDL
2-Methylnaphthalene		ug/l	1.1 I
2-Naphthylamine		ug/l	BDL
2-Nitroaniline		ug/l	BDL
3,3-Dichlorobenzidine		ug/l	BDL
3,3-Dimethylbenzidine		ug/l	BDL
3-Methylcholanthrene		ug/l	BDL
3-Nitroaniline		ug/l	BDL
4-Aminobiphenyl		ug/l	BDL
4-Bromophenyl-phenylether		ug/l	BDL
4-Chloroaniline		ug/l	BDL
4-Chlorophenylphenylether		ug/l	BDL
4-Nitronaline		ug/l	BDL
5-Nitro-o-toluidine		ug/l	BDL
7,12-Dimethylbenz(a)anthracene		ug/l	BDL
Acenaphthene		ug/l	1.2 I
Acenaphthylene		ug/l	0.071 I
Acetophenone		ug/l	84.4
Anthracene		ug/l	0.42 I
Benzo(a)anthracene		ug/l	BDL
Benzo(a)pyrene		ug/l	BDL
Benzo(b)flouranthene		ug/l	BDL
Benzo(g,h,i)perylene		ug/l	BDL
Benzo(k)flouranthene		ug/l	BDL
Benzyl alcohol		ug/l	429
Bis(2-chloroethoxy)methane		ug/l	BDL
Bis(2-chloroethyl)ether		ug/l	BDL
Bis(2-chloro-1-methylethyl)ether		ug/l	BDL
Bis(2-ethylhexyl)phthalate		ug/l	BDL
Butylbenzylphthalate		ug/l	BDL
Chlorobenzilate		ug/l	BDL
Chrysene		ug/l	BDL
Diallate		ug/l	BDL
Dibenz(a,h)anthracene		ug/l	BDL
Dibenzofuran		ug/l	1.8 I
Diethylphthalate		ug/l	118
Dimethoate		ug/l	BDL
Dimethylphthalate		ug/l	21.0 I
Di-N-butylphthalate		ug/l	3.9 I
Di-N-octylphthalate		ug/l	BDL
Disulfoton		ug/l	BDL
Ethylmethanesulfonate		ug/l	BDL
Famphur		ug/l	BDL
Flouranthene		ug/l	BDL
Flourene		ug/l	0.81 I
Hexachlorobenzene	130	ug/l	BDL
Hexachlorobutadiene	500	ug/l	BDL
Hexachlorocyclopentadiene		ug/l	BDL
Hexachloroethane	3,000	ug/l	BDL
Hexylchloropropene		ug/l	BDL
Indeno(1,2,3-cd)pyrene		ug/l	BDL

Analyte		Location:	Gas Condensate
			(S-4)
		Date of Test:	09/18/12
	Standard(1)	Units	
Isodrin		ug/l	BDL
Isophorone		ug/l	16.1 I
Isosafrole		ug/l	BDL
Kepone		ug/l	BDL
Methapyrilene		ug/l	BDL
Methyl parathion		ug/l	BDL
Methylmethanesulfonate		ug/l	BDL
Naphthalene		ug/l	12.0
Nitrobenzene	2,000	ug/l	BDL
N-Nitrosodiethylamine		ug/l	10.1 I
N-Nitrosodimethylamine		ug/l	BDL
N-Nitrosodi-n-butylamine		ug/l	BDL
N-Nitroso-di-n-propylamine		ug/l	BDL
N-Nitrosodiphenylamine		ug/l	BDL
N-Nitrosoethylmethylamine		ug/l	BDL
N-Nitrosopiperidine		ug/l	BDL
N-Nitrosopyrrolidine		ug/l	BDL
0,0,0-Triethylphosphorothioate		ug/l	BDL
Ortho-toluidine		ug/l	42.9 I
Para-Phenylenediamine		ug/l	BDL
Ethyl Parathion		ug/l	BDL
P-Dimethlaminoazobenzene		ug/l	BDL
Pentachlorobenzene		ug/l	BDL
Pentachloronitrobenzene		ug/l	BDL
Phenacetin		ug/l	BDL
Phenanathrene		ug/l	0.75 I
Phorate		ug/l	BDL
Pronamide		ug/l	BDL
Pyrene	5,000	ug/l	BDL
Safrole		ug/l	BDL
Thionazin		ug/l	BDL
Volatile Organics			
1,1,1,2-Tetrachloroethane		ug/l	BDL
1,1,1-Trichloroethane		ug/l	BDL
1,1,2,2-Tetrachloroethane		ug/l	BDL
1,1,2-Trichloroethane		ug/l	BDL
1,2-Dibromo-3-chloropropane		ug/l	BDL
1,1-Dichloroethane		ug/l	BDL
1,1-Dichloroethene	700	ug/l	BDL
1,1-Dichloropropene		ug/l	BDL
1,2,3-Trichloropropane		ug/l	BDL
1,2-Dichlorobenzene		ug/l	BDL
1,2-Dichloroethane	500	ug/l	BDL
1,2-Dichloropropane		ug/l	BDL
1,3-Dichlorobenzene		ug/l	BDL
1,3-Dichloropropane		ug/l	BDL
1,4-Dichlorobenzene	7,500	ug/l	12.4 I
2,2-Dichloropropane		ug/l	BDL
2-Butanone	200,000	ug/l	4080
2-Hexanone		ug/l	BDL
4-Methlyl-2-pentanone		ug/l	BDL
Acetone		ug/l	7310

Analyte		Location:	Gas Condensate (S-4)
		Date of Test:	09/18/12
	Standard(1)	Units	
Acetonitrile		ug/l	406
Acrolein		ug/l	BDL
Acrylonitrile		ug/l	BDL
Allyl chloride		ug/l	BDL
Benzene	500	ug/l	6.3
Bromochloromethane		ug/l	BDL
Bromodichloromethane		ug/l	BDL
Bromomethane		ug/l	BDL
Carbon disulfide		ug/l	BDL
Carbon tetrachloride	500	ug/l	BDL
Chlorobenzene	100,000	ug/l	0.83 I
Chloroethane		ug/l	BDL
Chloromethane		ug/l	BDL
Chloroprene		ug/l	BDL
cis-1,2-Dichloroethene		ug/l	3.2
cis-1,3-Dichloropropene		ug/l	BDL
Dibromochloromethane		ug/l	BDL
Dibromochloropropane		ug/l	BDL
Dibromomethane		ug/l	BDL
Dichlorodiflouromethane		ug/l	BDL
Dichloromethane		ug/l	BDL
Ethyl methacrylate		ug/l	BDL
Ethylbenzene		ug/l	43.8
Ethylene dibromide		ug/l	BDL
Iodomethane		ug/l	BDL
Isobutyl Alcohol		ug/l	2060
Methacrylonitrile		ug/l	BDL
Methyl methacrylate		ug/l	BDL
Propionitrile		ug/l	BDL
Styrene		ug/l	5.9
t-1,4-Dichloro-2-butene		ug/l	BDL
Tetrachloroethene	700	ug/l	BDL
Toluene		ug/l	66.7
Total Xylenes		ug/l	120
trans-1,2-Dichloroethene		ug/l	BDL
trans-1,3-Dichloropropene		ug/l	BDL
Tribromomethane		ug/l	BDL
Trichloroethene	500	ug/l	BDL
Trichlorofluoromethane		ug/l	BDL
Trichloromethane	6,000	ug/l	BDL
Vinyl acetate		ug/l	BDL
Vinyl chloride	200	ug/l	BDL
1,2 diphenylhydrazine		ug/l	BDL

Notes: (1) - Regulatory standard listed in 40 CFR Part 261.24. Analyte concentrations shown with shading represent

I = between MDL and PQL

Abbreviations: BDL = below detection limits; mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nepholo

Table 3-1

Mann-Kendall Trend Test p-values and Tau Coefficients

Central County Solid Waste Disposal Complex

2013 Water Quality Monitoring Plan Evaluation Report

Parameter	P-values									
	MW-1R	MW-8A	MW-9	MW-10R	MW-15	MW-16	MW-17	MW-18	MW-19	MW-20
Aluminum	0.31	NA	NA	NA	1.00	NA	NA	NA	0.02	NA
Arsenic	0.65	0.68	**0.02**	0.63	0.26	0.22	0.45	0.57	0.57	0.13
Iron	0.11	0.37	0.11	0.84	0.26	0.46	0.45	0.45	0.45	**0.01**
TDS	0.05	0.78	**0.01**	0.63	0.13	0.81	0.13	**0.04**	0.71	0.45
Sodium	NA	NA	NA	NA	NA	0.46	NA	NA	NA	NA
Chloride	NA	NA	NA	NA	NA	0.09	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	0.26	NA	NA	NA	NA	0.31

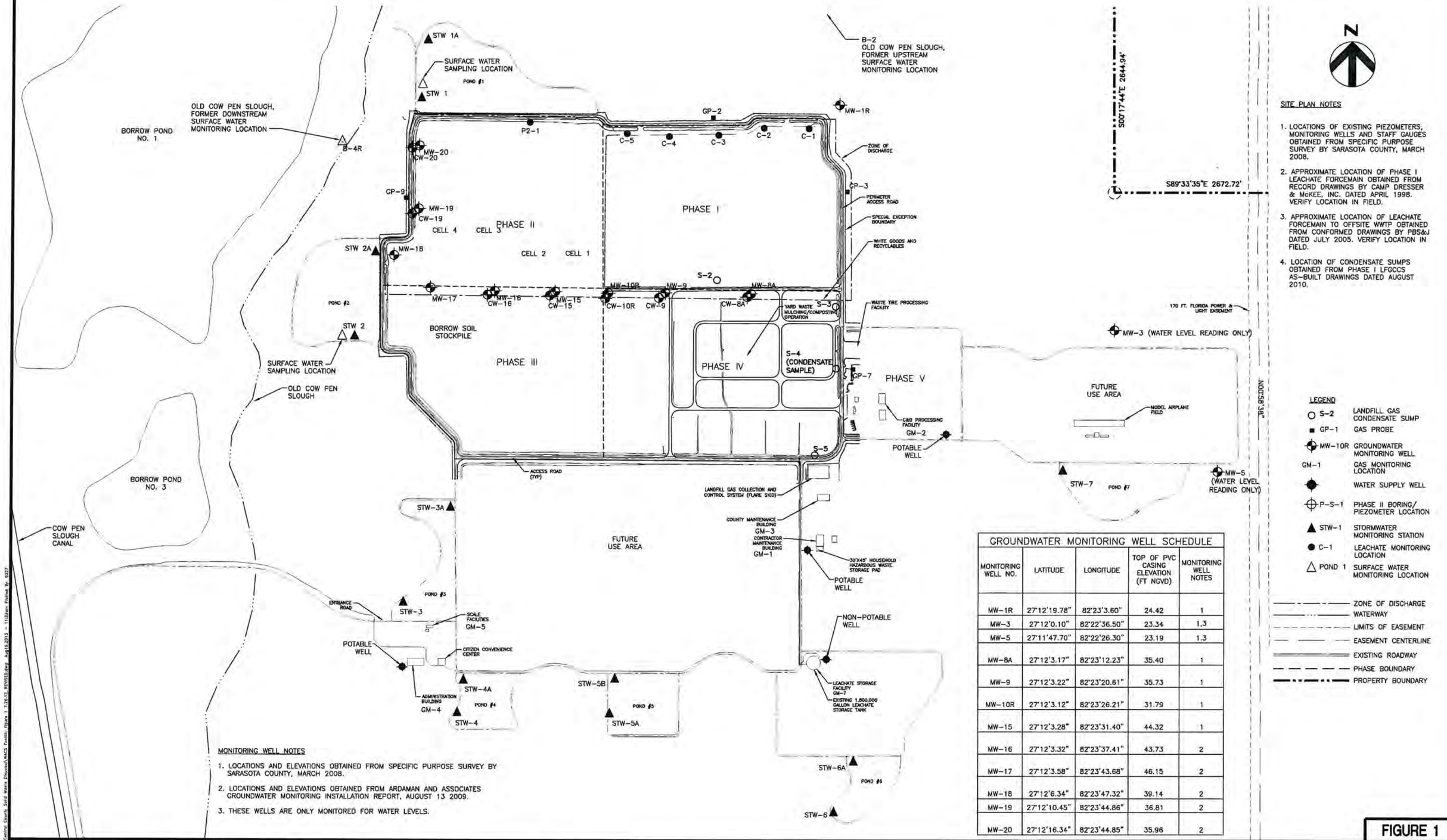
Parameter	Tau Coefficients for Statistically Significant Trends (p-values ≤ 0.05)									
	MW-1R	MW-8A	MW-9	MW-10R	MW-15	MW-16	MW-17	MW-18	MW-19	MW-20
Arsenic	--	--	-0.55	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	-1
TDS	--	--	0.58	--	--	--	--	0.80	--	--

Table 4-1
Rainfall During Review Period
Central County Solid Waste Disposal Complex

MONTH	2011 RAINFALL* (inches)	2012 RAINFALL* (inches)
JANUARY	2.65	0.50
FEBRUARY	0.34	0.92
MARCH	7.09	2.65
APRIL	1.07	1.99
MAY	3.06	1.14
JUNE	1.71	17.39
JULY	12.64	6.88
AUGUST	10.16	11.30
SEPTEMBER	3.13	8.96
OCTOBER	2.01	1.82
NOVEMBER	1.74	0.16
DECEMBER	0.14	1.73
TOTAL	**45.74**	**55.44**

Source: Southwest Florida Water Management District from their rain gauge SID No. 26020 located along Rustic Road (WIMS data).

FIGURES



GROUNDWATER MONITORING WELL SCHEDULE

MONITORING WELL NO.	LATITUDE	LONGITUDE	TOP OF PVC CASING ELEVATION (FT NGVD)	MONITORING WELL NOTES
MW-1R	27°12'19.78"	82°23'3.60"	24.42	1
MW-3	27°12'0.10"	82°22'36.50"	23.34	1,3
MW-5	27°11'47.70"	82°22'26.30"	23.19	1,3
MW-8A	27°12'3.17"	82°23'12.23"	35.40	1
MW-9	27°12'3.22"	82°23'20.61"	35.73	1
MW-10R	27°12'3.12"	82°23'26.21"	31.79	1
MW-15	27°12'3.28"	82°23'31.40"	44.32	1
MW-16	27°12'3.32"	82°23'37.41"	43.73	2
MW-17	27°12'3.58"	82°23'43.68"	46.15	2
MW-18	27°12'6.34"	82°23'47.32"	39.14	2
MW-19	27°12'10.45"	82°23'44.86"	36.81	2
MW-20	27°12'16.34"	82°23'44.85"	35.96	2

FIGURE 1

ATKINS
482 SOUTH KELLER ROAD
Orlando, Fl 32810-6101
TEL. 407) 647-7275
FAX. (407) 647-0824
www.atkinsglobal.com
5300 W. BOY SCOUT BOULEVARD
TAMPA, FLORIDA 33607
FBPR CERTIFICATE OF AUTHORIZATION NO.24

CLIENT	PROJECT	TASK
SARASOTA COUNTY	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX CLASS I LANDFILL	WATER QUALITY MONITORING PLAN

ORIGINAL 8/01/2012
REVISIONS:
1. 8/19/2013
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.

Name:
Florida P.E. No.:
Address: ATKINS 482 S. Keller Road Orlando, FL 32810-6101
Signature Date

JOB NO. 00-000.00
DRAWN GG
DESIGN RS
CHECKED
Q.C.
SHEET 1/1

U:\Global_SYNCADD\WASTEWATER\SARASOTA\Central County Solid Waste Disposal\MXDS Fonts: Figure 1 7-26-13, REVISED.dwg Aug15,2013 - 11:28am Fisher, Bryan 9327

F:\COMMON\BRAD BAYNE\Sarasota Co. Landfill\2013 WQMP - 100034859\Figures\Fig 2_GW_CONTOUR MAP_APRIL 2011.dwg Jun20,2013 - 3:57pm Plotted By: 25403

ATKINS

SARASOTA COUNTY
CENTRAL COUNTY SOLID WASTE
DISPOSAL COMPLEX

GROUNDWATER CONTOUR MAP
APRIL 2011

FIGURE
2

NORTH

600 0 150 300

GRAPHIC SCALE
SCALE: 1" = 300'

LEGEND:

- ⊕ MONITORING WELL WITH GROUNDWATER ELEVATION (FT–NGVD)
- ⊗ COMPLIANCE WELL WITH GROUDWATER ELEVATION (FT–NGVD)
- ⊕ PIEZOMETERS WITH GROUNDWATER ELEVATION (FT–NGVD)
- ▲ MONITORING POINT WITH SURFACE WATER ELEVATION (FT–NGVD)
- 19 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)

NOTE:

1. GROUNDWATER DATA FROM OCT. 6, 2011
2. GROUNDWATER ELEVATION GIVEN IN PARENTHESES

FT–NGVD = FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM

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SARASOTA COUNTY
CENTRAL COUNTY SOLID WASTE
DISPOSAL COMPLEX

GROUNDWATER CONTOUR MAP
OCTOBER 2011

FIGURE
3

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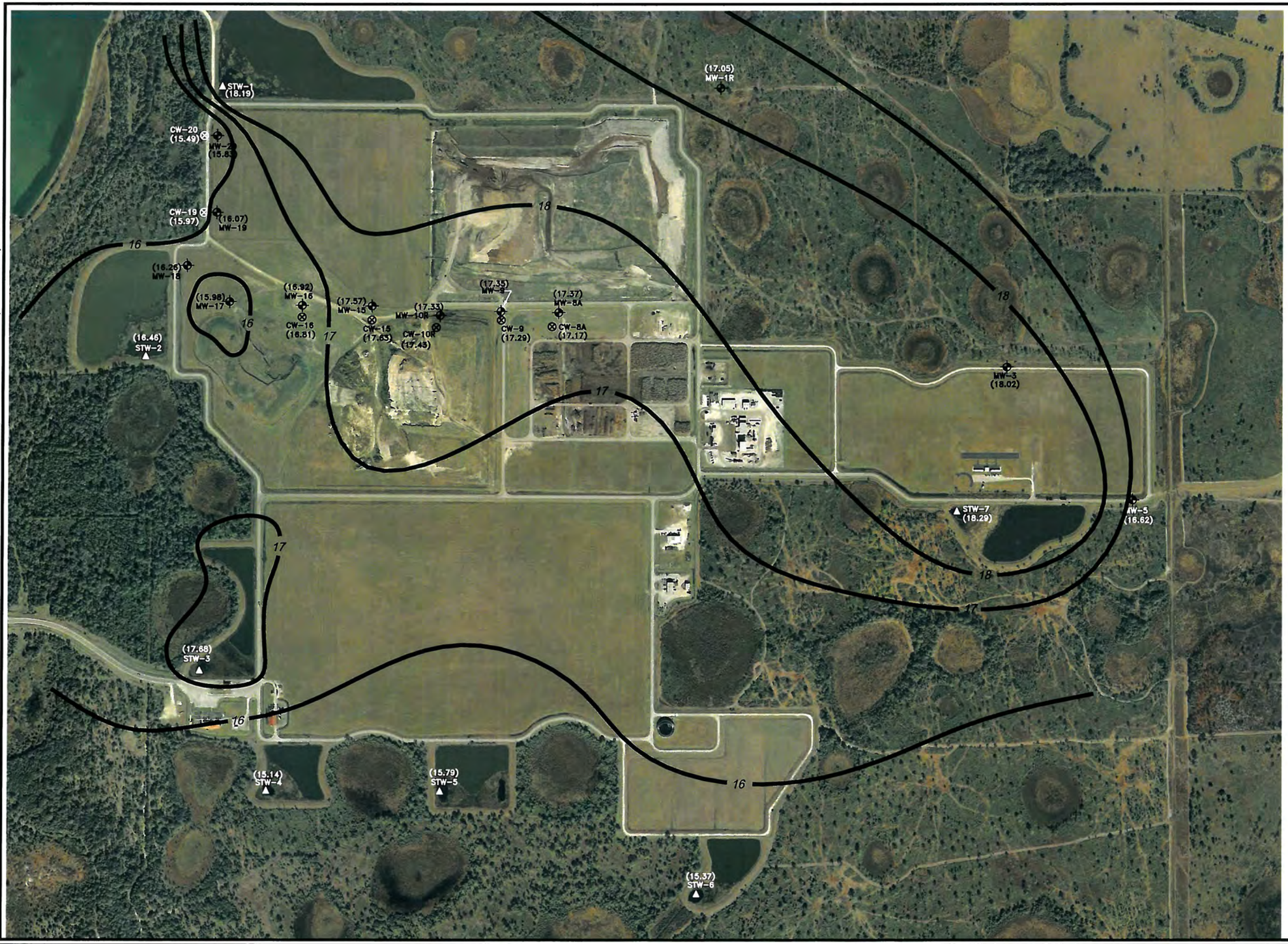

NORTH

600 0 150 300

GRAPHIC SCALE
SCALE: 1" = 300'

LEGEND:

- MONITORING WELL WITH GROUNDWATER ELEVATION (FT-NGVD)
- COMPLIANCE WELL WITH GROUDWATER ELEVATION (FT-NGVD)
- PIEZOMETERS WITH GROUNDWATER ELEVATION (FT-NGVD)
- MONITORING POINT WITH SURFACE WATER ELEVATION (FT-NGVD)
- 18 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)

NOTE:

1. GROUNDWATER DATA FROM APRIL 5, 2012
2. GROUNDWATER ELEVATION GIVEN IN PARENTHESES

FT-NGVD = FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM

F:\COMMON\BRAD BAYNE\Sarasota Co. Landfill\2013 WQMP - 100034859\Figures\Fig 4_GW_CONTOUR MAP_APRIL 2012.dwg Jun20,2013 - 3:53pm Plotted By: 25403

ATKINS	SARASOTA COUNTY CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX	**GROUNDWATER CONTOUR MAP** **April 2012**	FIGURE **4**

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ATKINS

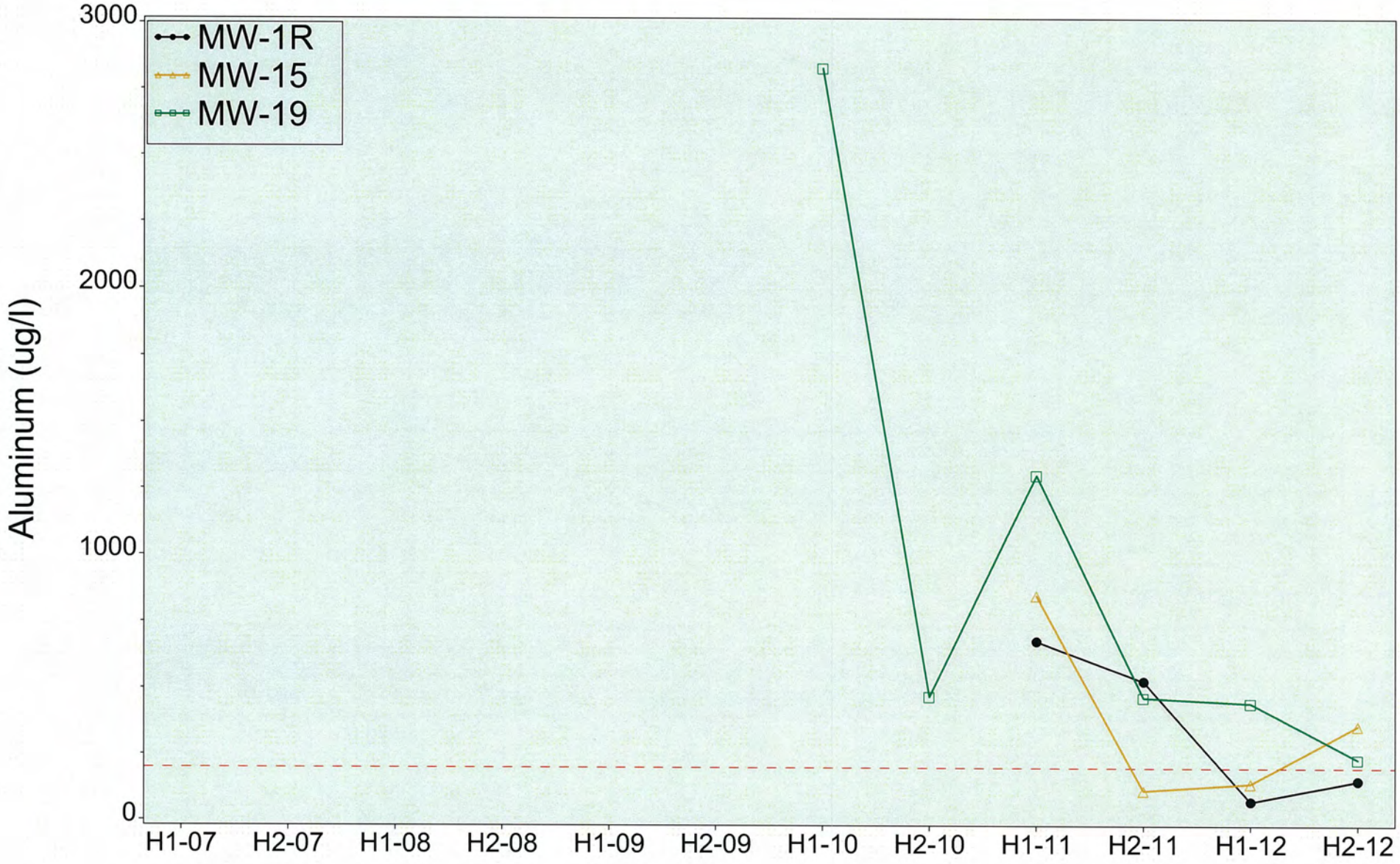
SARASOTA COUNTY
CENTRAL COUNTY SOLID WASTE
DISPOSAL COMPLEX

GROUNDWATER CONTOUR MAP
September 2012

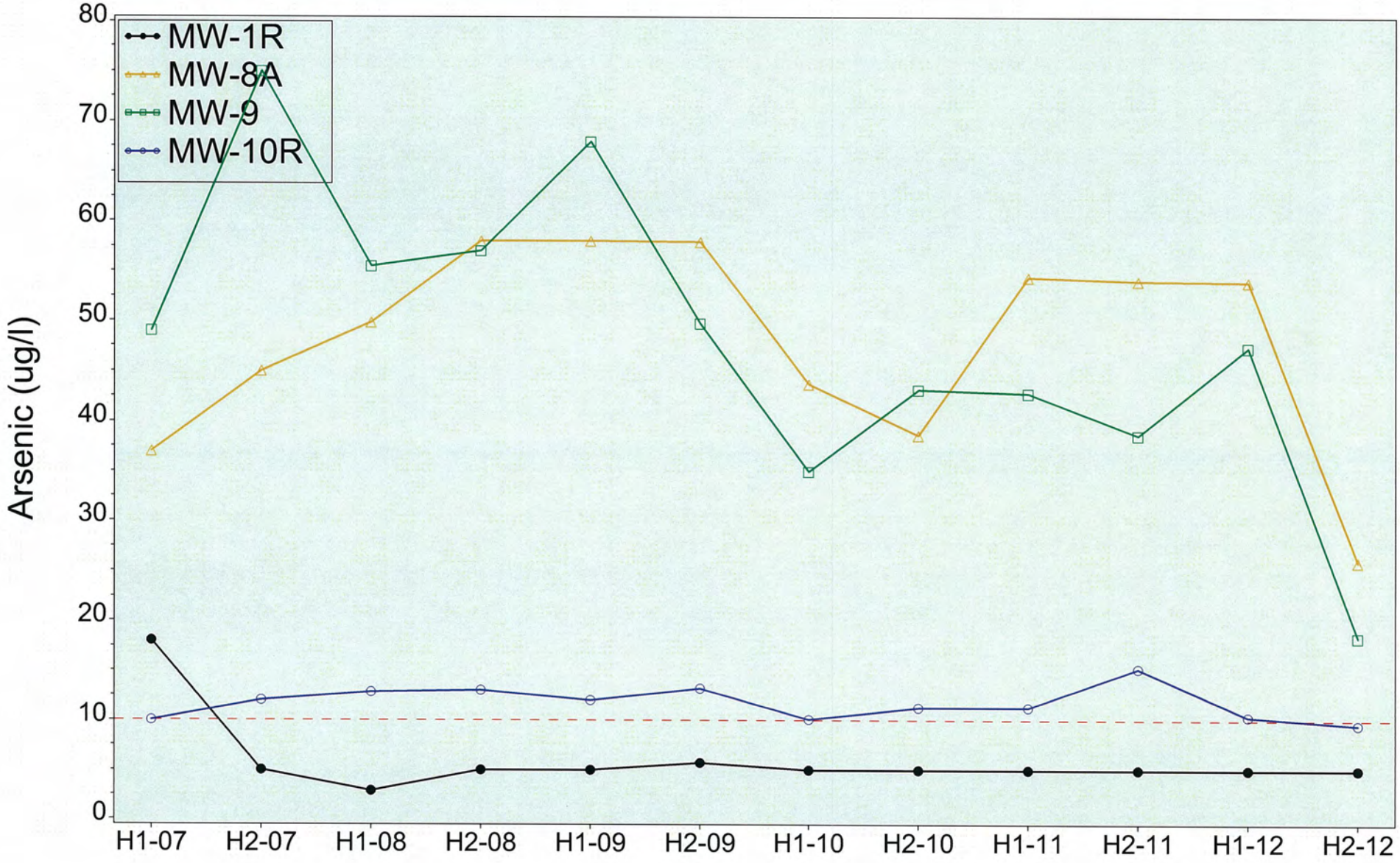
FIGURE
5

APPENDIX A

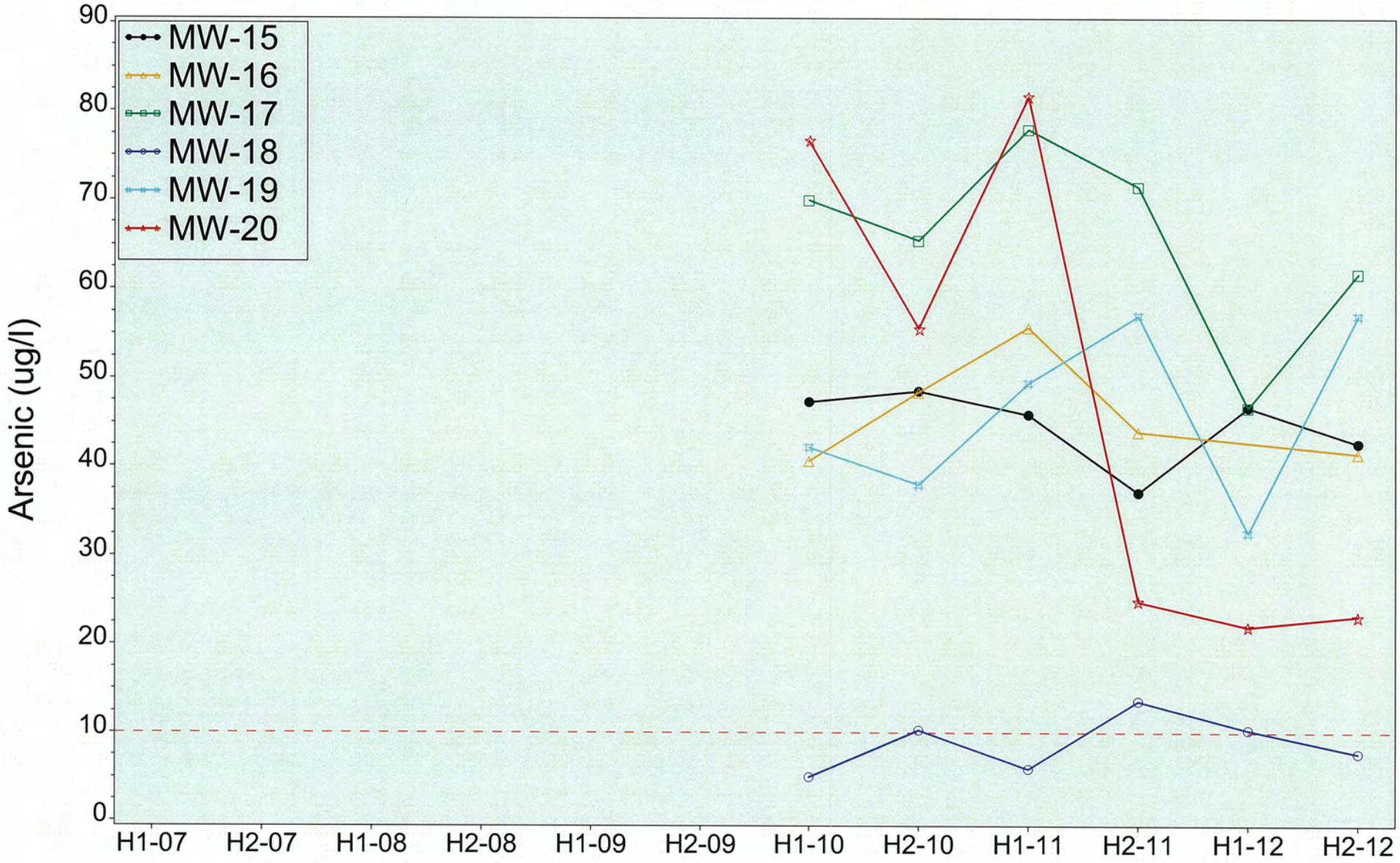
Parameter Concentration Graphs



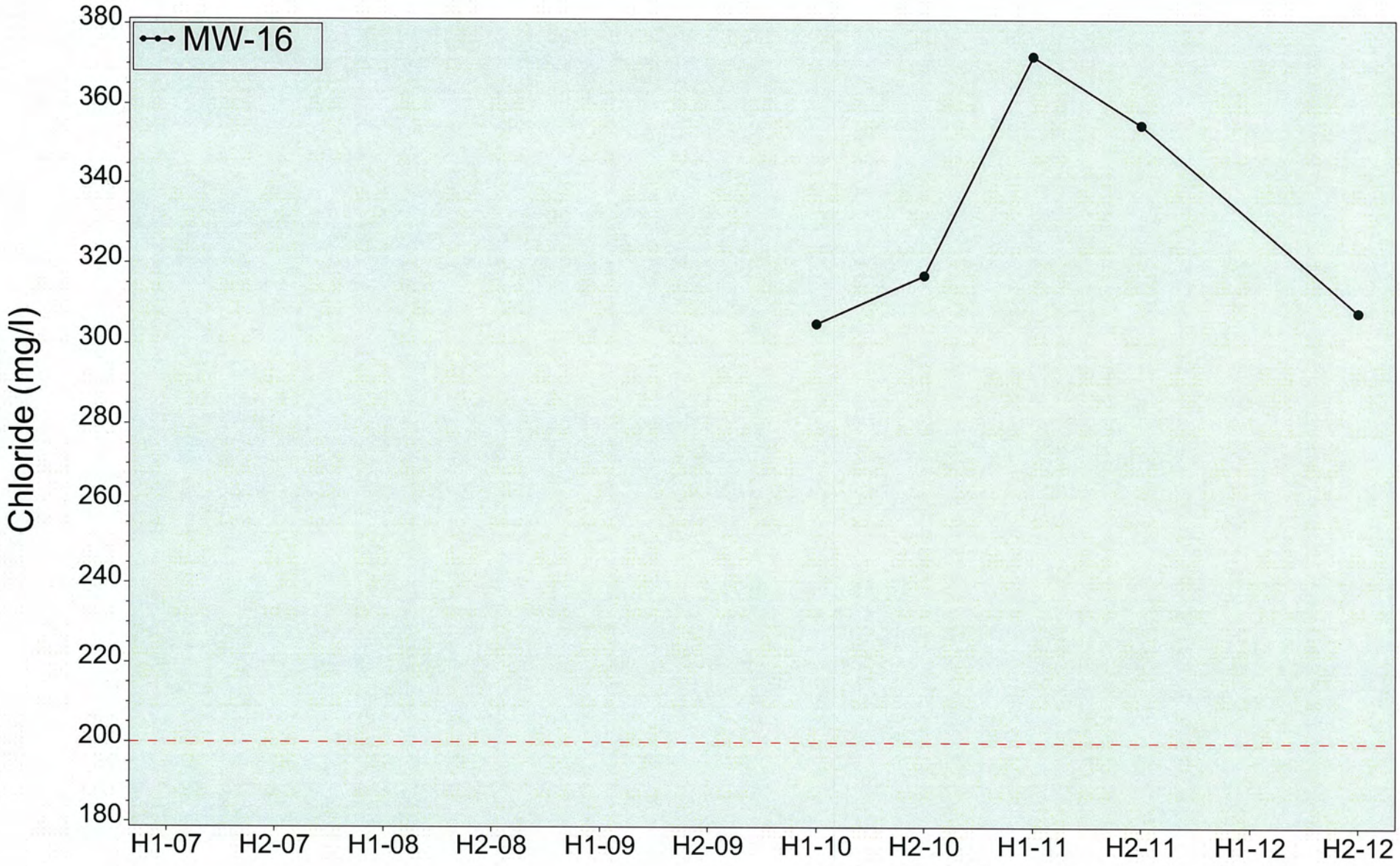
Aluminum concentration in various monitoring wells at the Central County Landfill



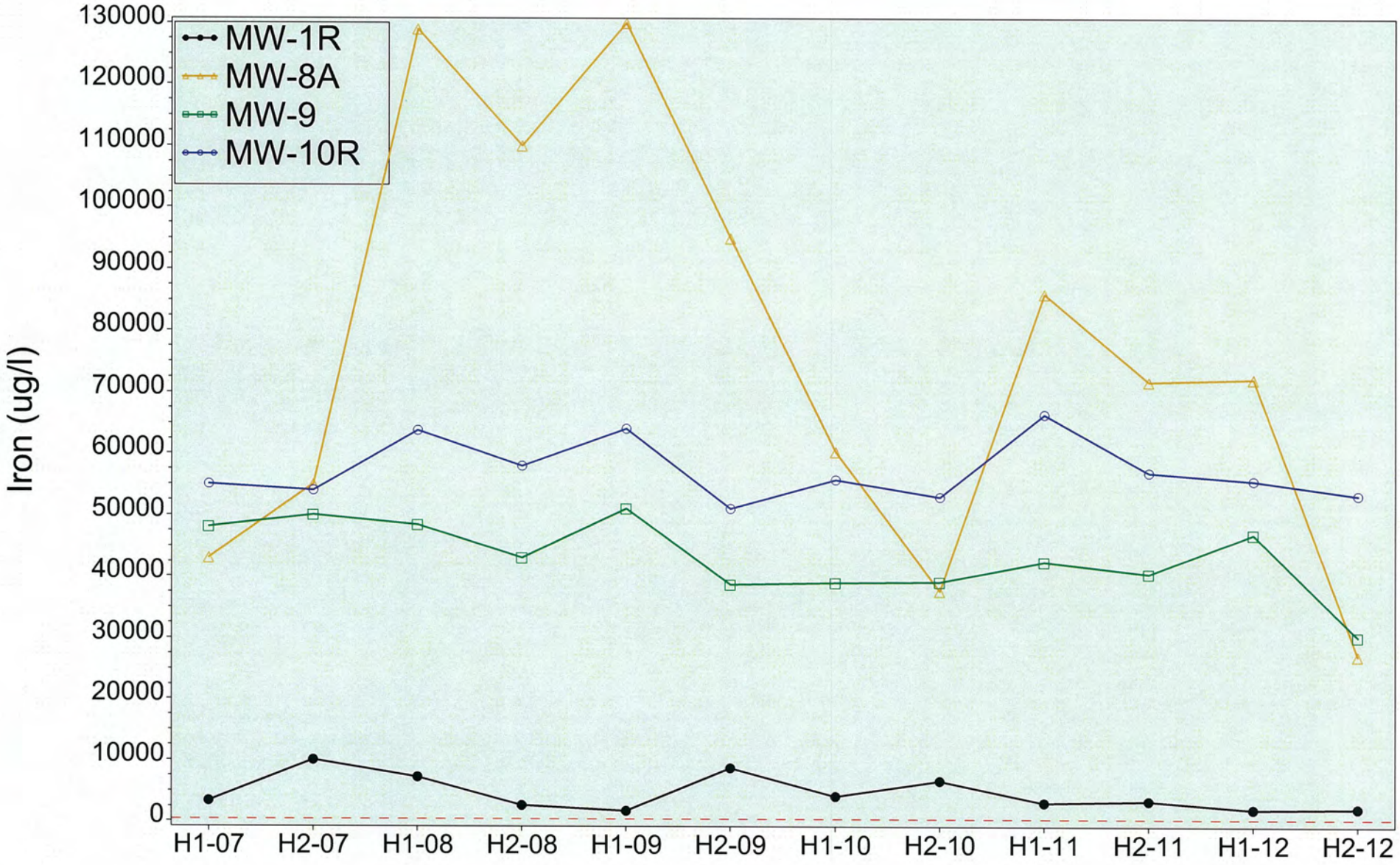
Arsenic concentration in various monitoring wells at the Central County Landfill



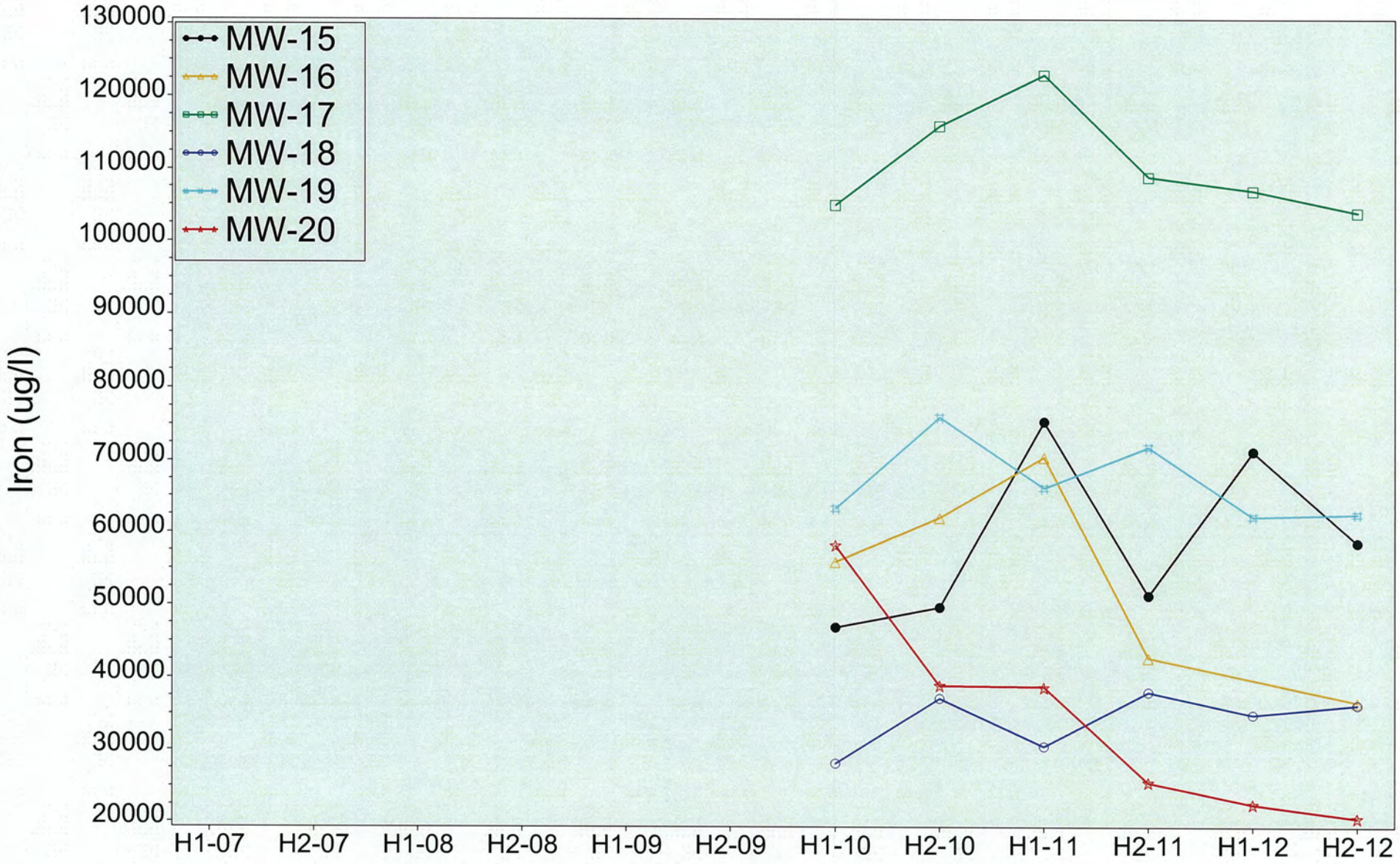
Arsenic concentration in various monitoring wells at the Central County Landfill



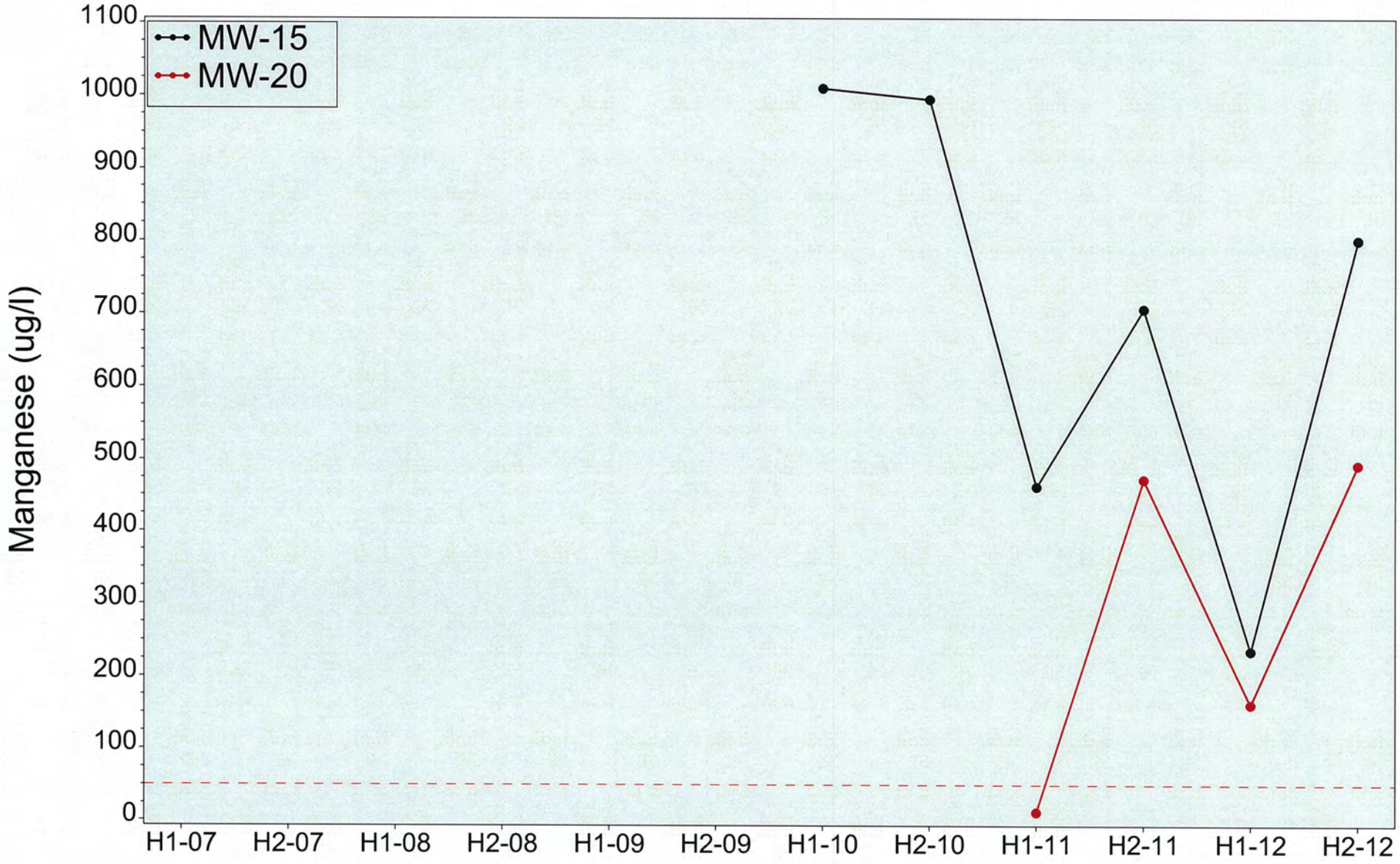
Chloride concentration in monitoring well 16 (MW-16) at the Central County Landfill



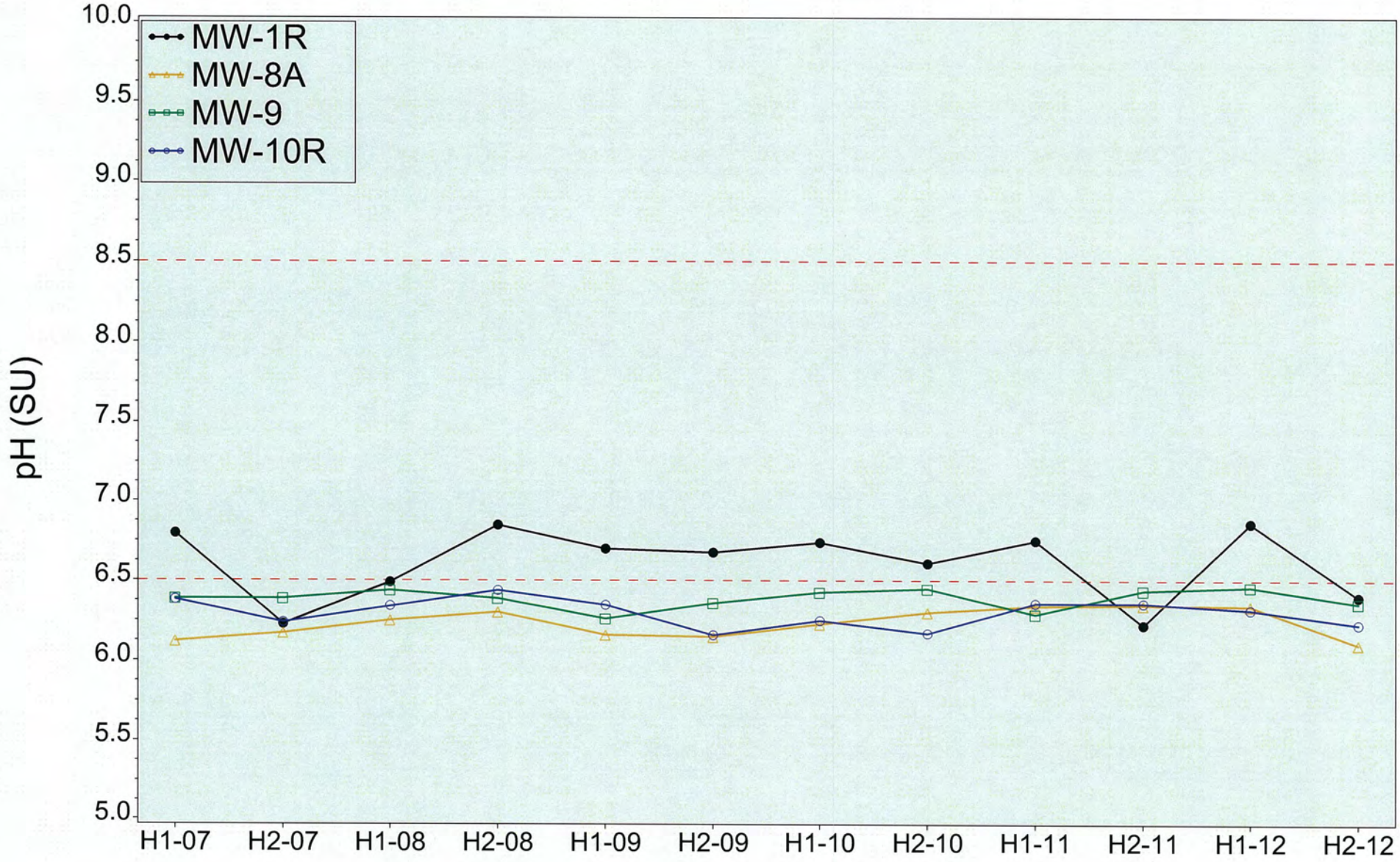
Iron concentration in various monitoring wells at the Central County Landfill



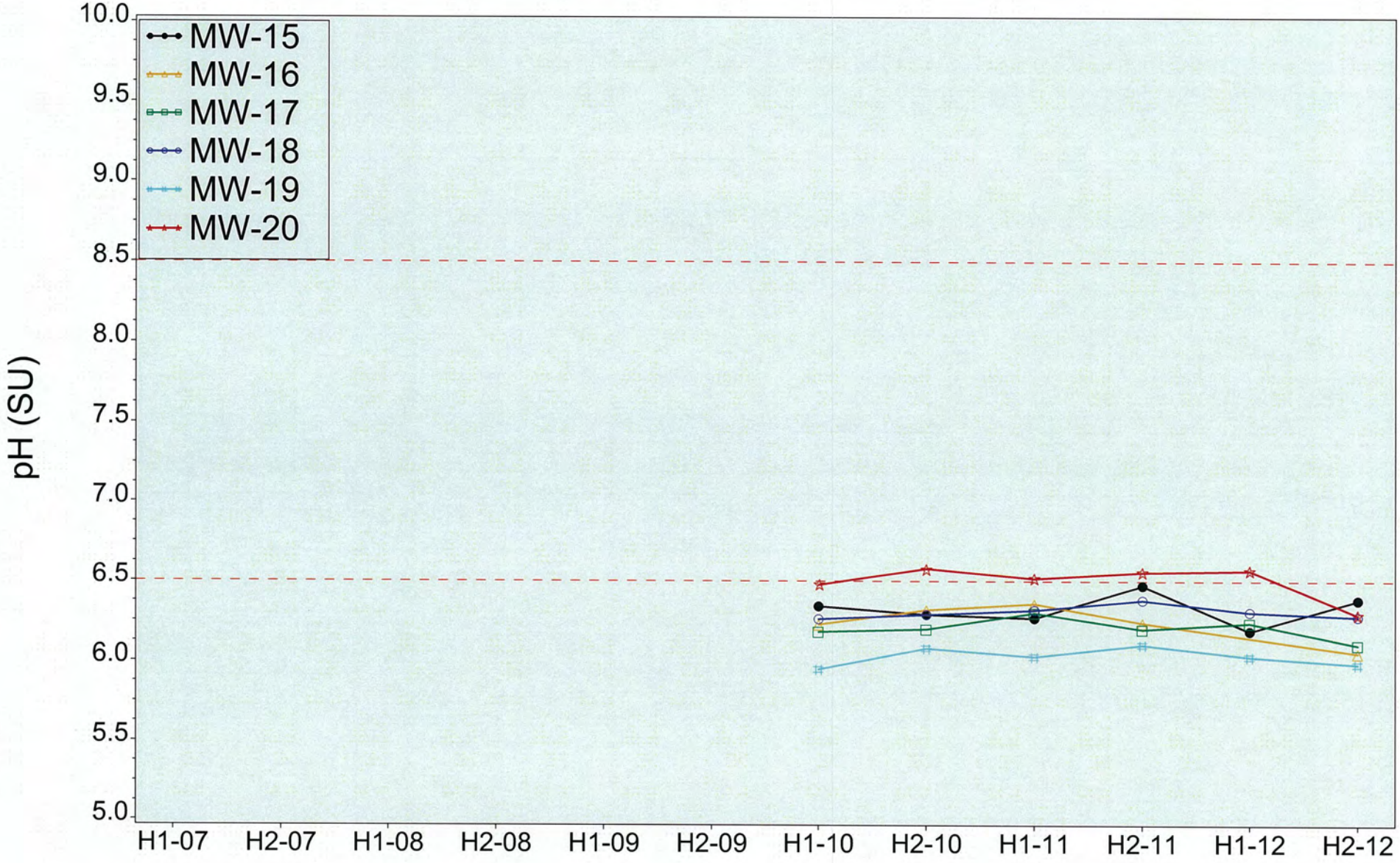
Iron concentration in various monitoring wells at the Central County Landfill



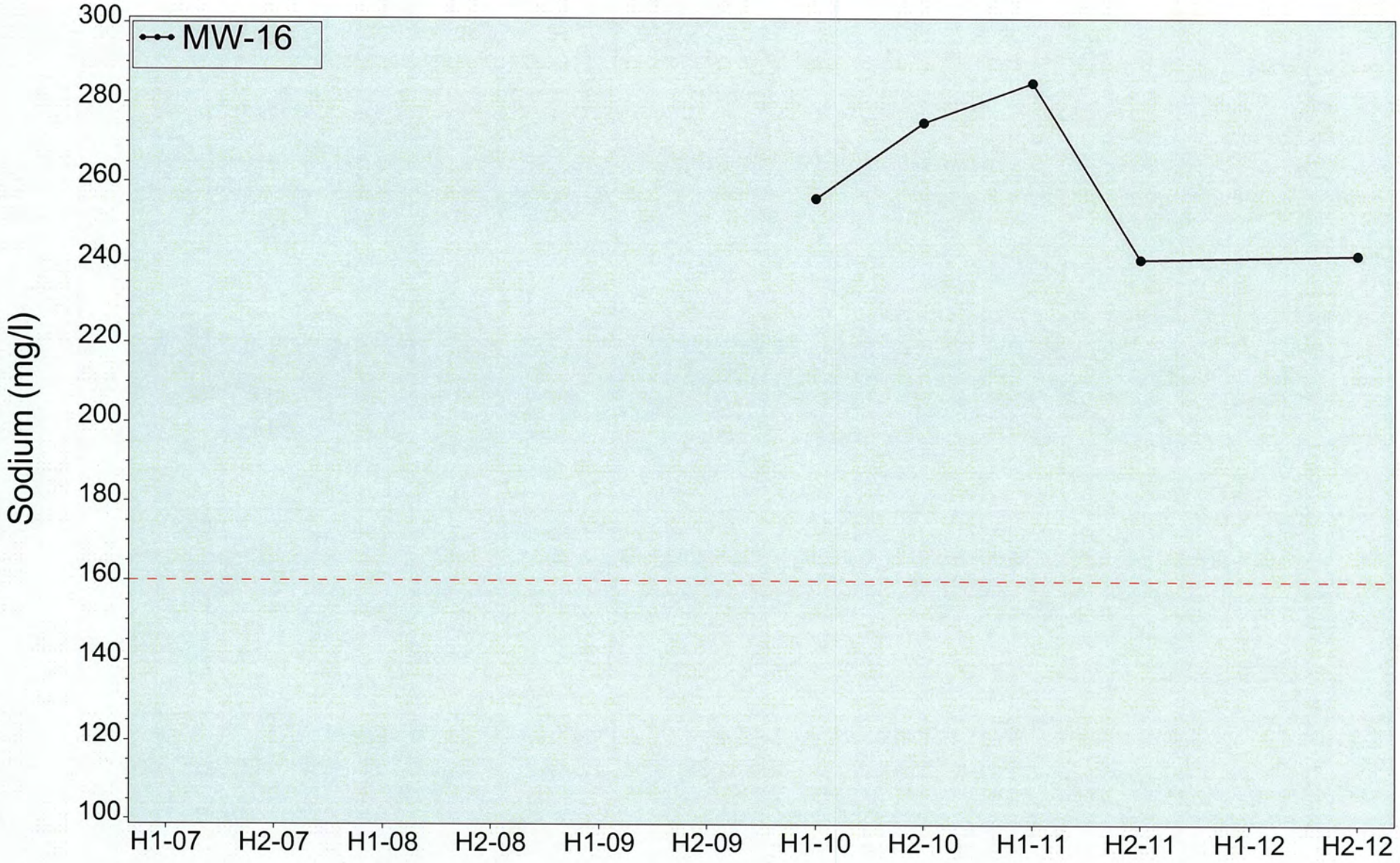
Manganese concentration in monitoring wells 15 and 20 (MW-15, MW-20) at the Central County Landfill



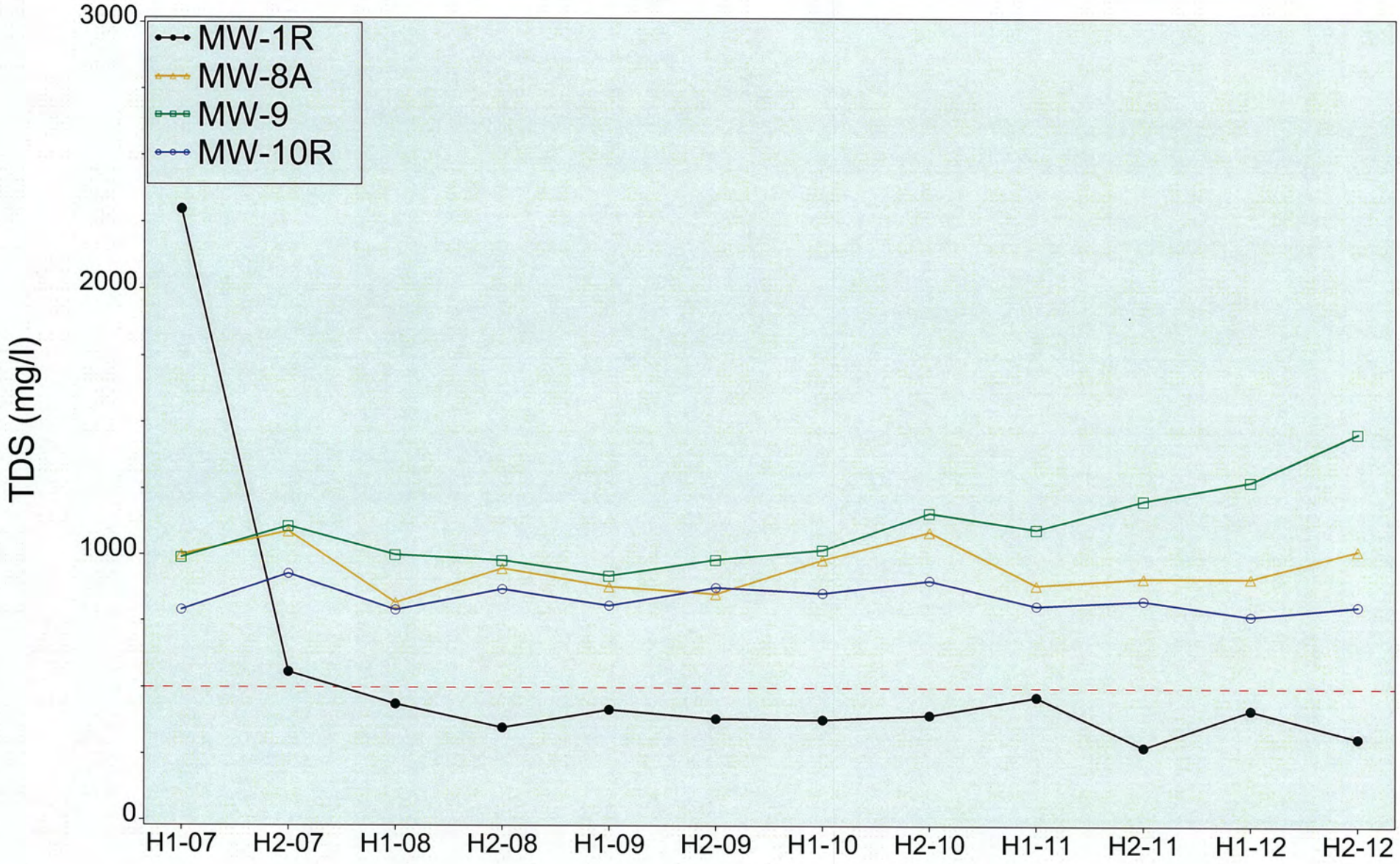
pH concentration in various monitoring wells at the Central County Landfill



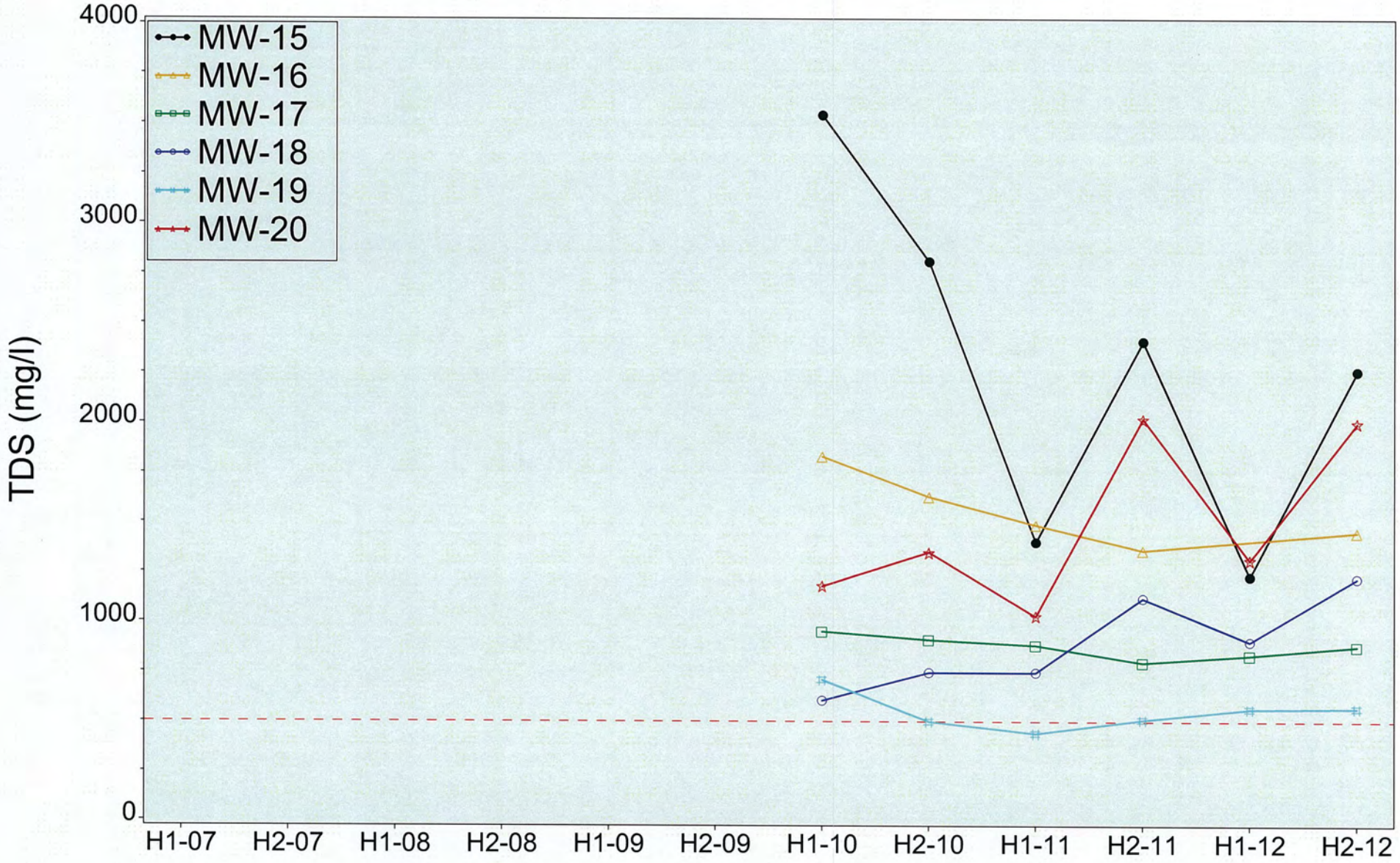
pH concentration in various monitoring wells at the Central County Landfill



Sodium concentration in monitoring well 16 (MW-16) at the Central County Landfill



TDS concentration in various monitoring wells at the Central County Landfill

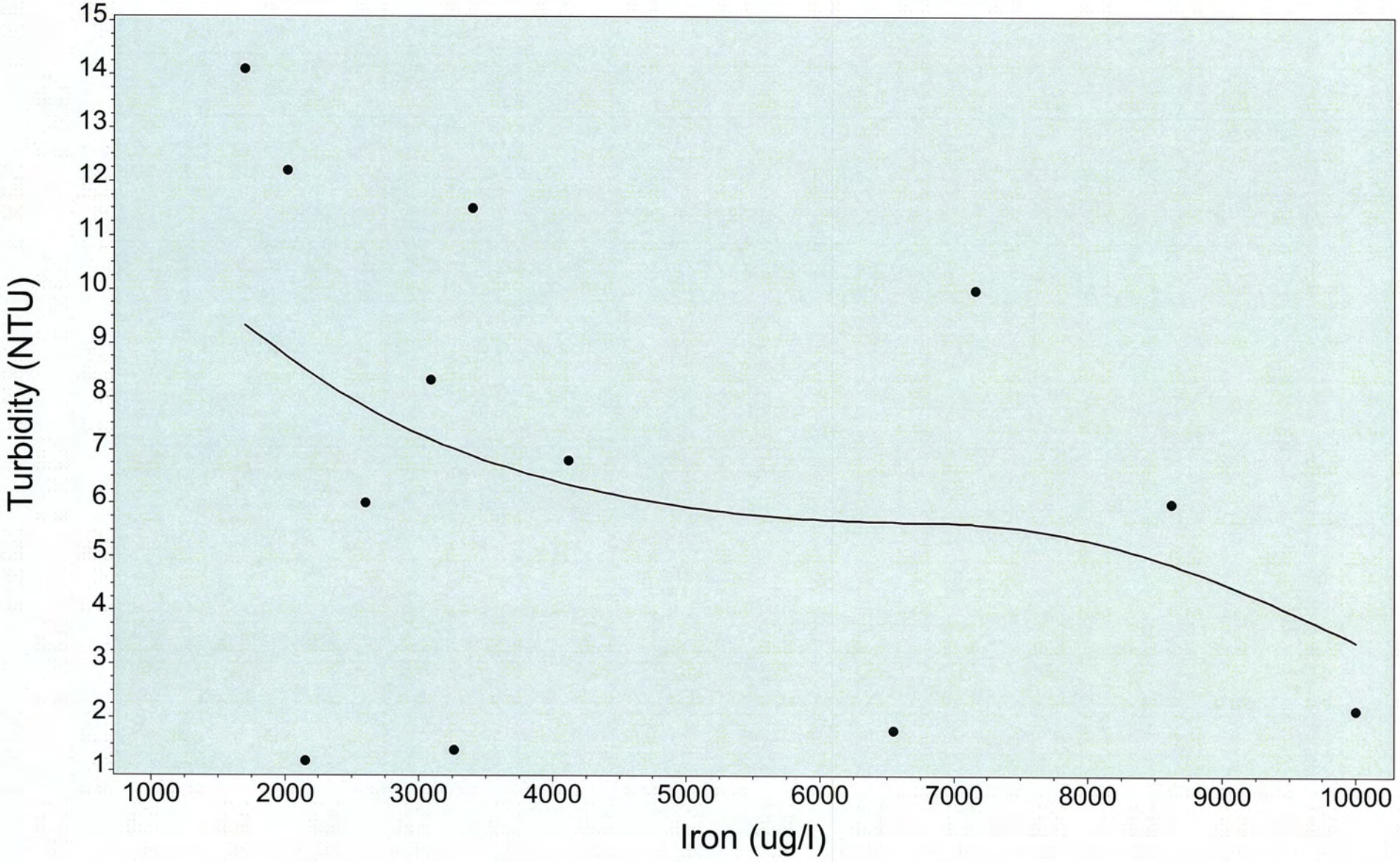


TDS concentration in various monitoring wells at the Central County Landfill

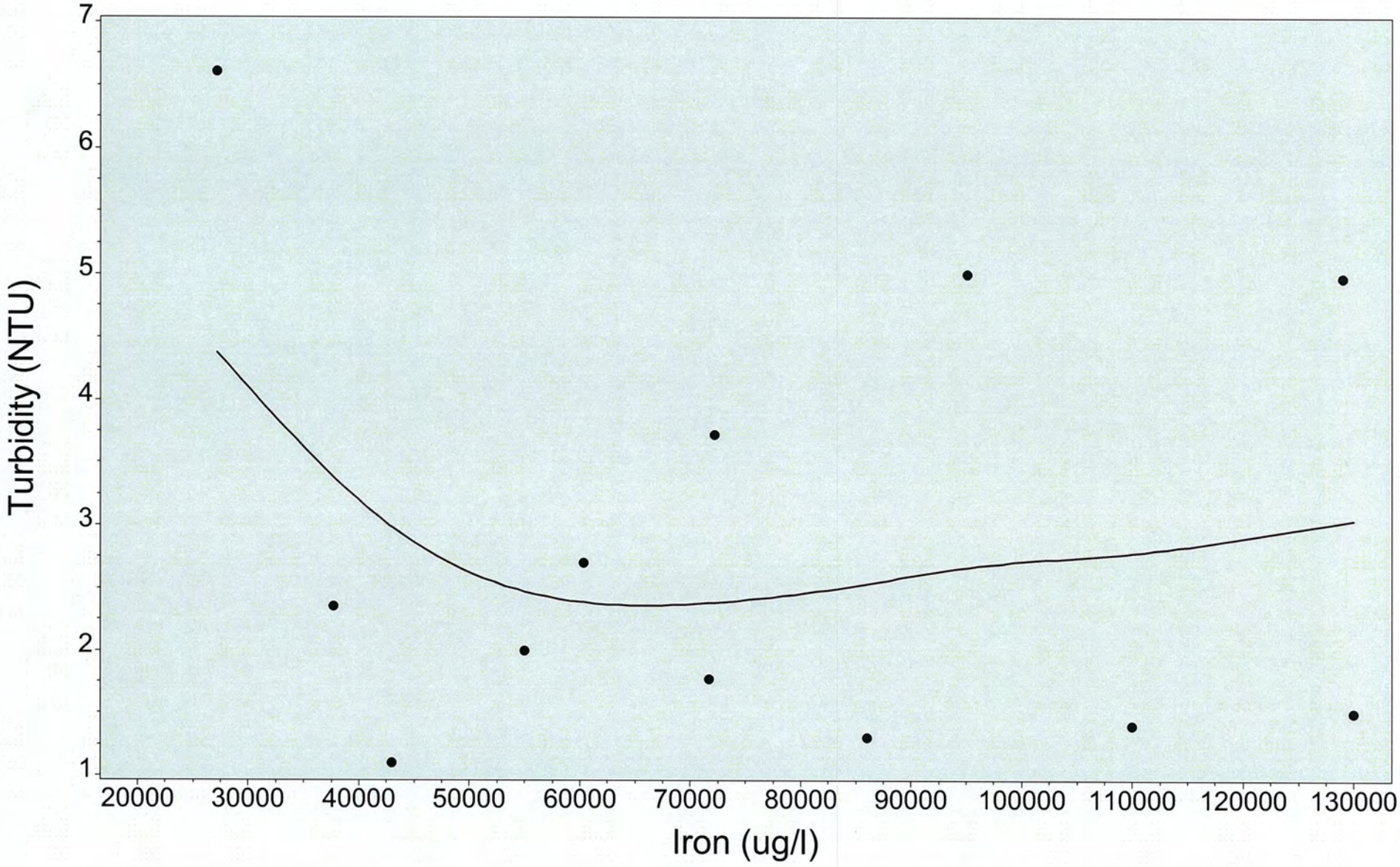
APPENDIX B

Related Parameter Correlation Graphs

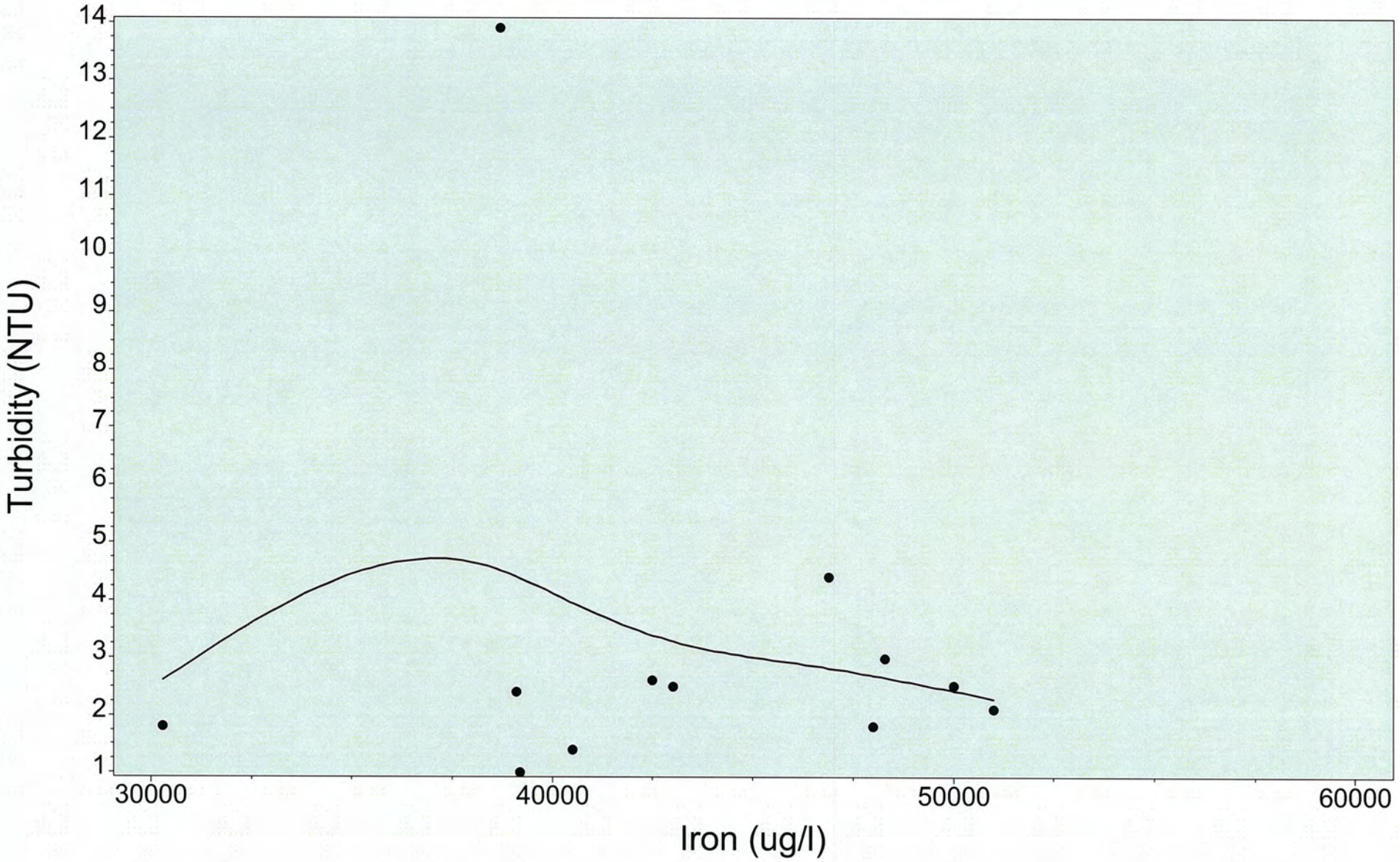
B-1 – Turbidity versus Iron



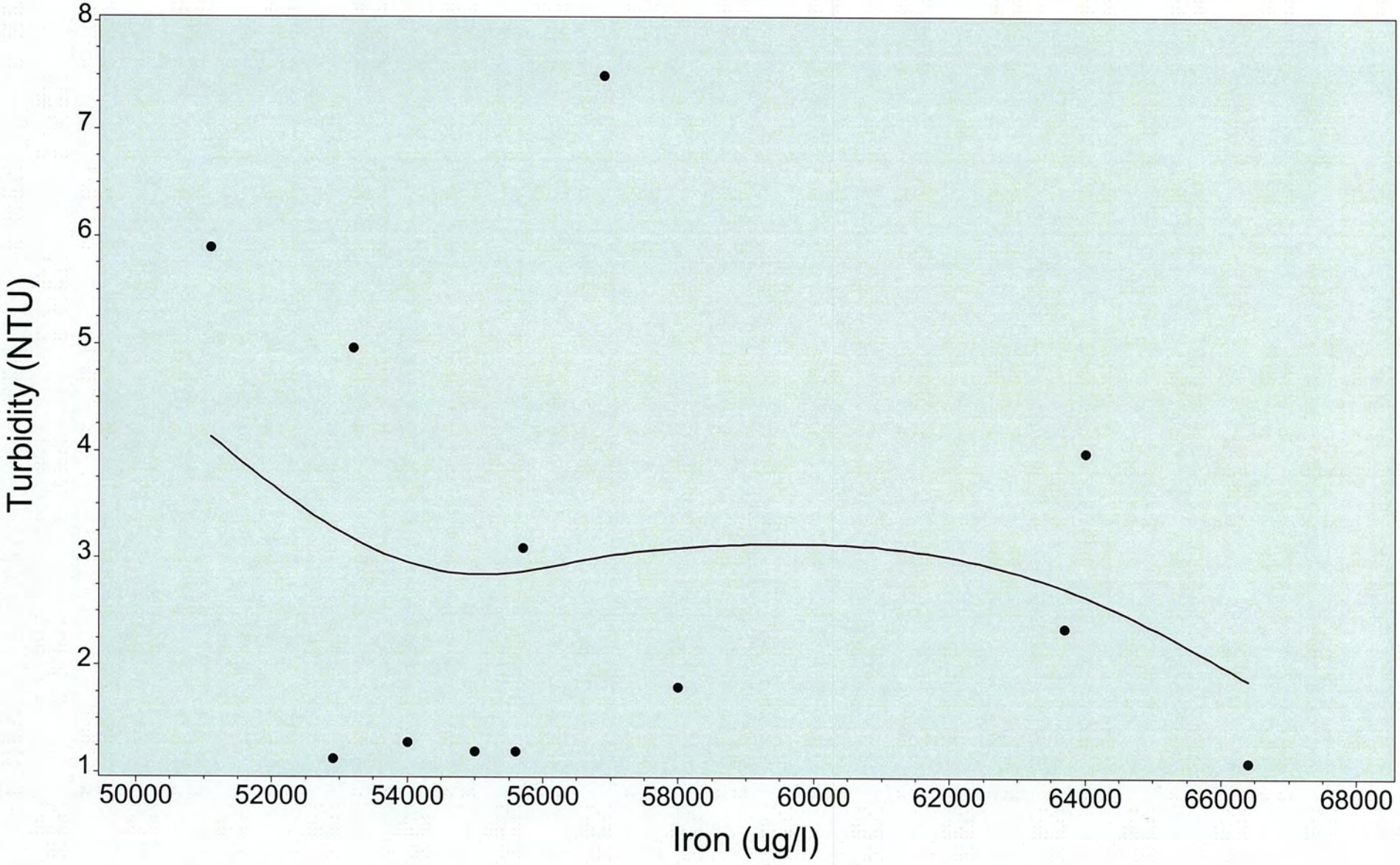
Concentration of Turbidity versus Iron in MW-1R at the Central County Landfill



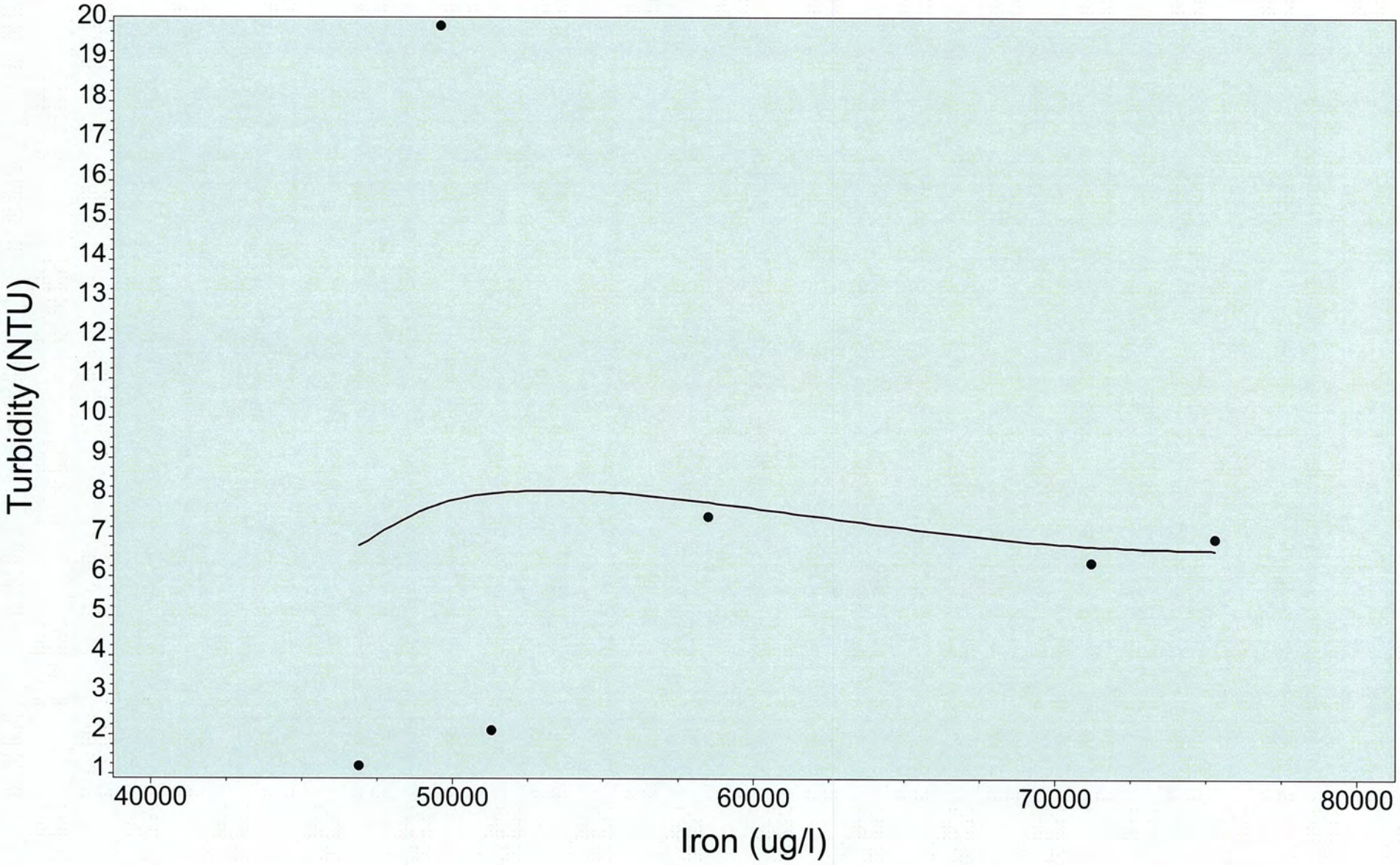
Concentration of Turbidity versus Iron in MW-8A at the Central County Landfill



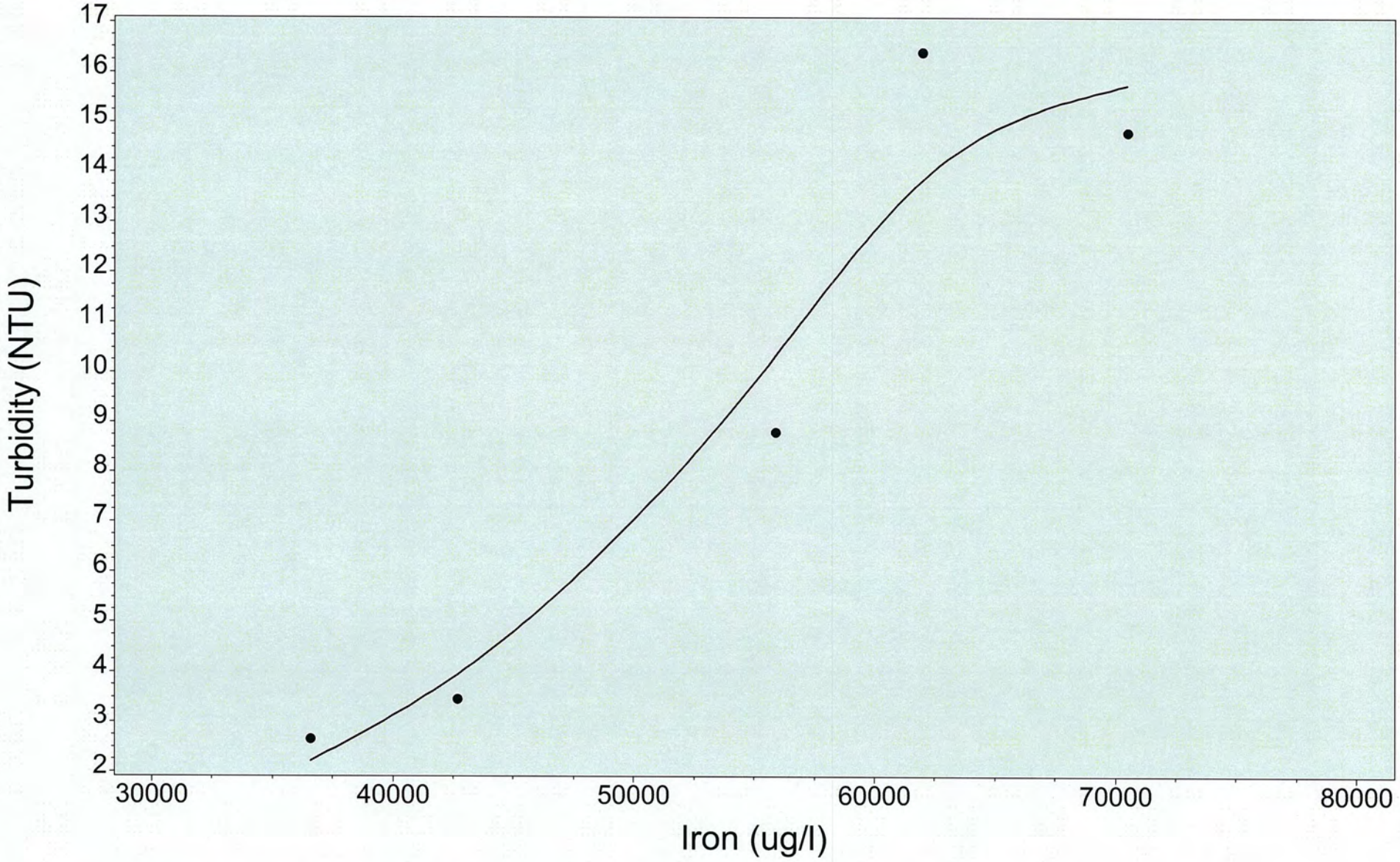
Concentration of Turbidity versus Iron in MW-9 at the Central County Landfill



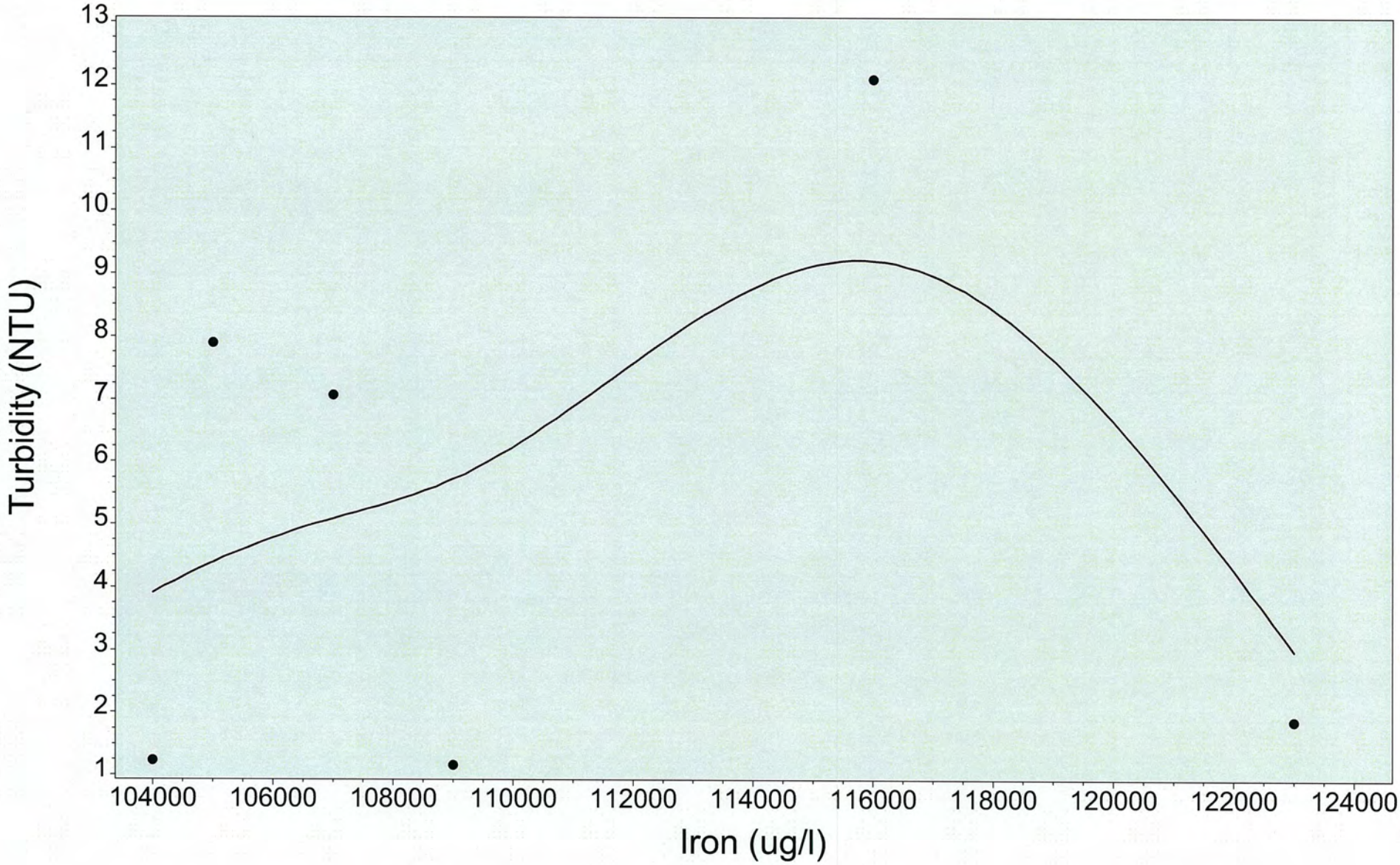
Concentration of Turbidity versus Iron in MW-10R at the Central County Landfill



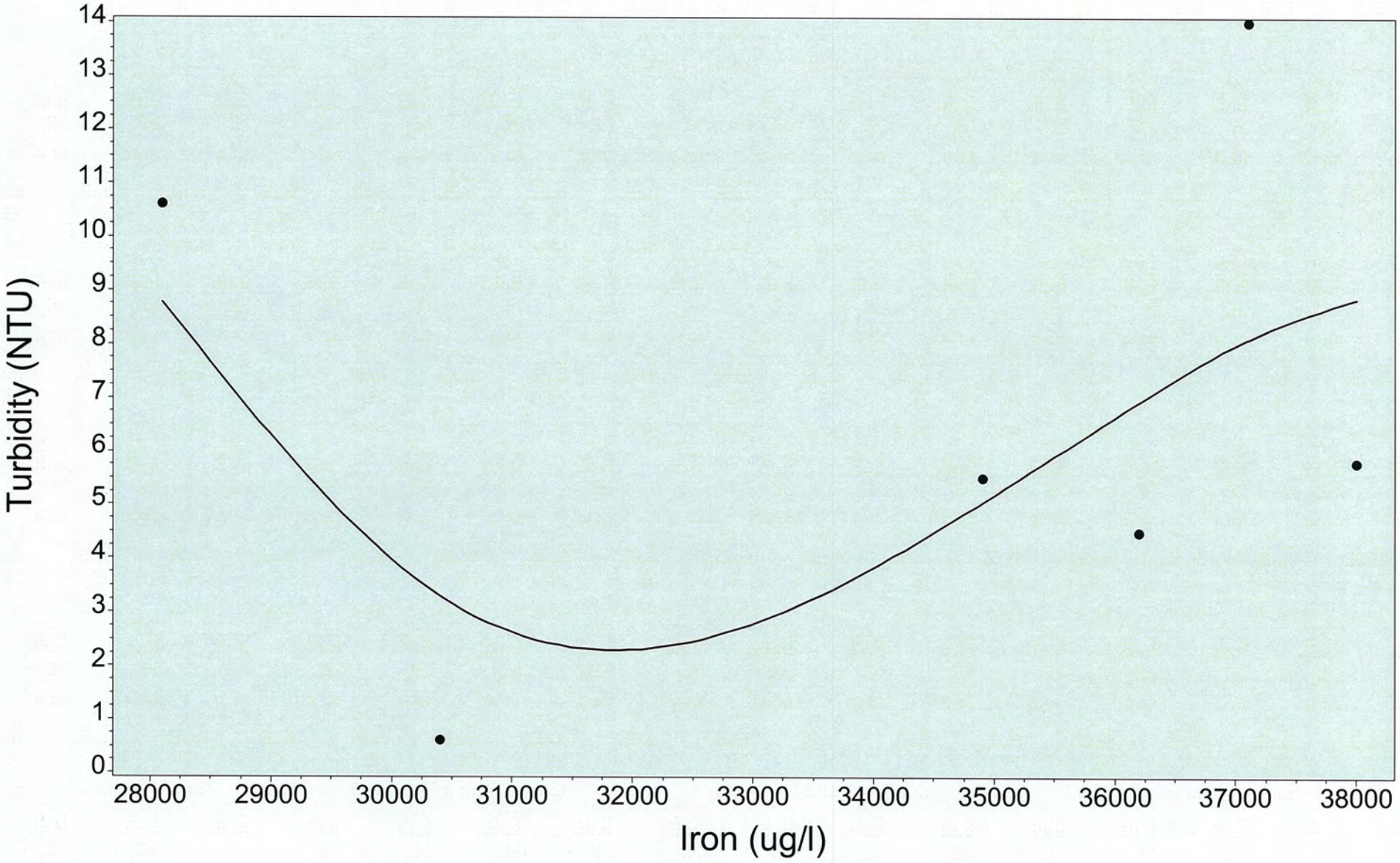
Concentration of Turbidity versus Iron in MW-15 at the Central County Landfill



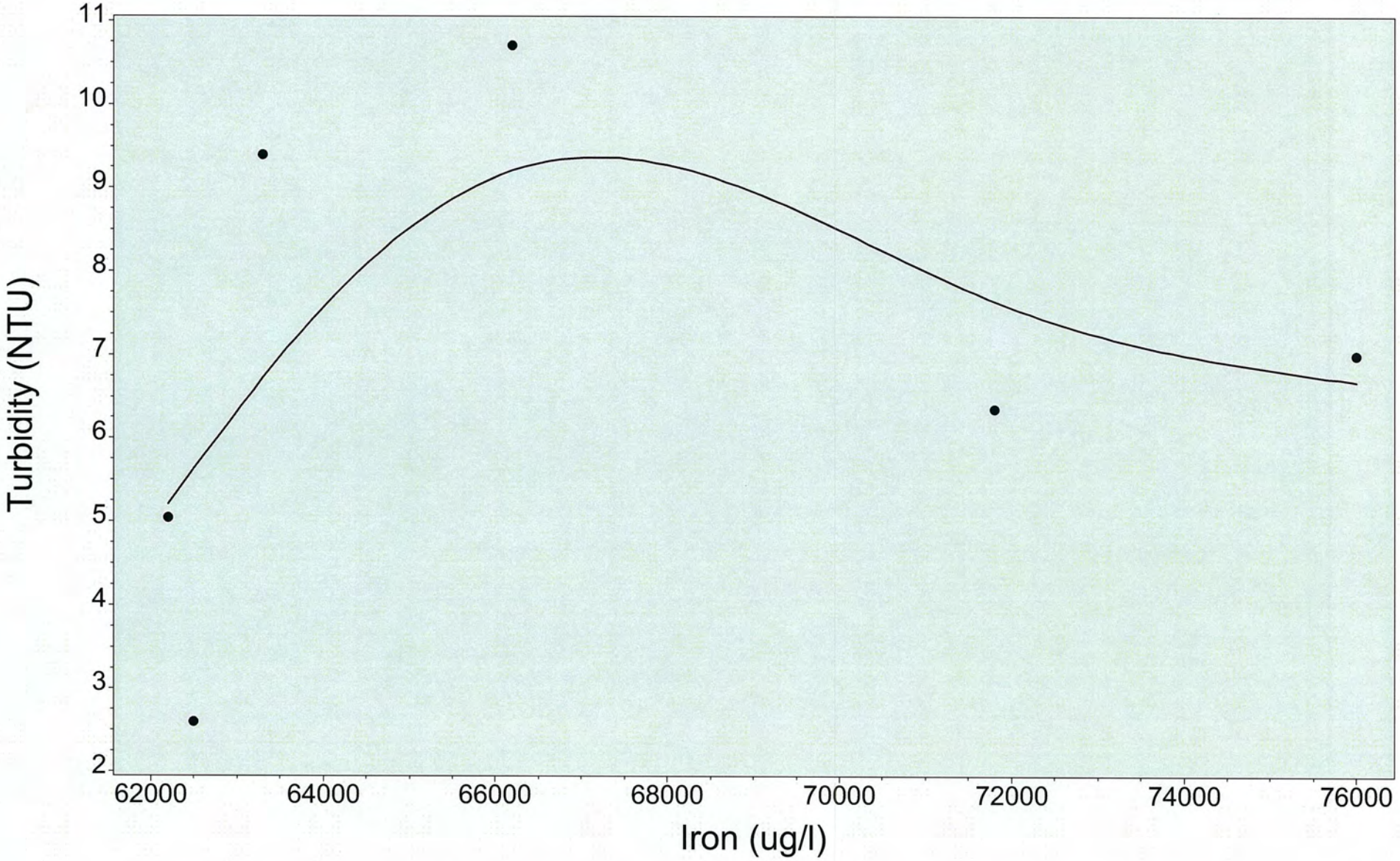
Concentration of Turbidity versus Iron in MW-16 at the Central County Landfill



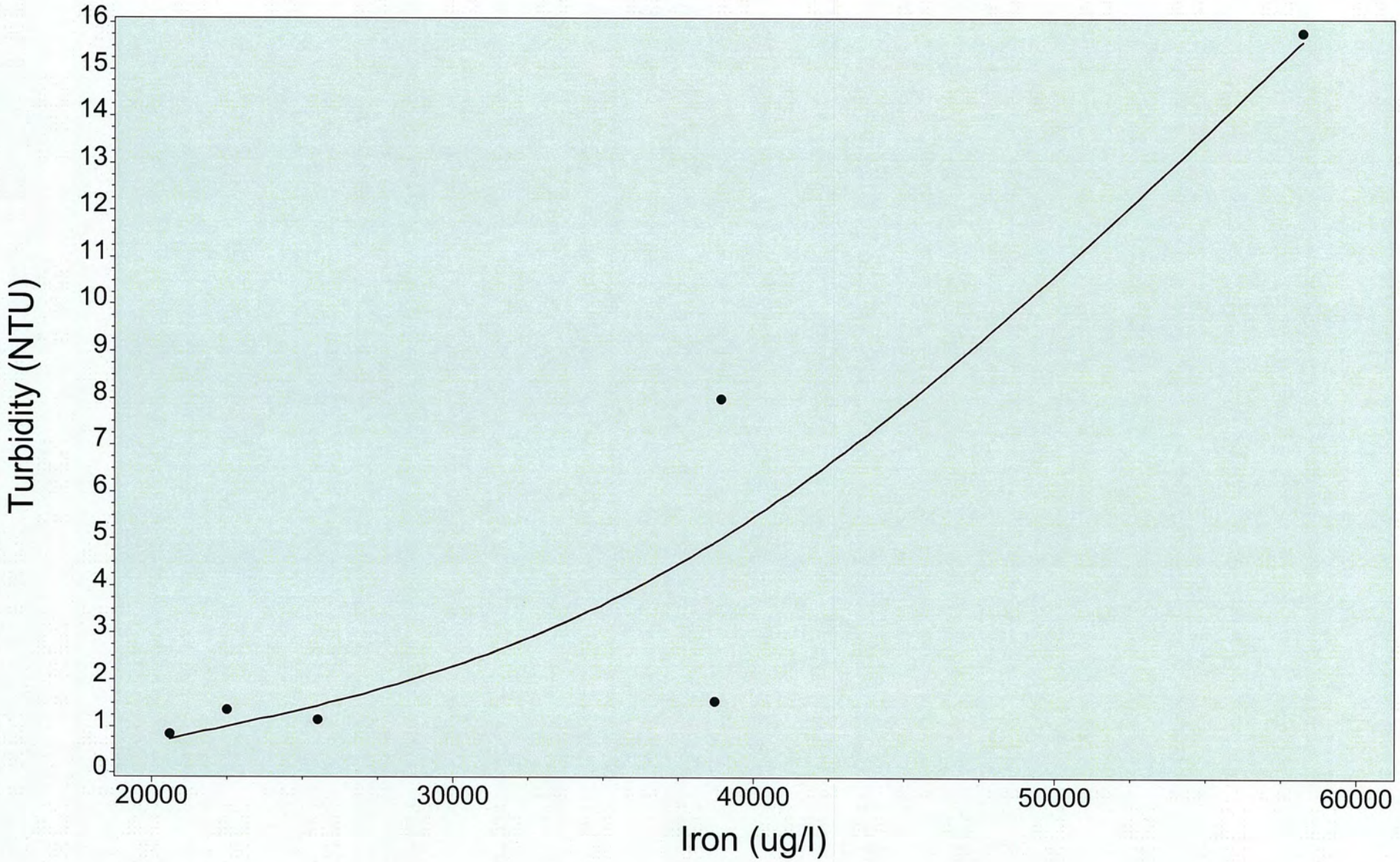
Concentration of Turbidity versus Iron in MW-17 at the Central County Landfill



Concentration of Turbidity versus Iron in MW-18 at the Central County Landfill

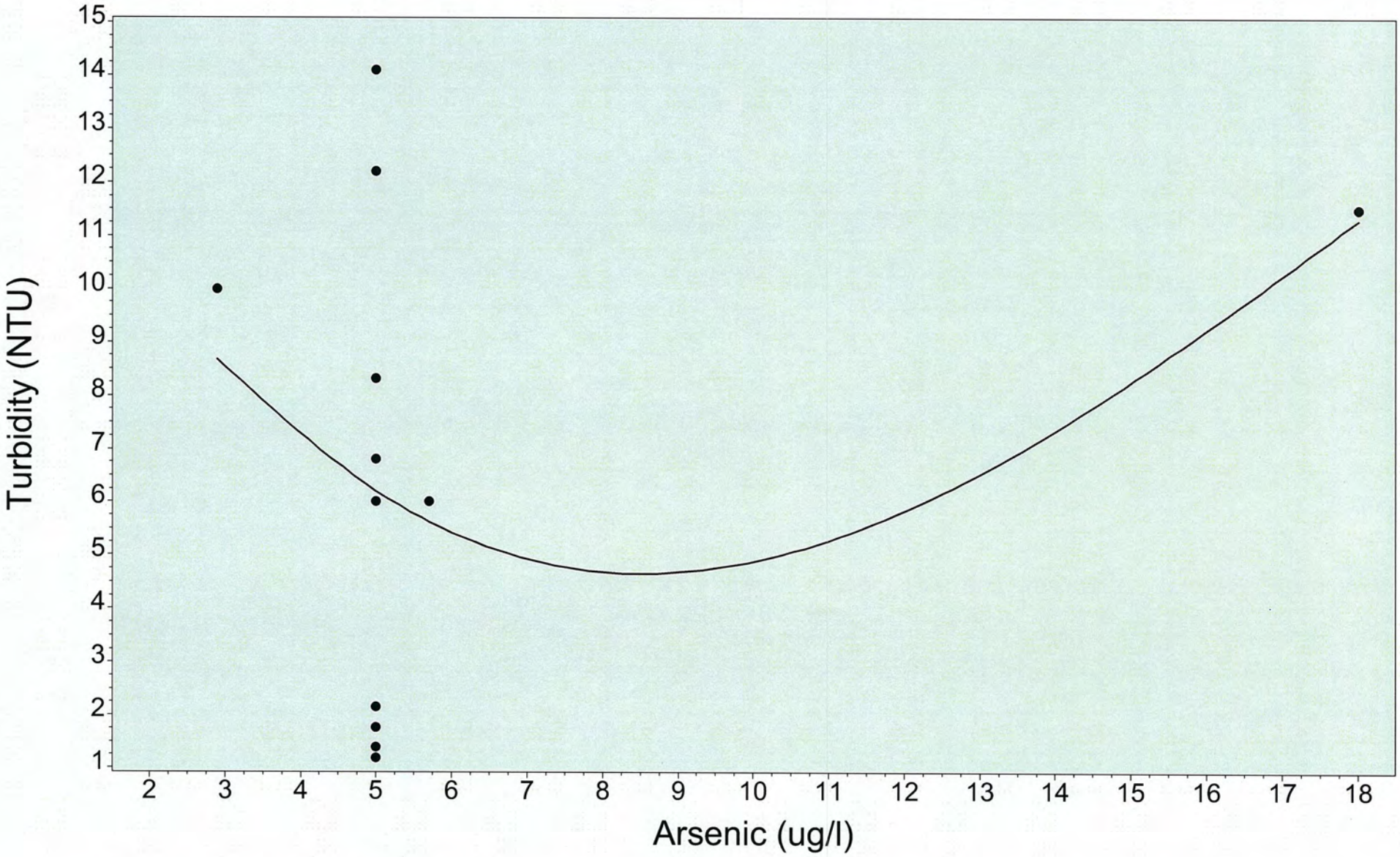


Concentration of Turbidity versus Iron in MW-19 at the Central County Landfill

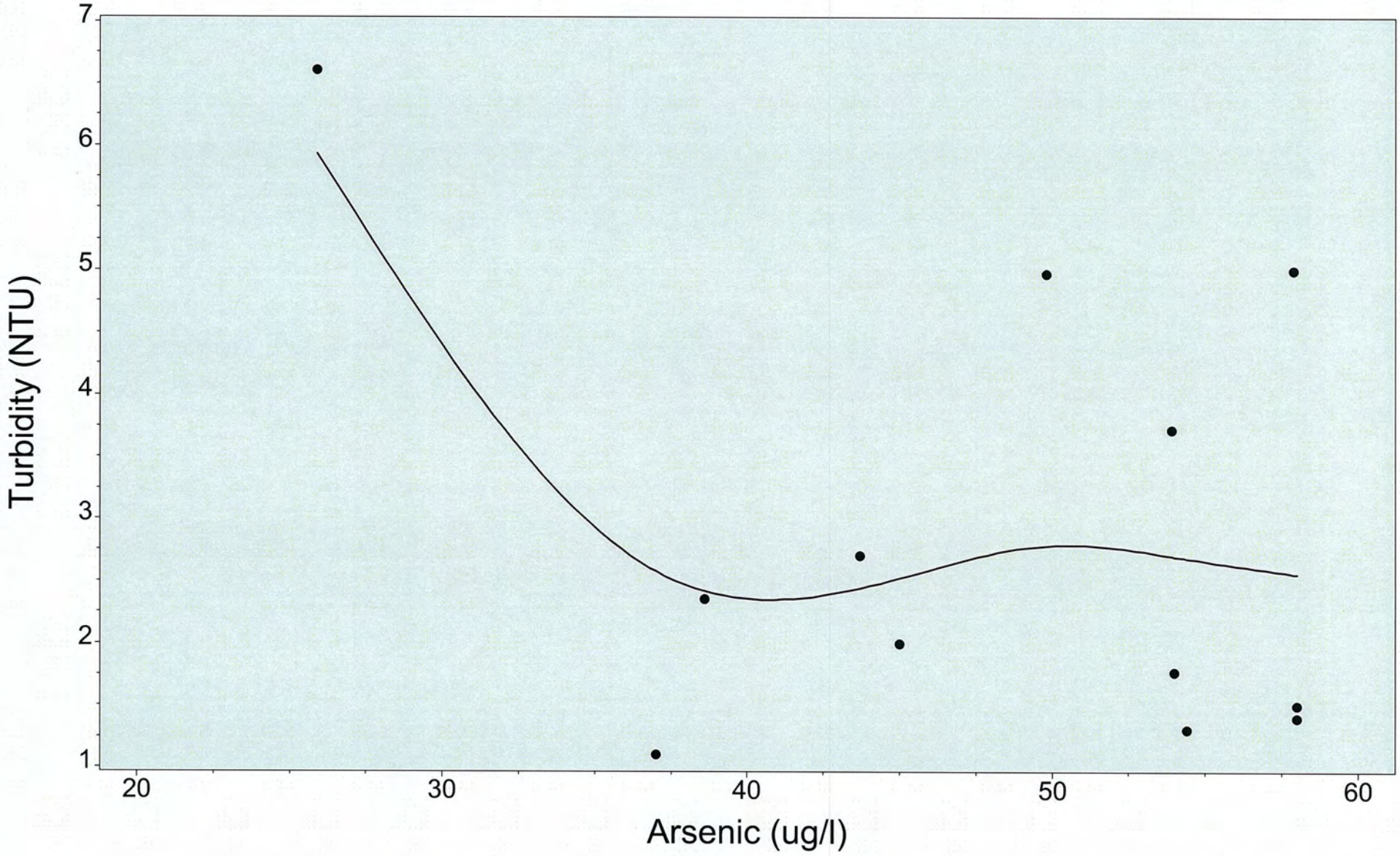


Concentration of Turbidity versus Iron in MW-20 at the Central County Landfill

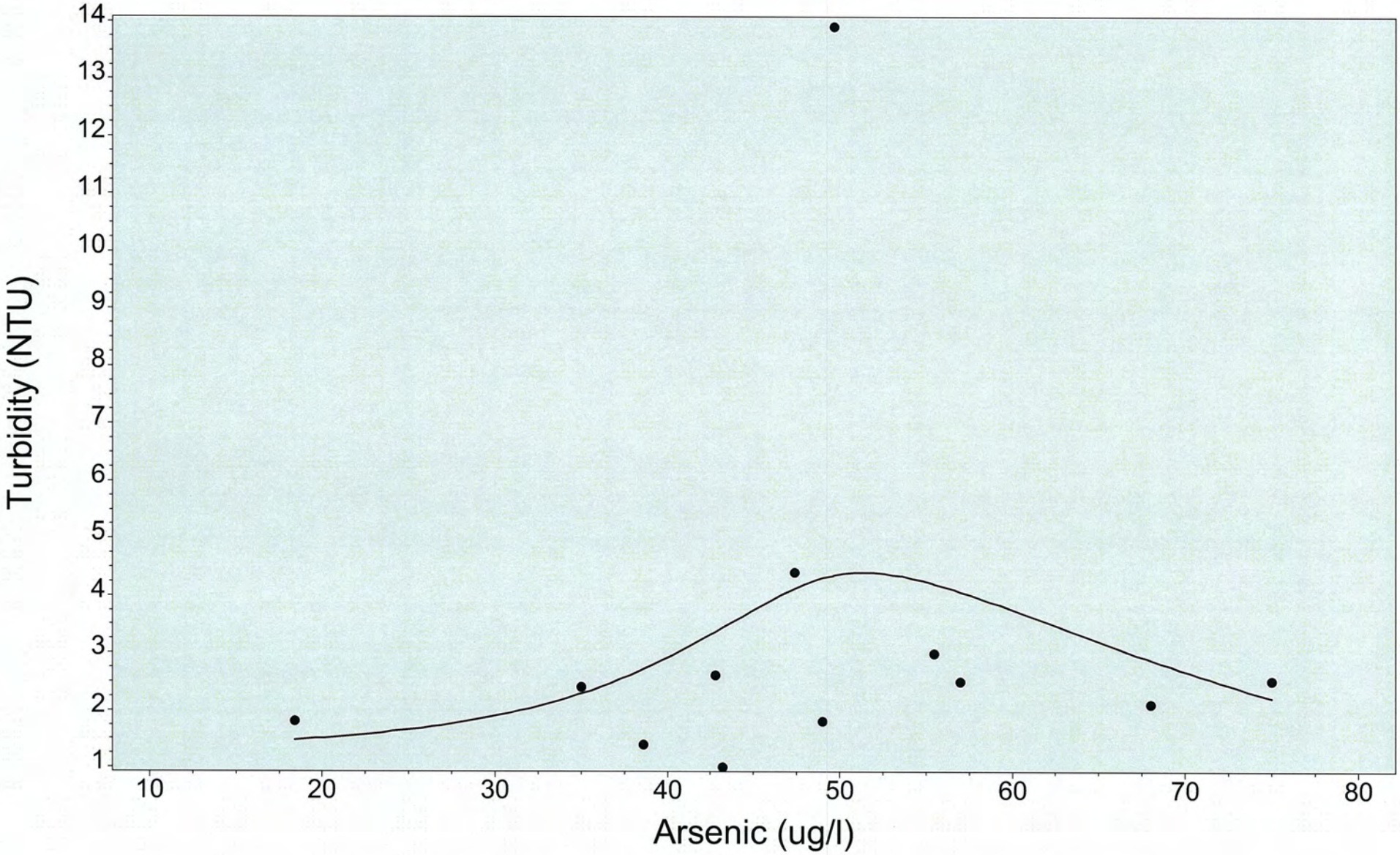
B-2 – Turbidity versus Arsenic



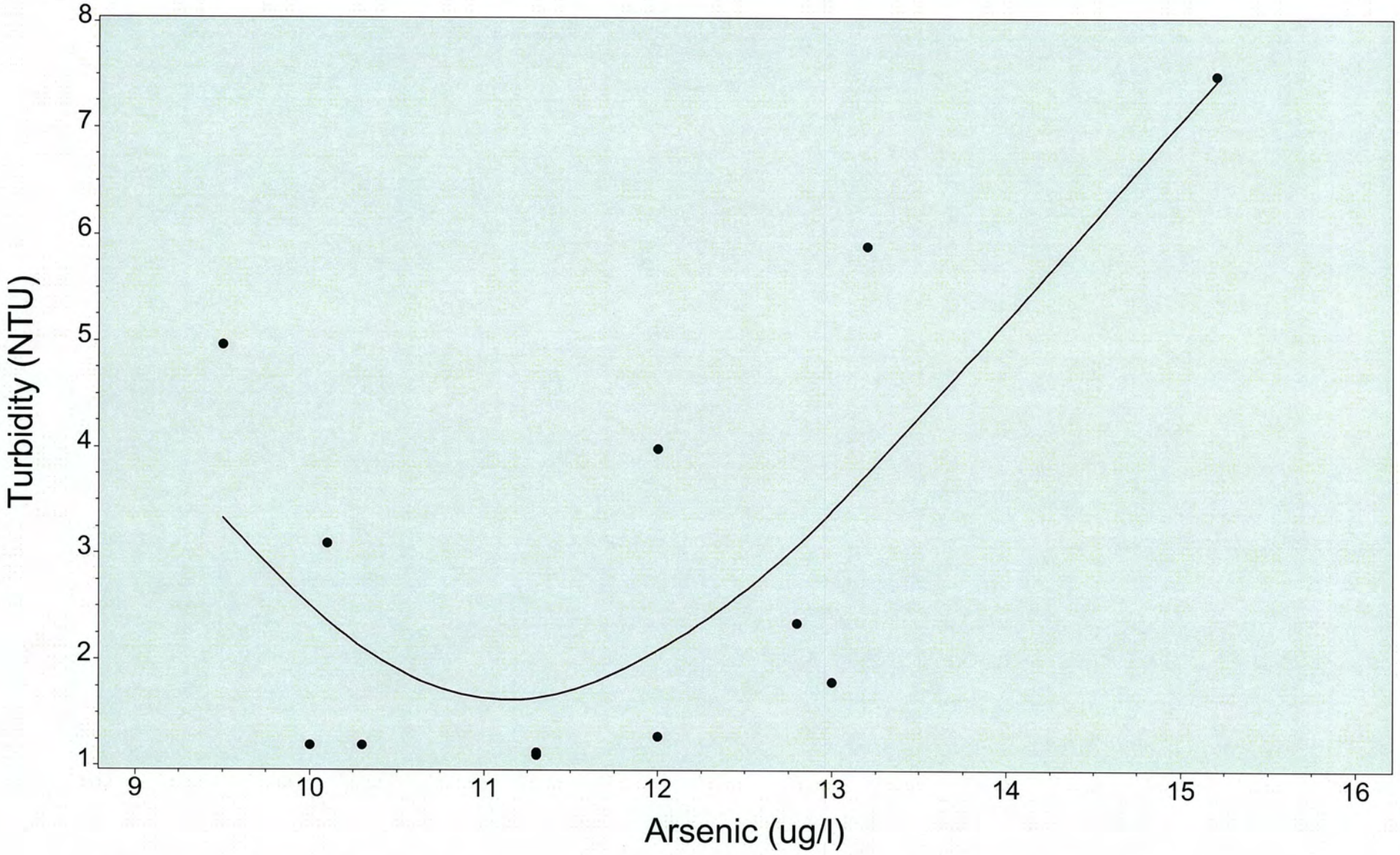
Concentration of Turbidity versus Arsenic in MW-1R at the Central County Landfill



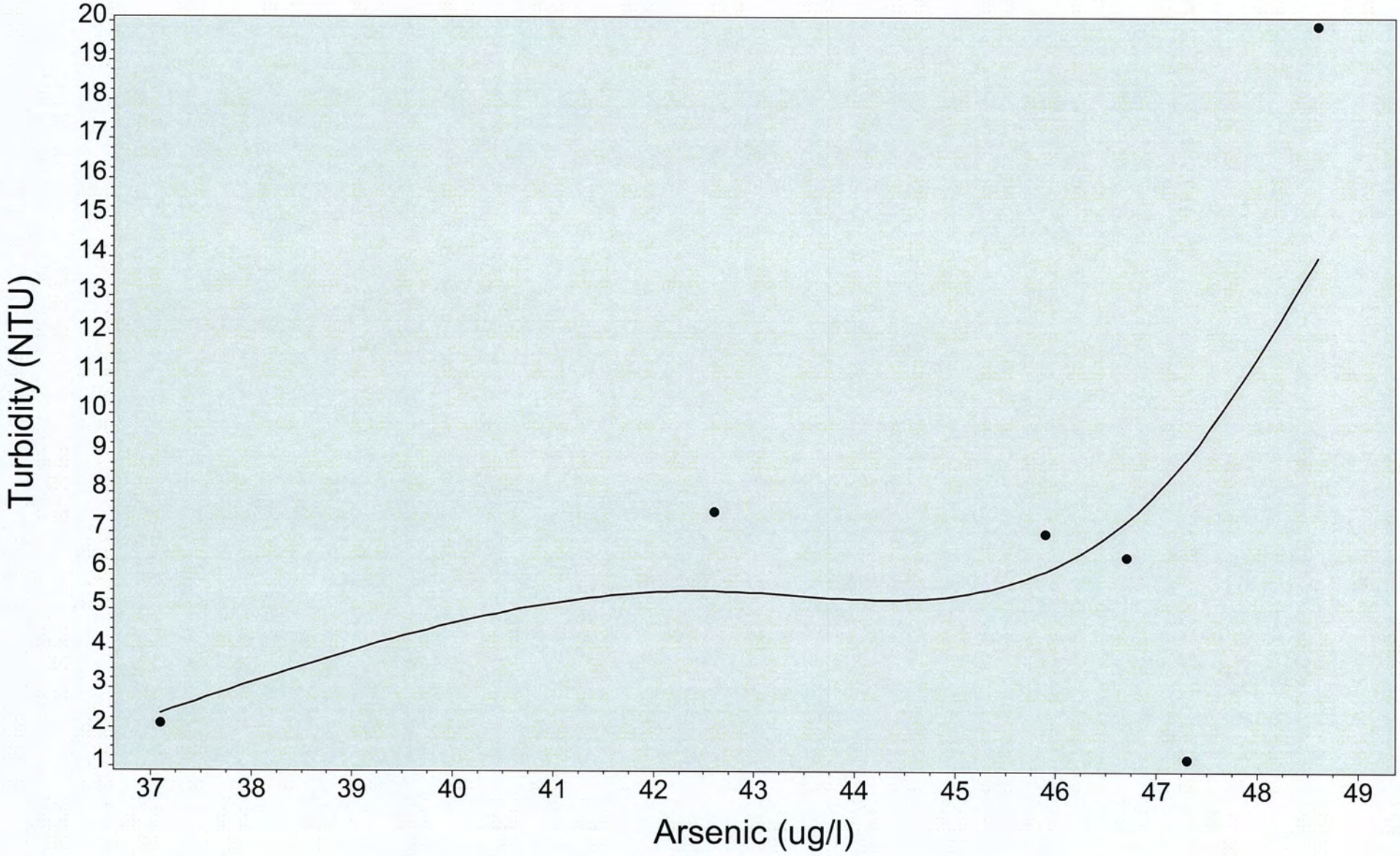
Concentration of Turbidity versus Arsenic in MW-8A at the Central County Landfill



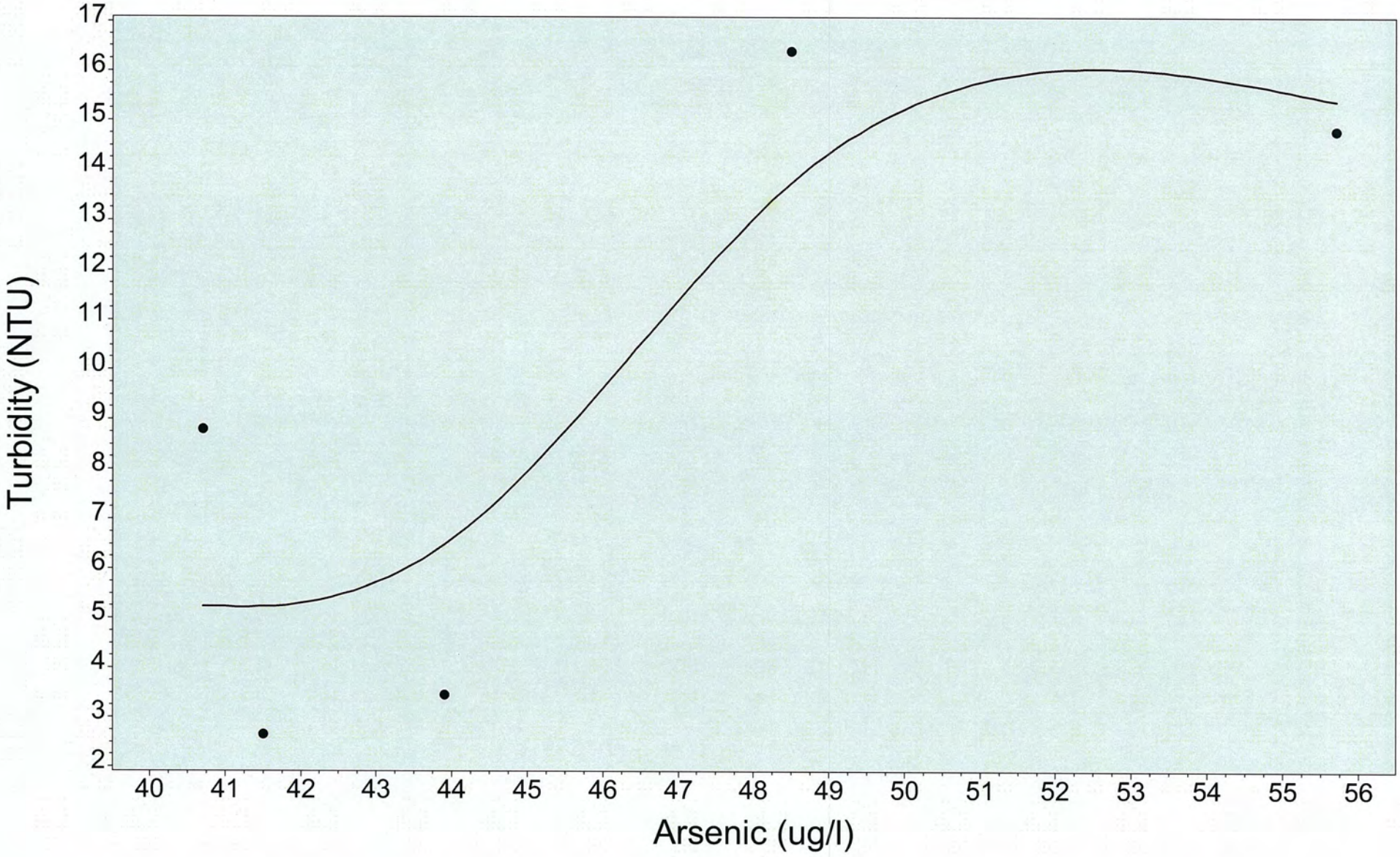
Concentration of Turbidity versus Arsenic in MW-9 at the Central County Landfill



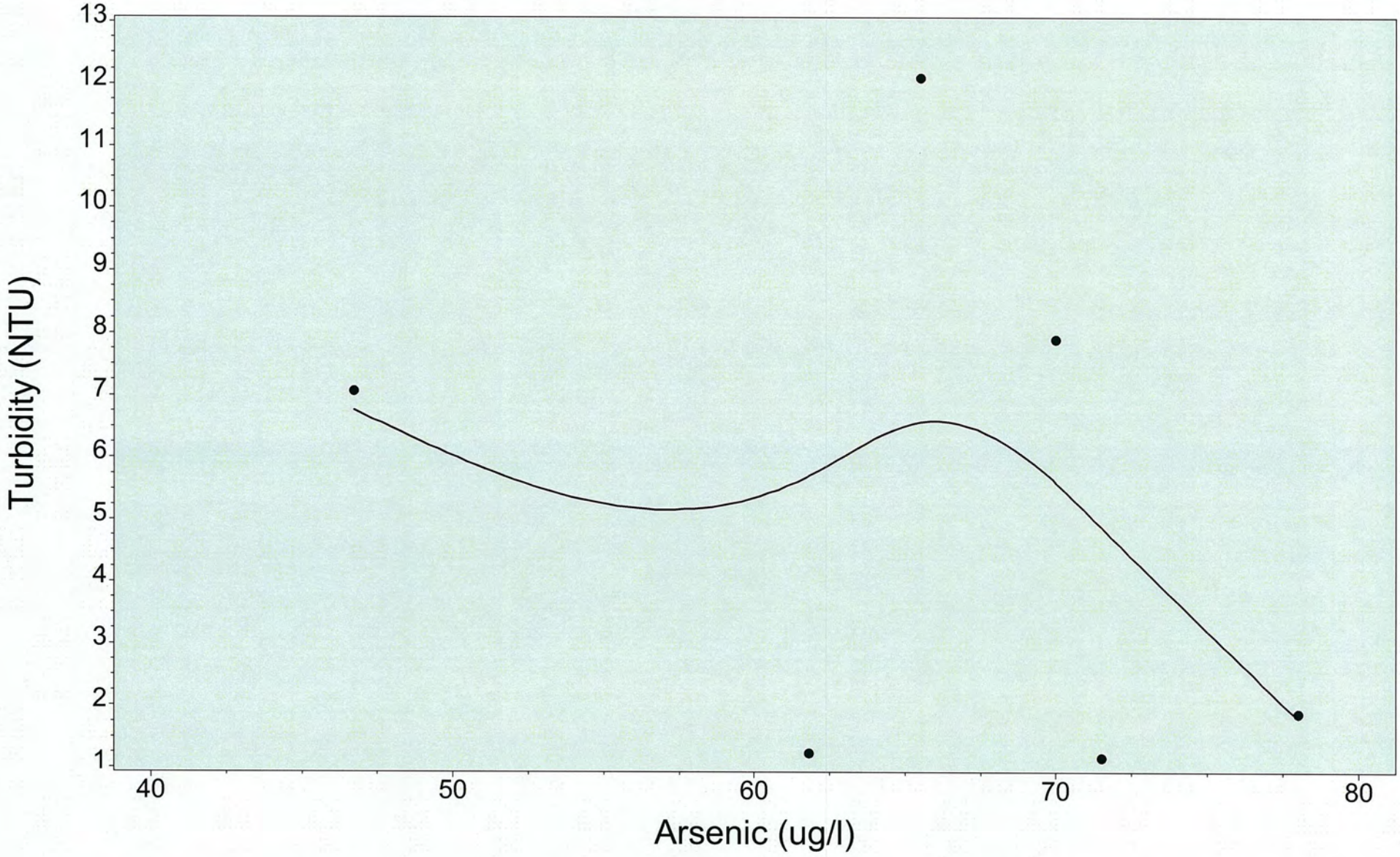
Concentration of Turbidity versus Arsenic in MW-10R at the Central County Landfill



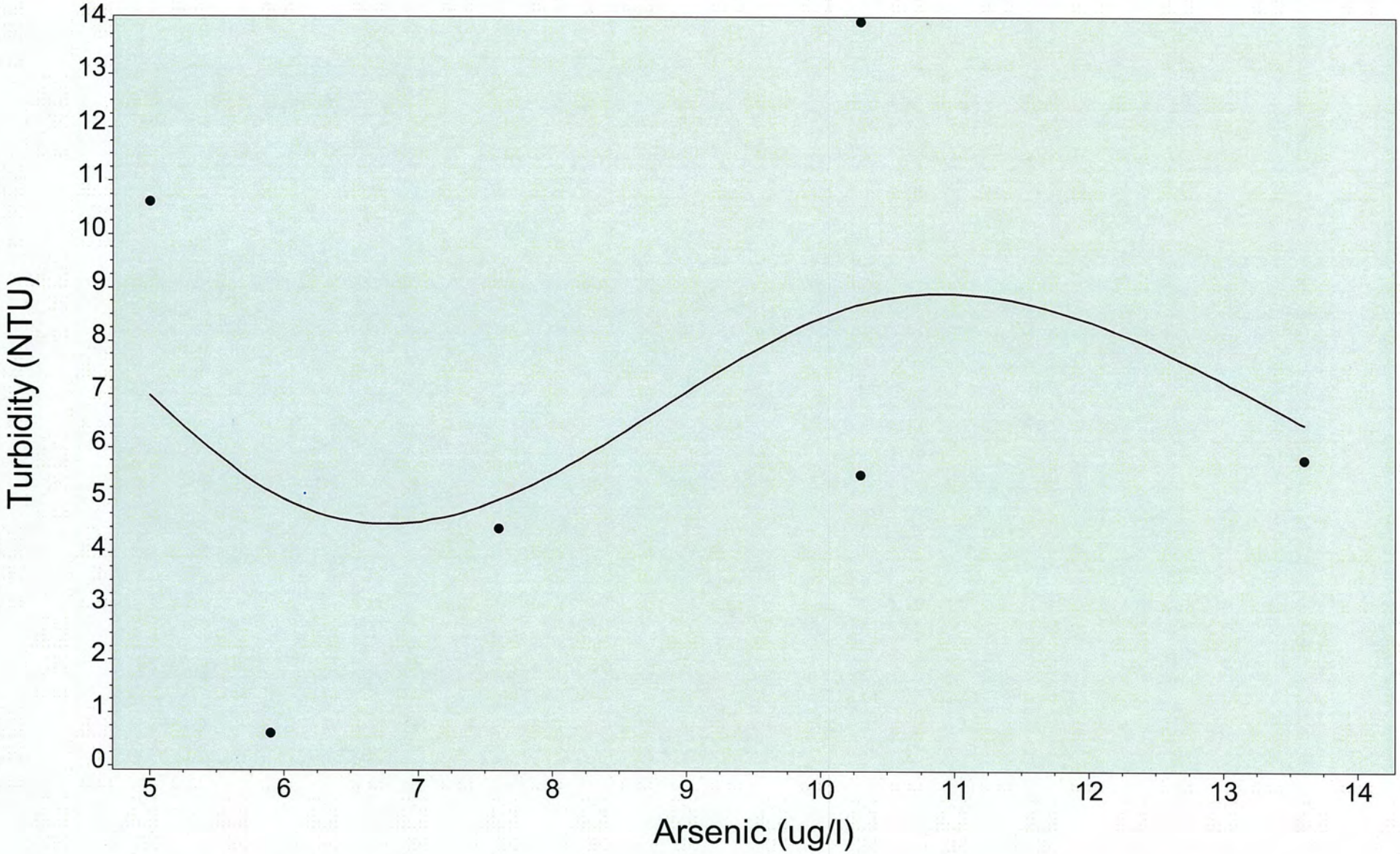
Concentration of Turbidity versus Arsenic in MW-15 at the Central County Landfill



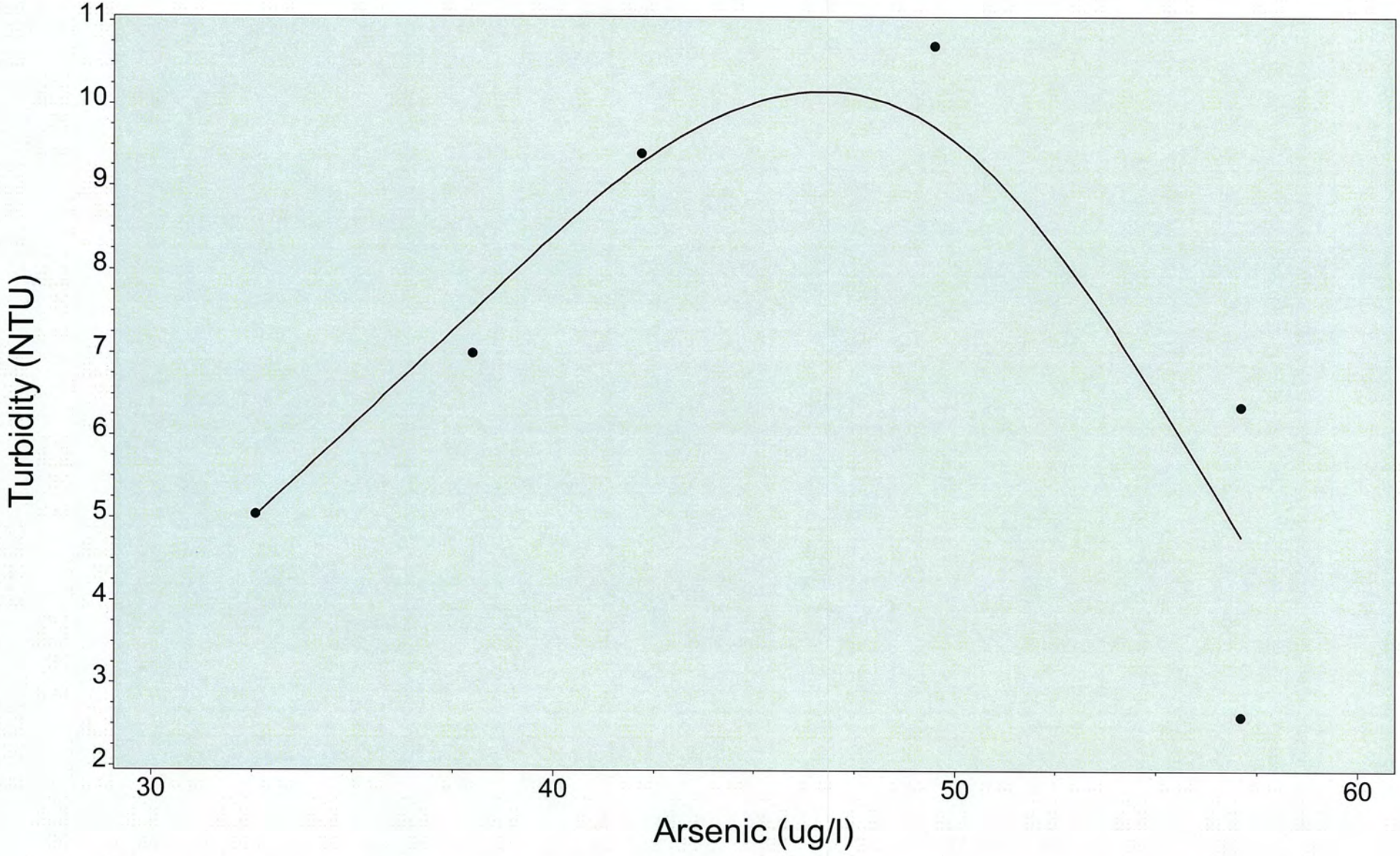
Concentration of Turbidity versus Arsenic in MW-16 at the Central County Landfill



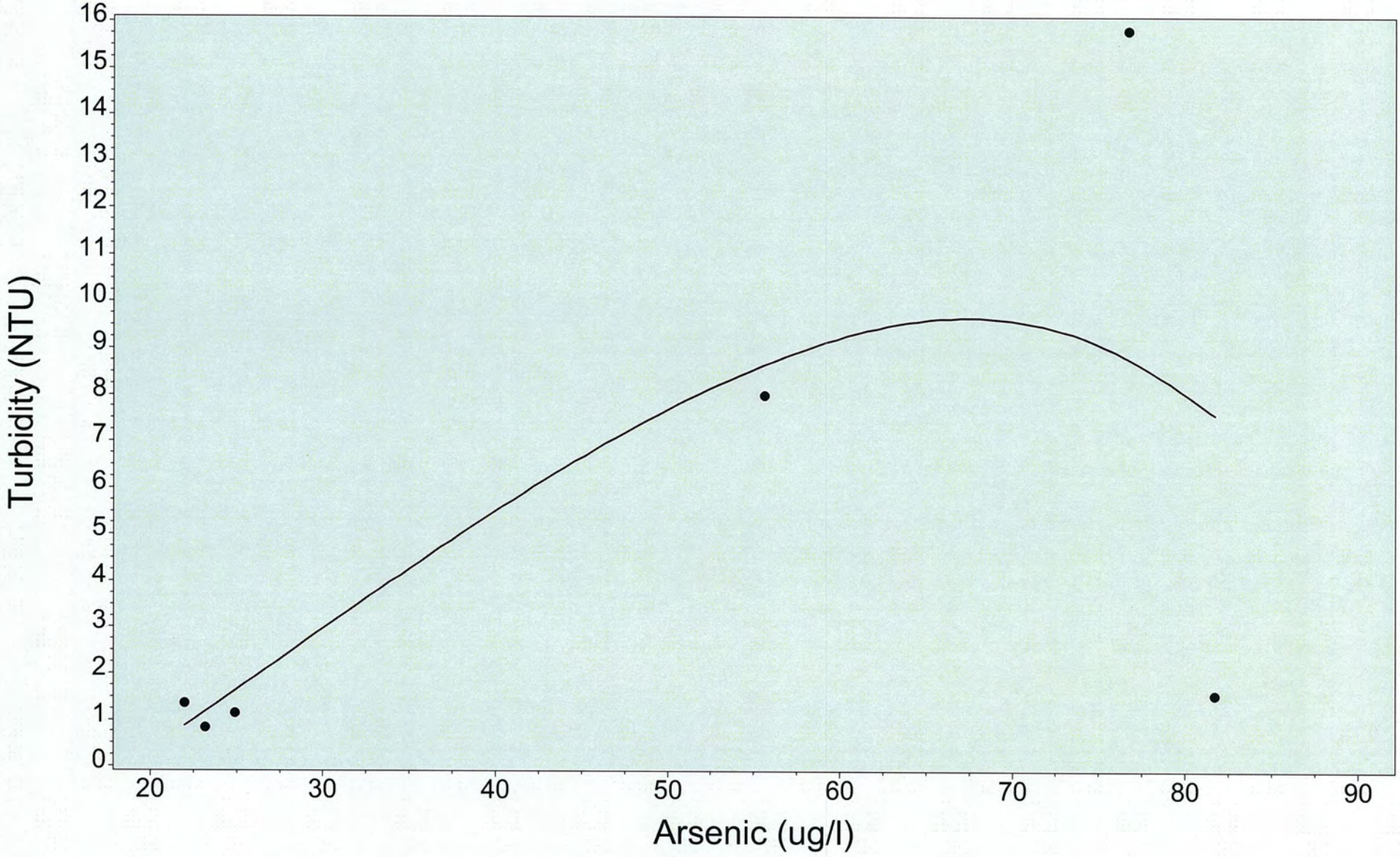
Concentration of Turbidity versus Arsenic in MW-17 at the Central County Landfill



Concentration of Turbidity versus Arsenic in MW-18 at the Central County Landfill

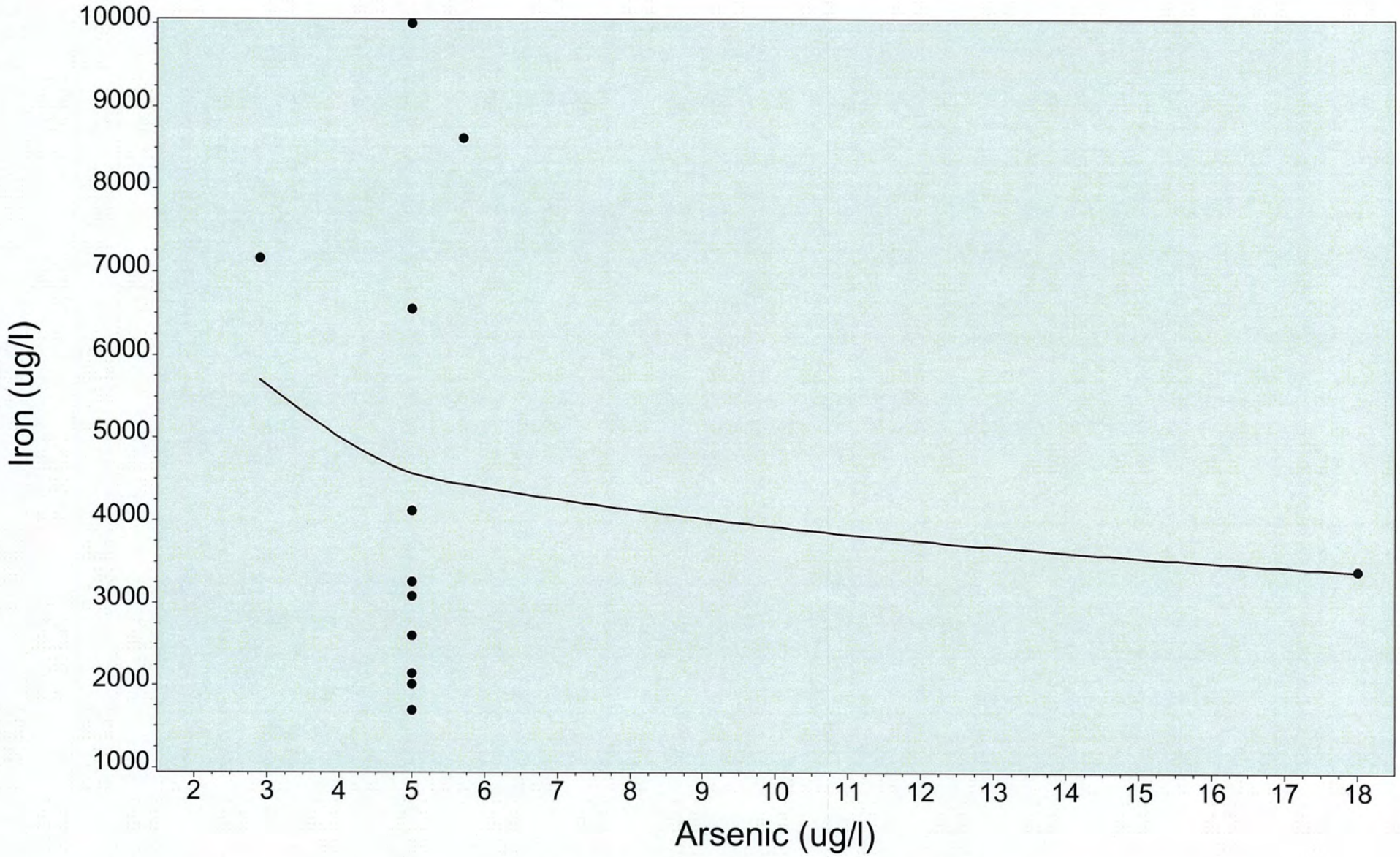


Concentration of Turbidity versus Arsenic in MW-19 at the Central County Landfill

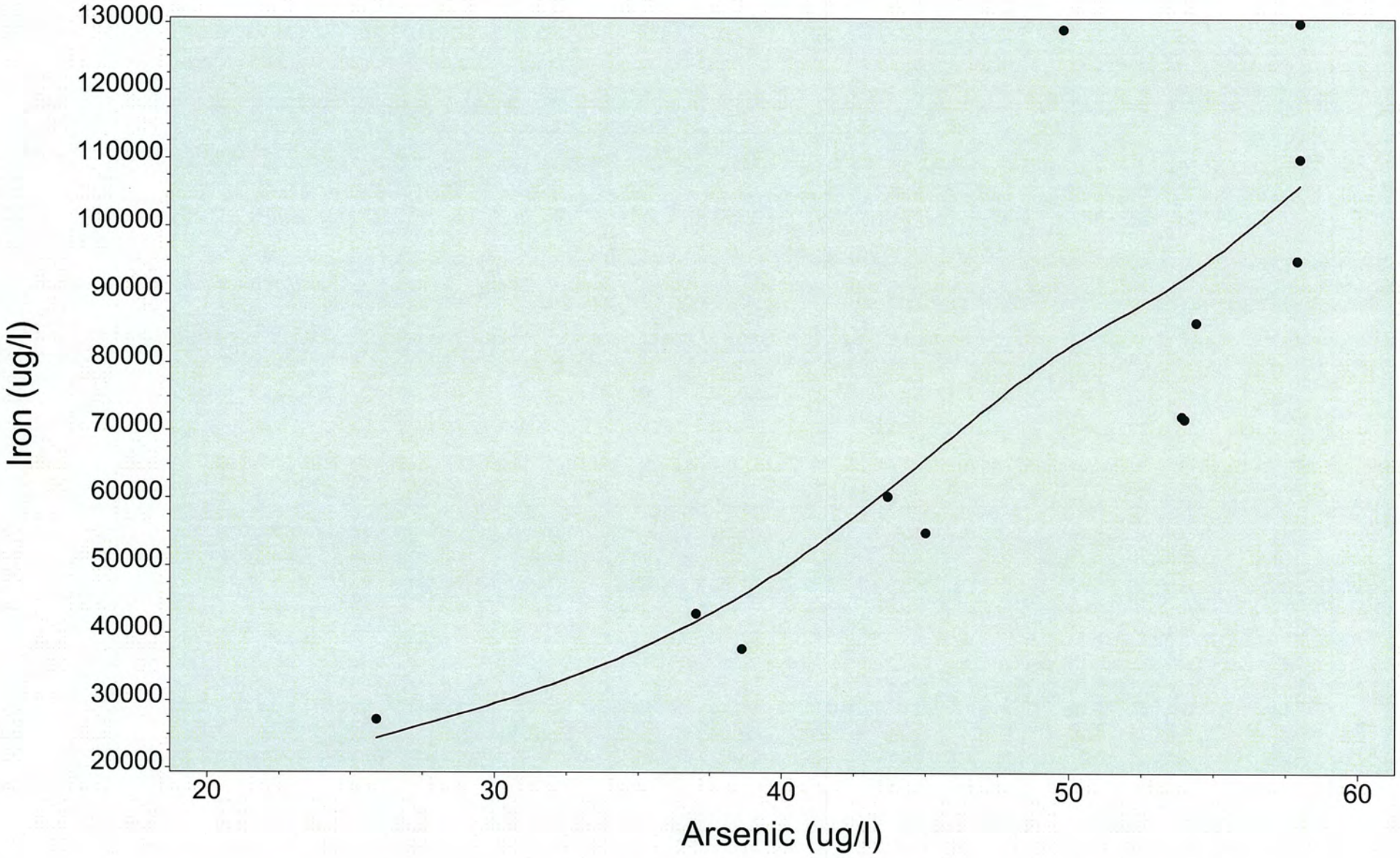


Concentration of Turbidity versus Arsenic in MW-20 at the Central County Landfill

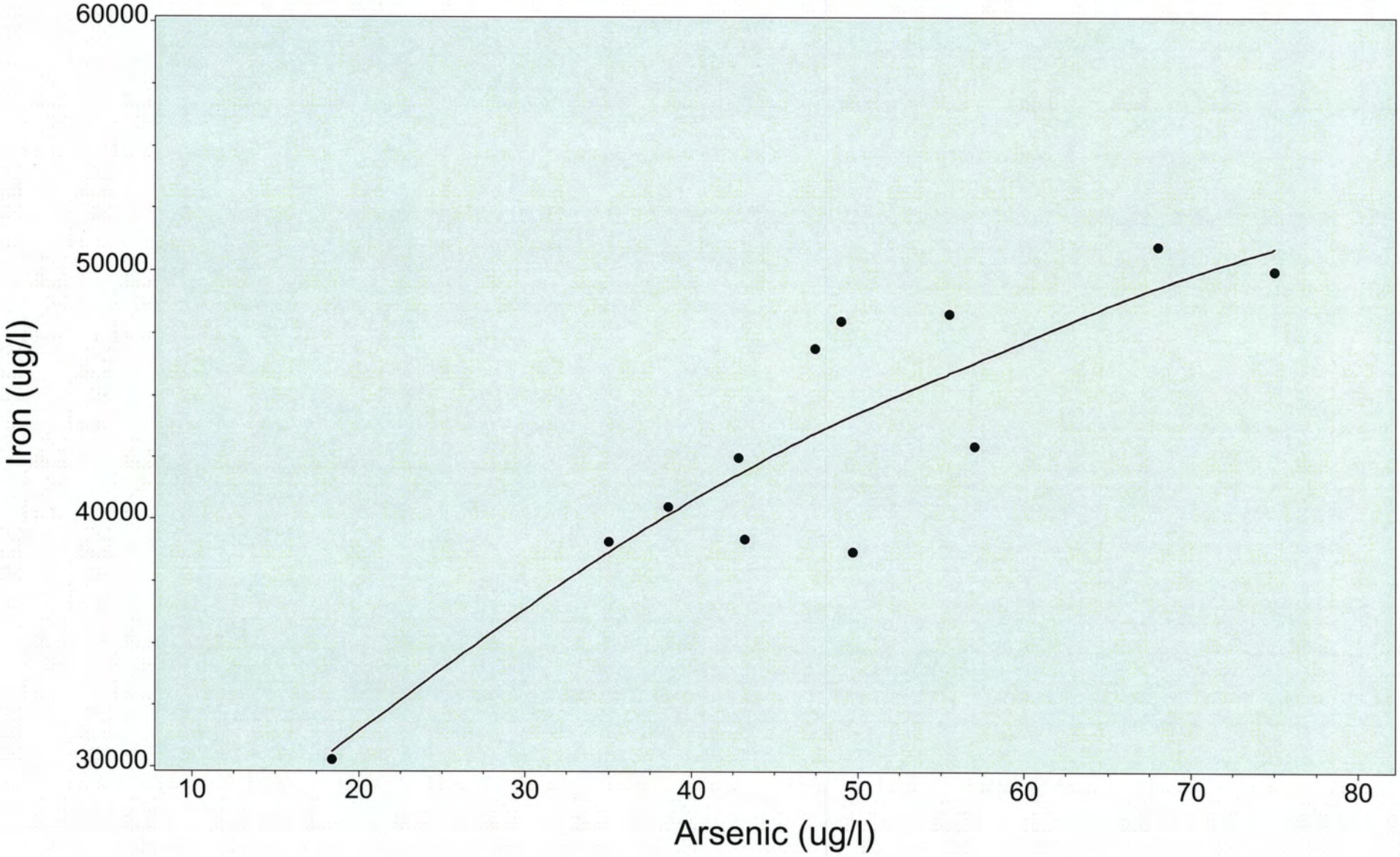
B-3 – Arsenic verses Iron



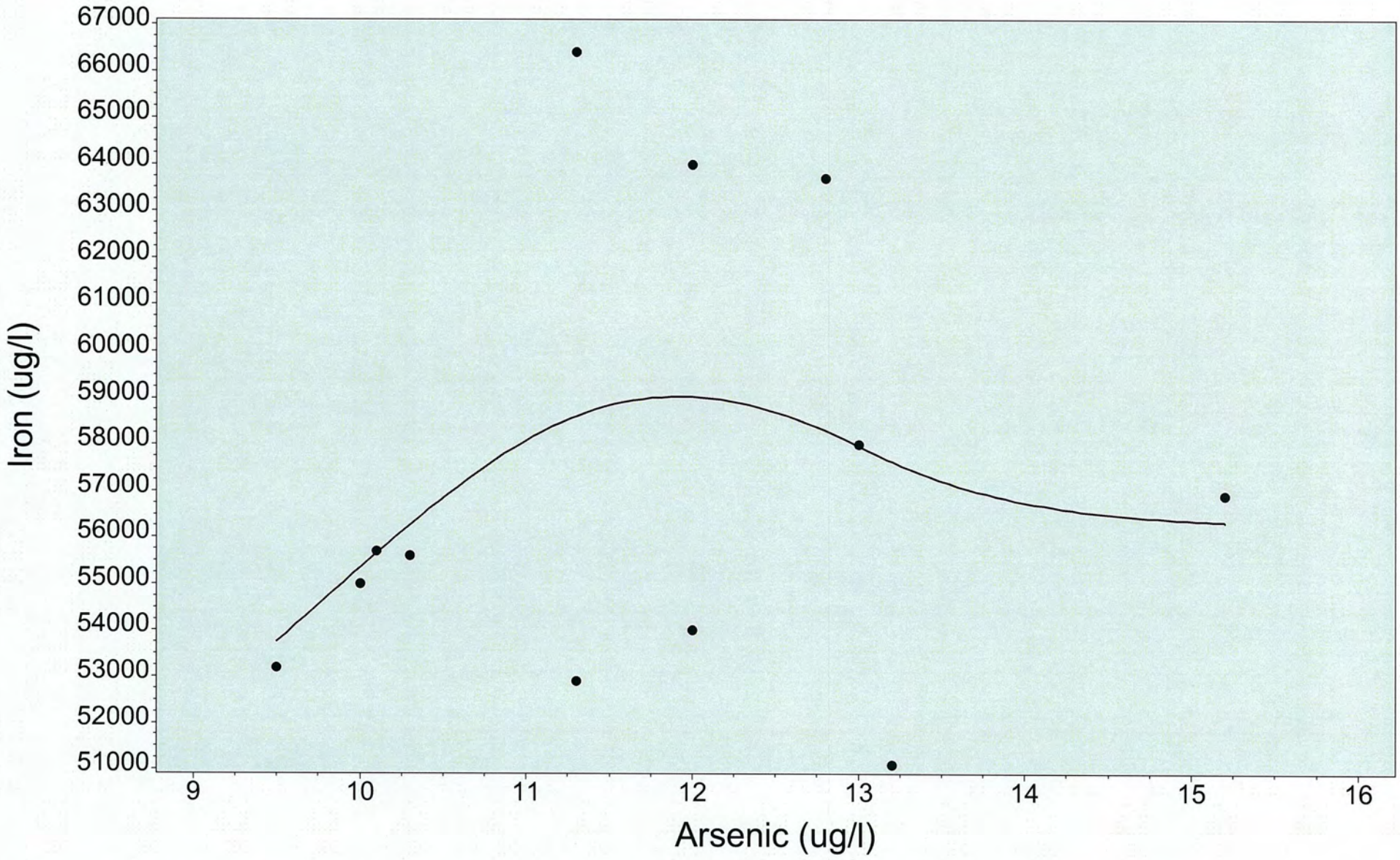
Concentration of Iron versus Arsenic in MW-1R at the Central County Landfill



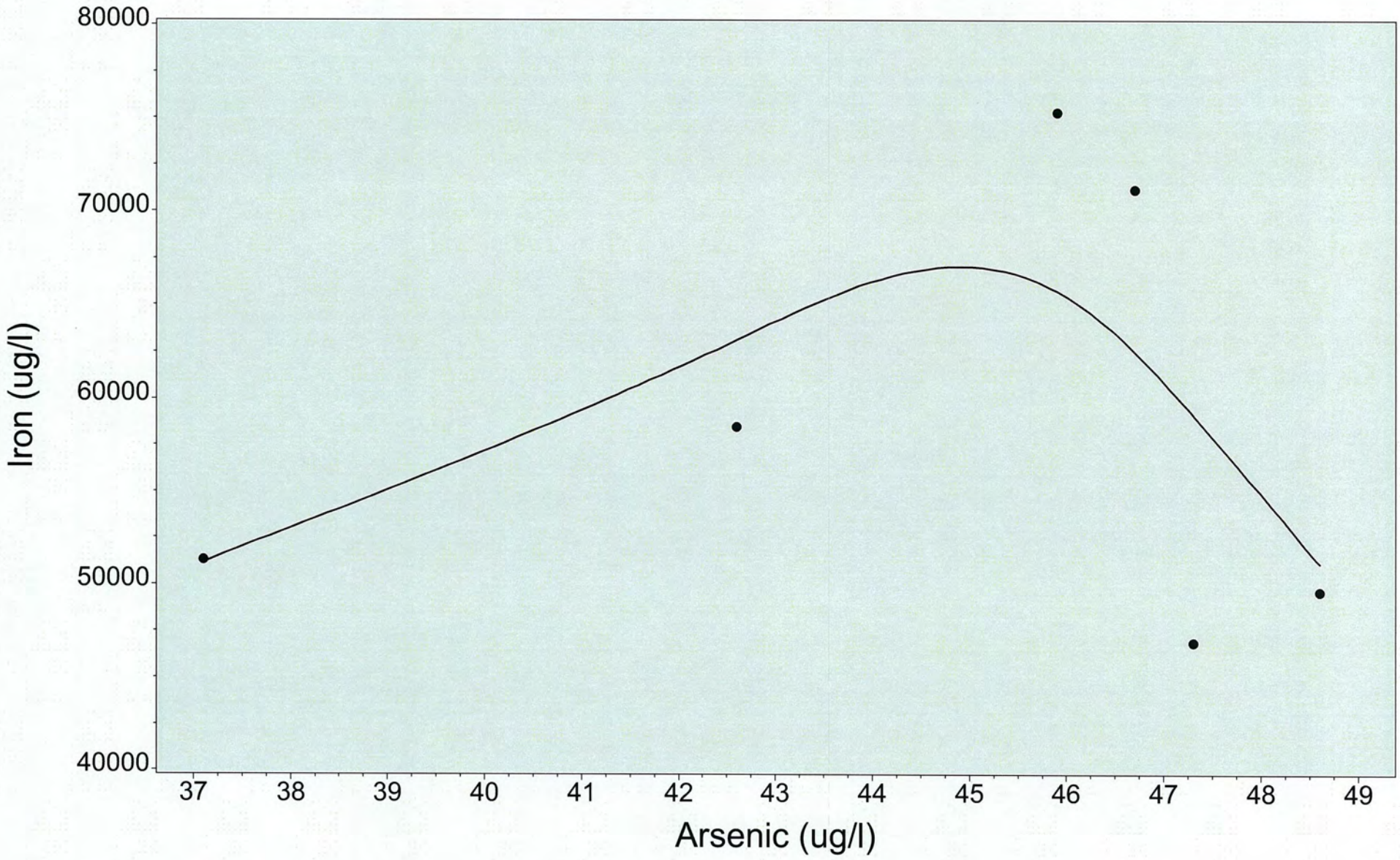
Concentration of Iron versus Arsenic in MW-8A at the Central County Landfill



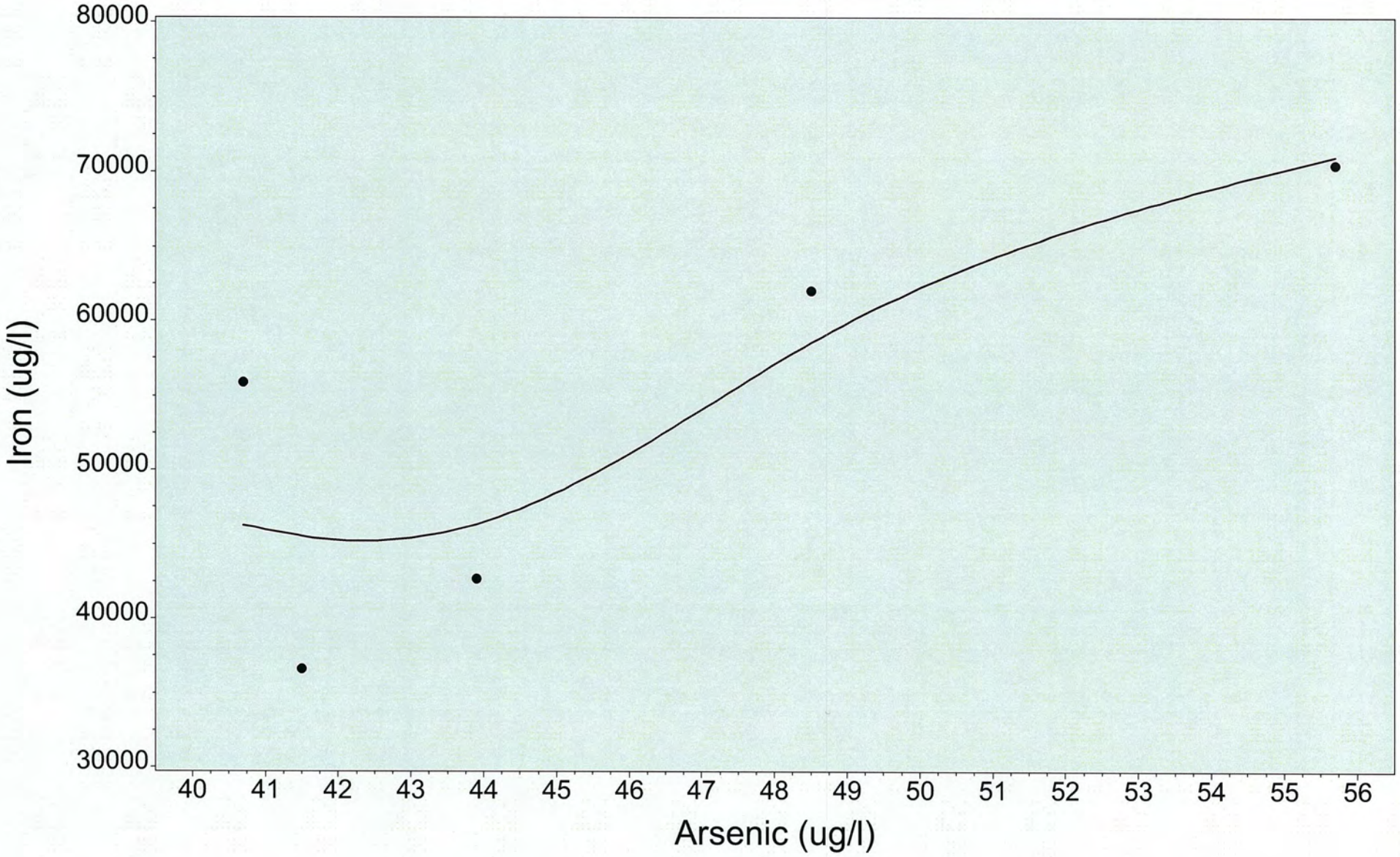
Concentration of Iron versus Arsenic in MW-9 at the Central County Landfill



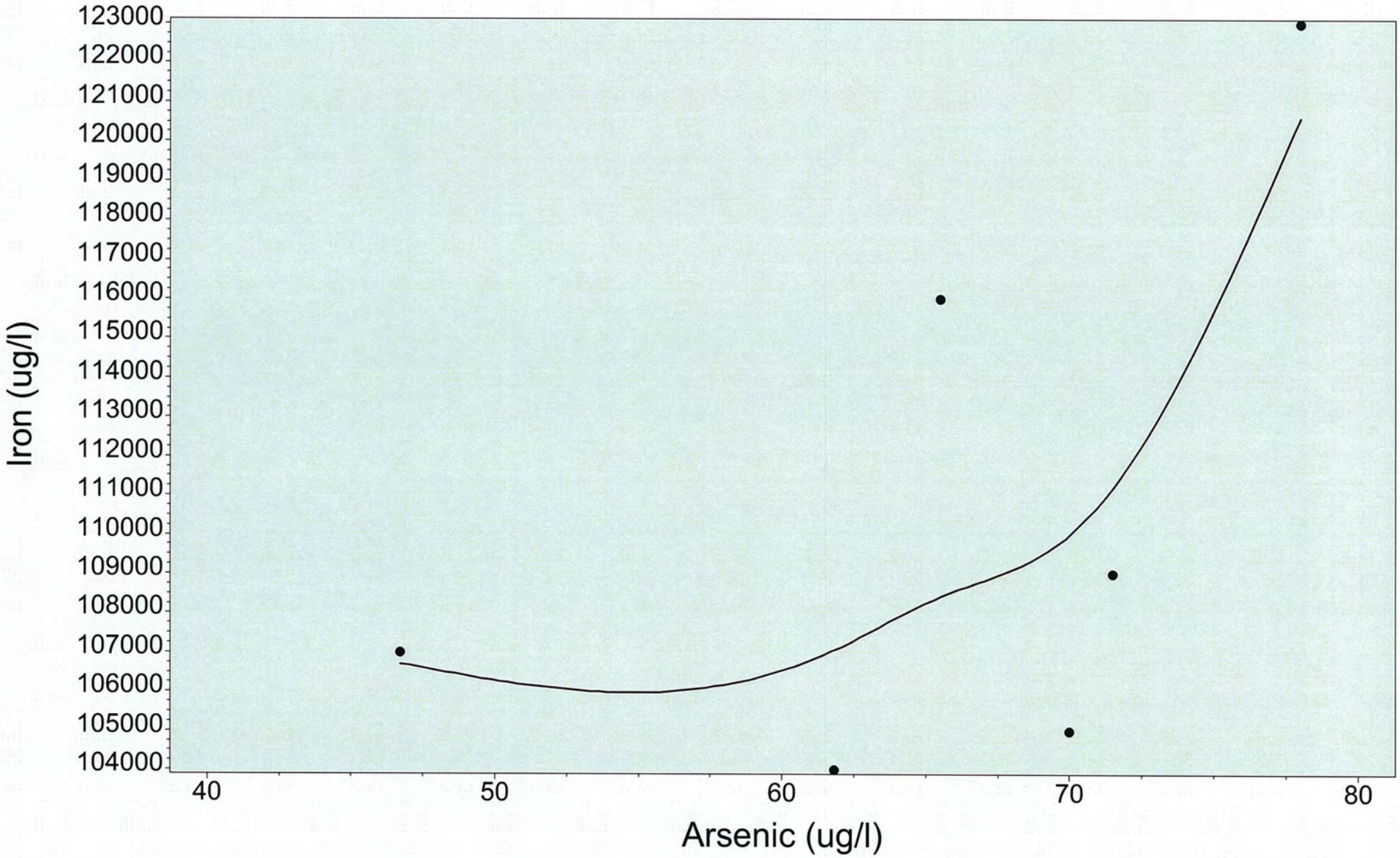
Concentration of Iron versus Arsenic in MW-10R at the Central County Landfill



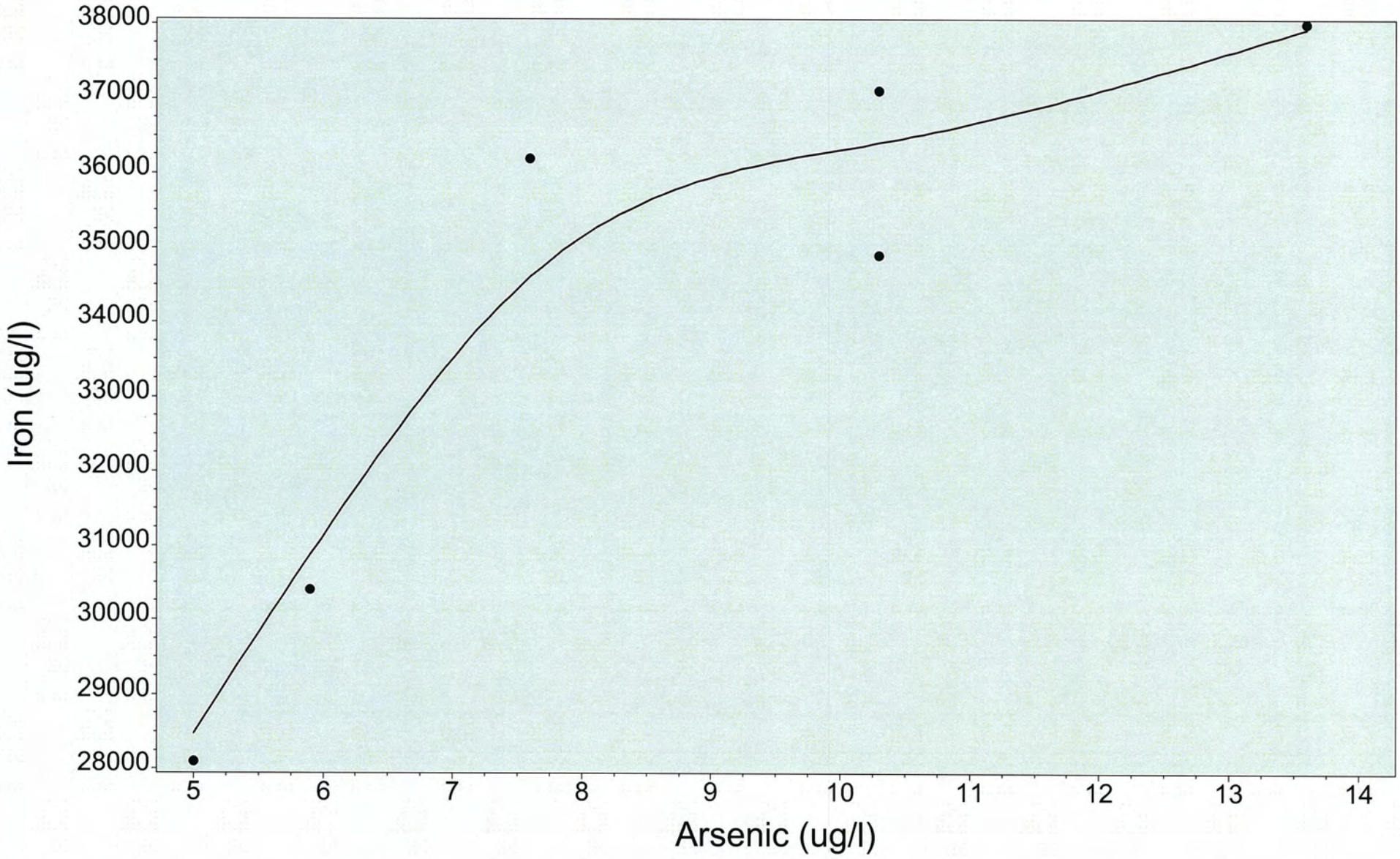
Concentration of Iron versus Arsenic in MW-15 at the Central County Landfill



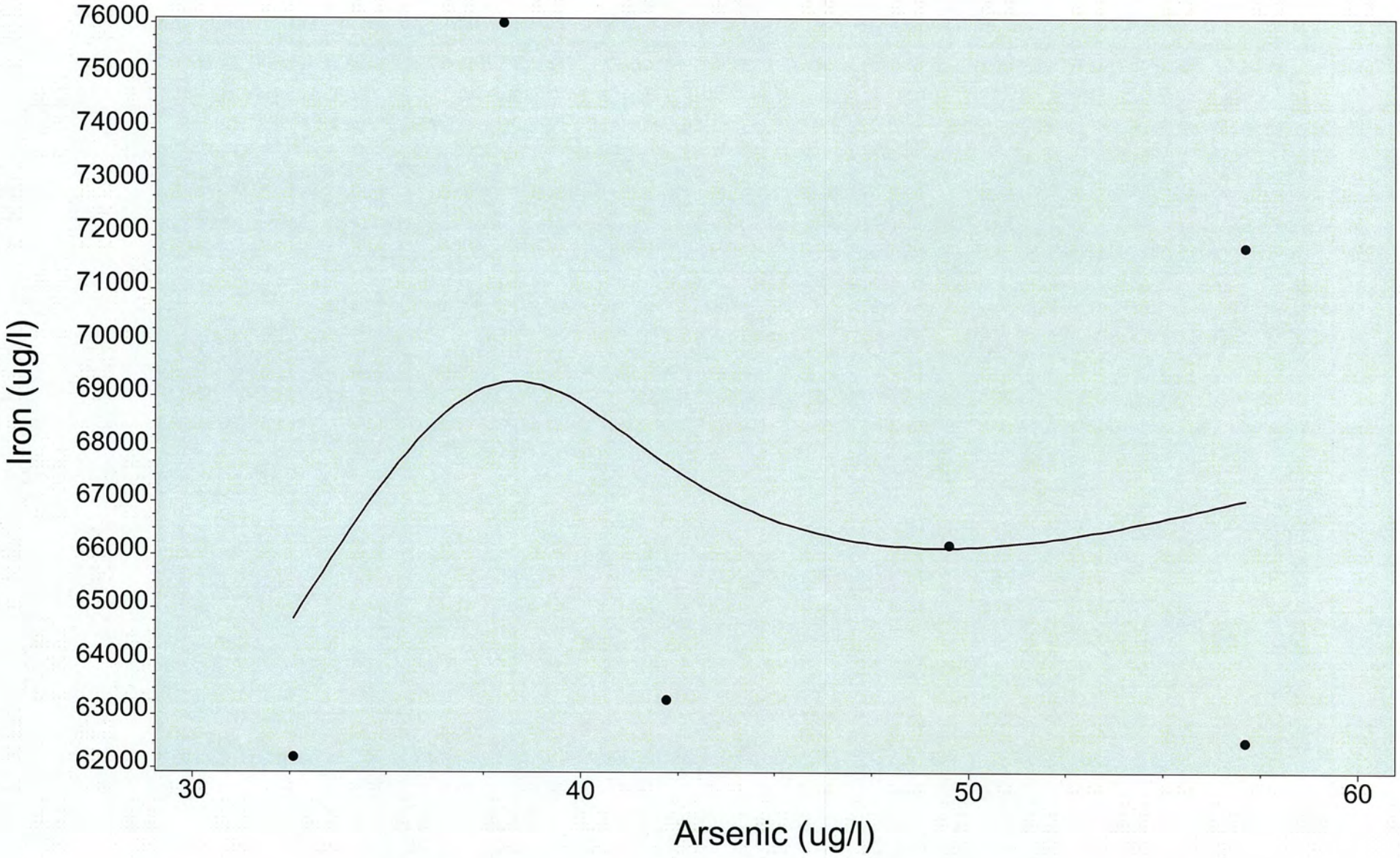
Concentration of Iron versus Arsenic in MW-16 at the Central County Landfill



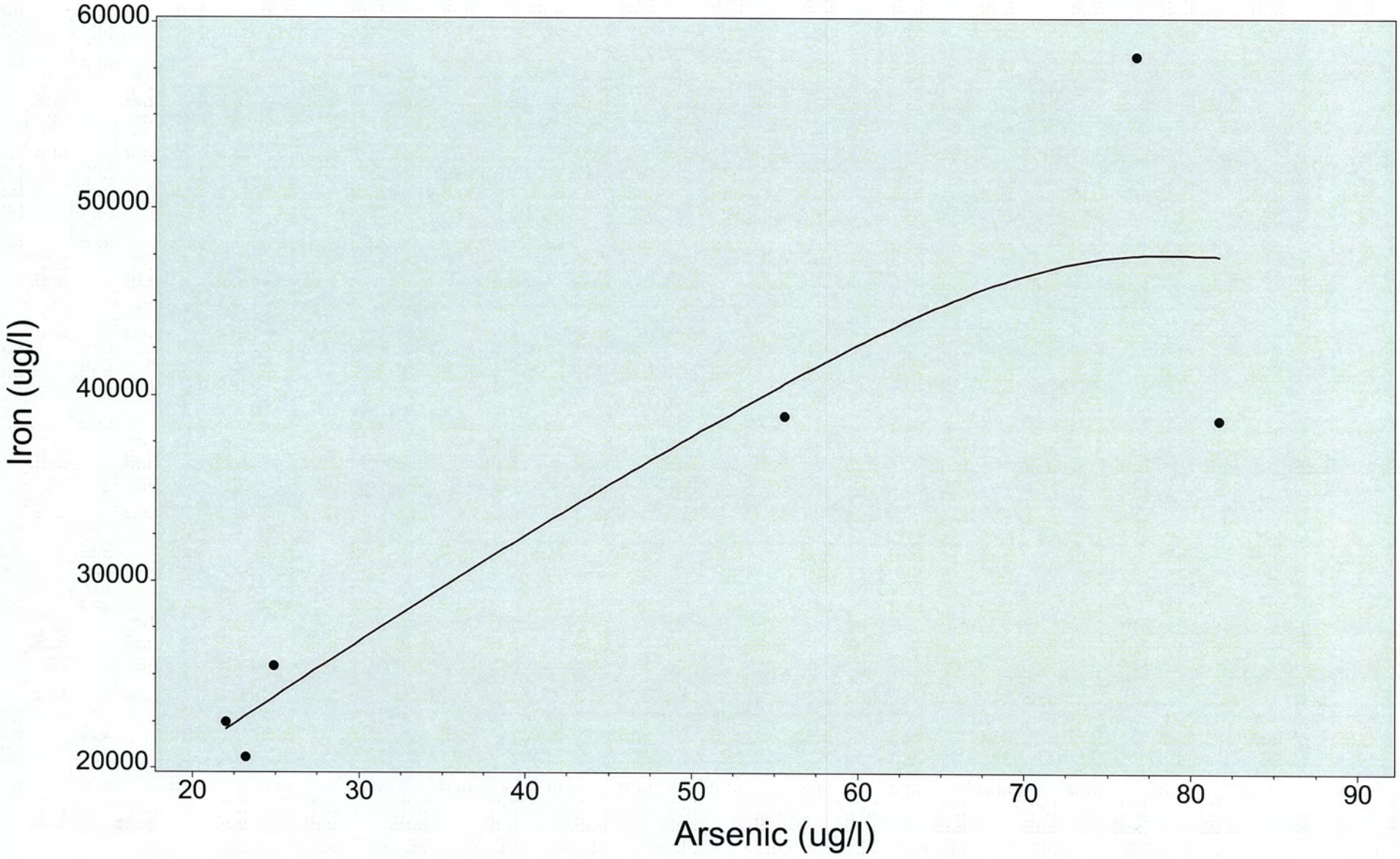
Concentration of Iron versus Arsenic in MW-17 at the Central County Landfill



Concentration of Iron versus Arsenic in MW-18 at the Central County Landfill

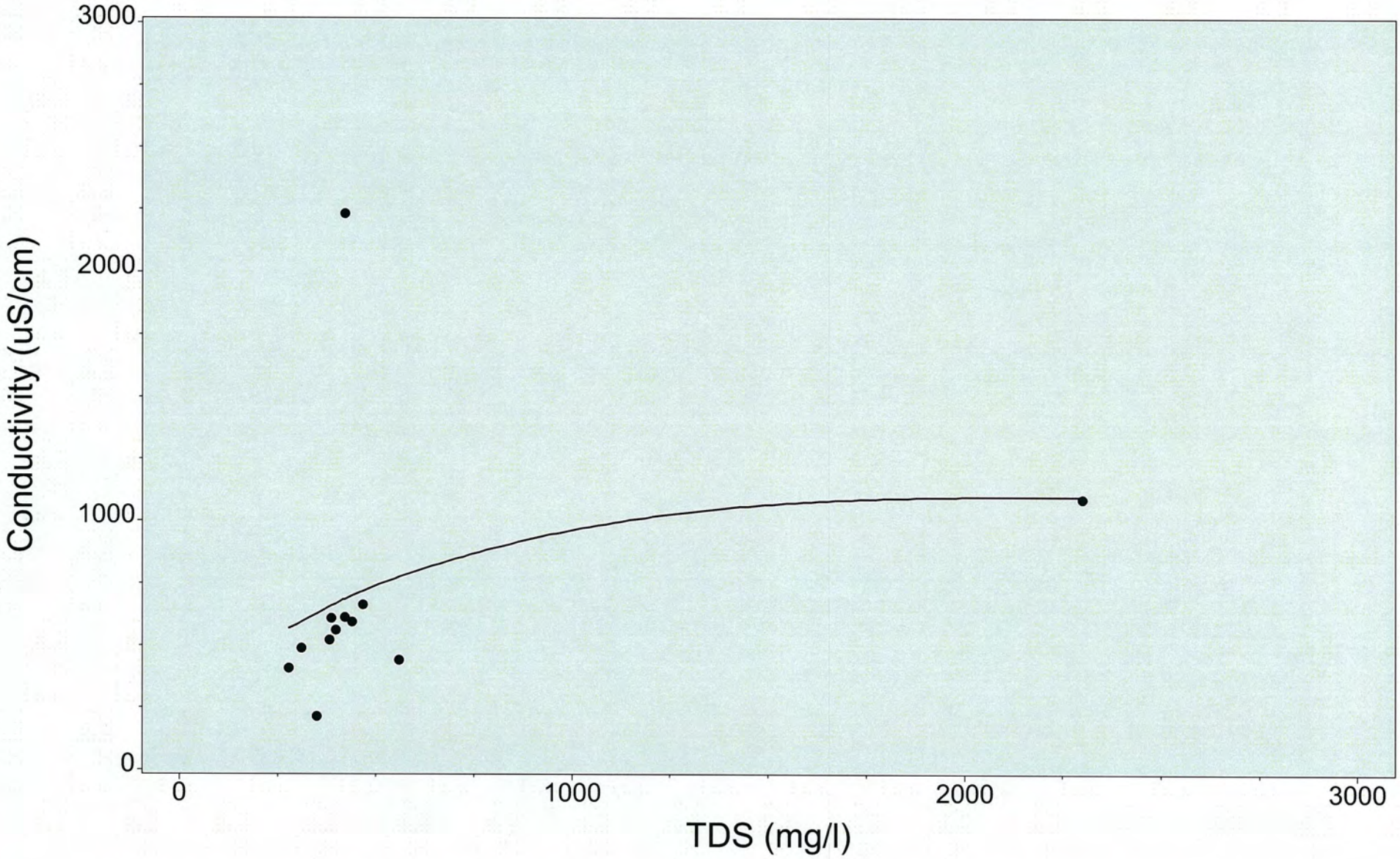


Concentration of Iron versus Arsenic in MW-19 at the Central County Landfill

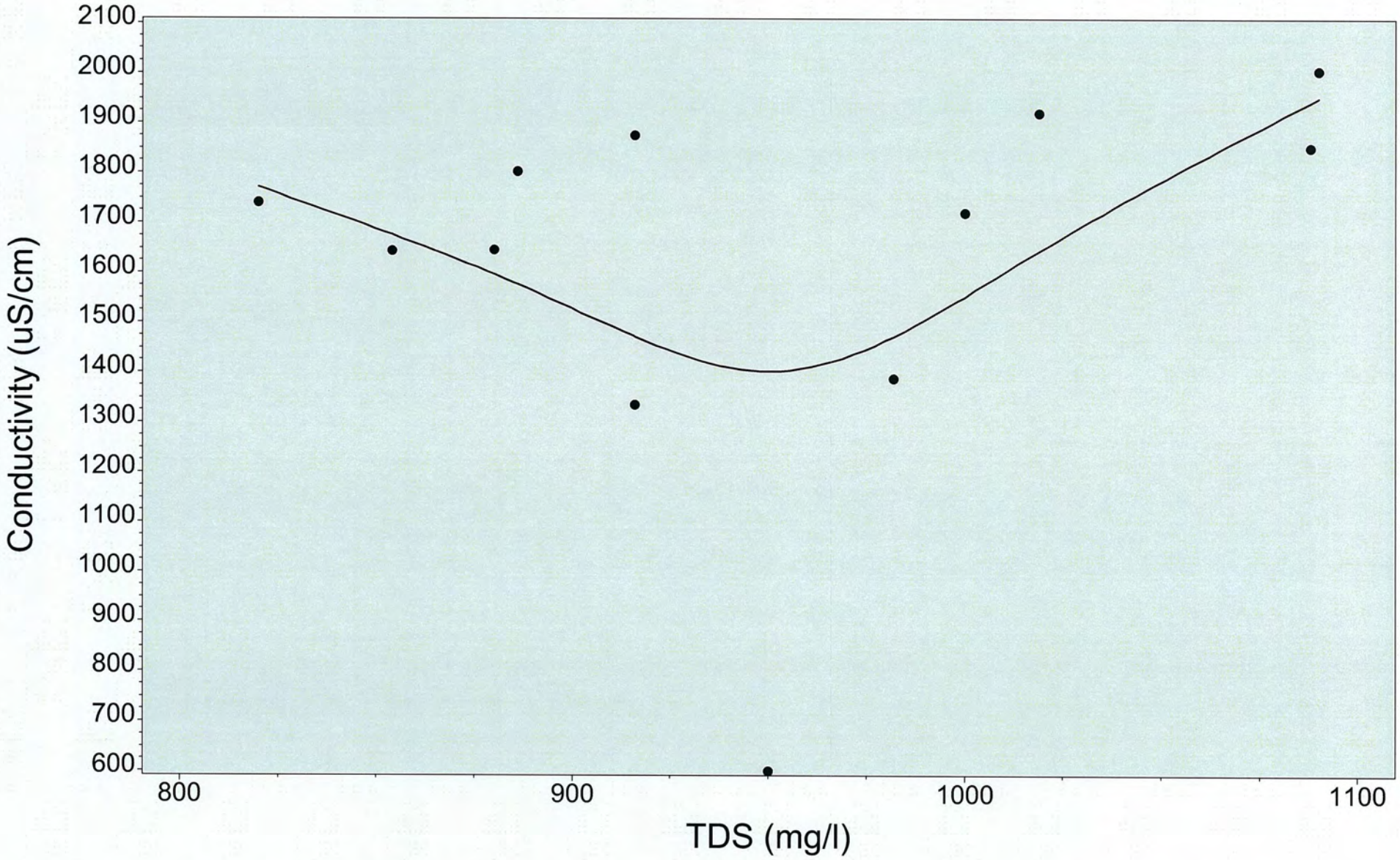


Concentration of Iron versus Arsenic in MW-20 at the Central County Landfill

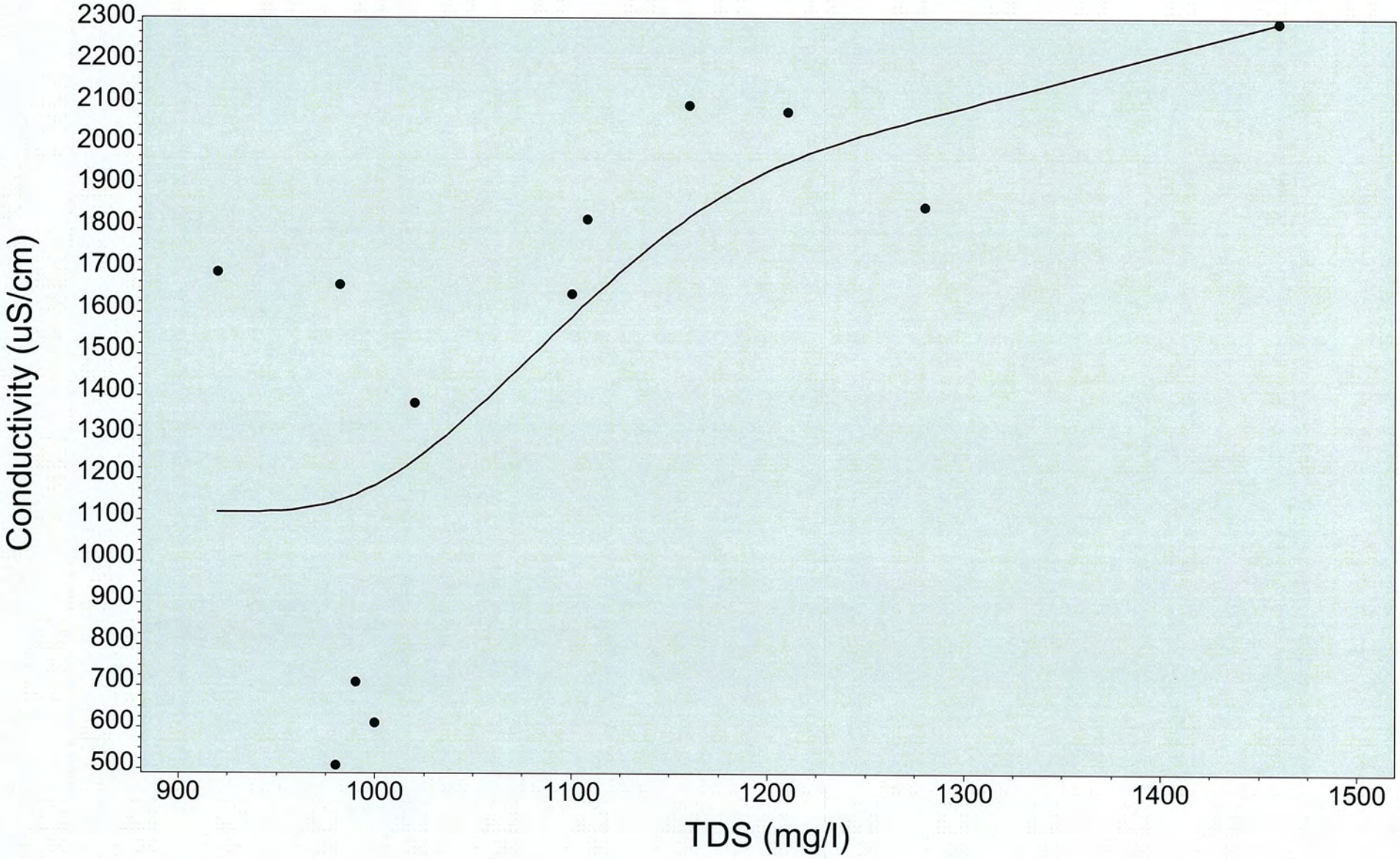
B-4 – Conductivity versus TDS



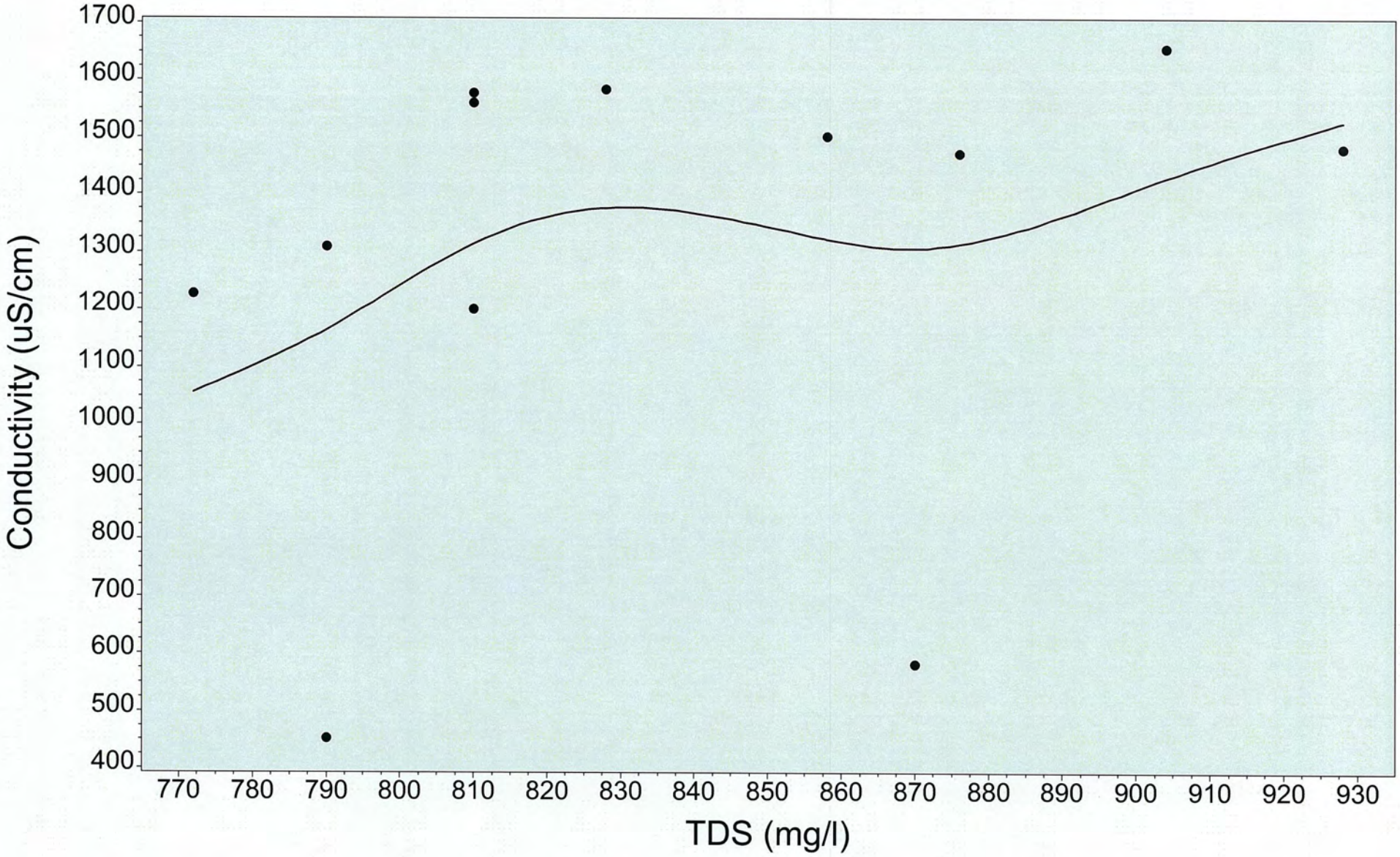
Concentration of Conductivity versus TDS in MW-1R at the Central County Landfill



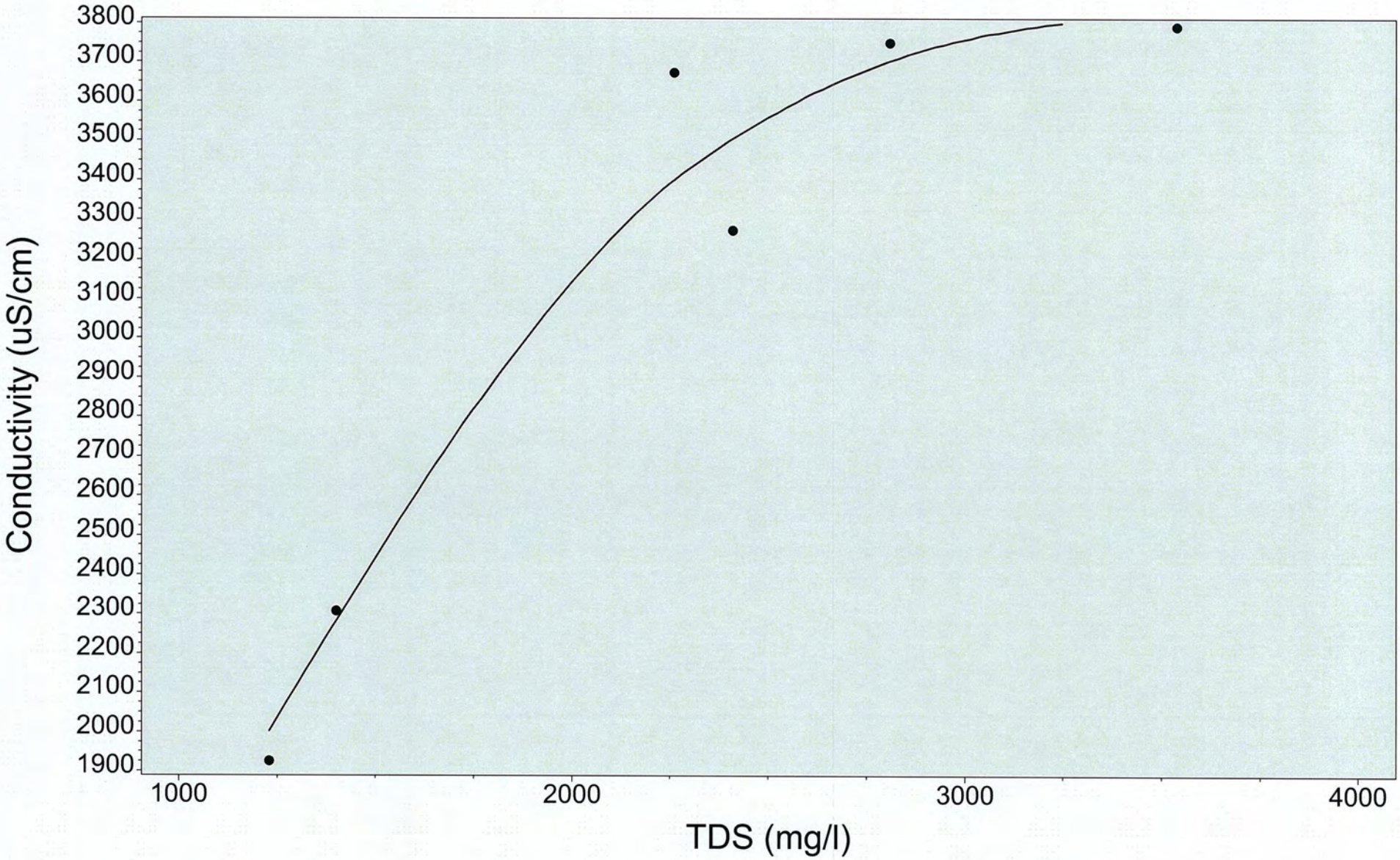
Concentration of Conductivity versus TDS in MW-8A at the Central County Landfill



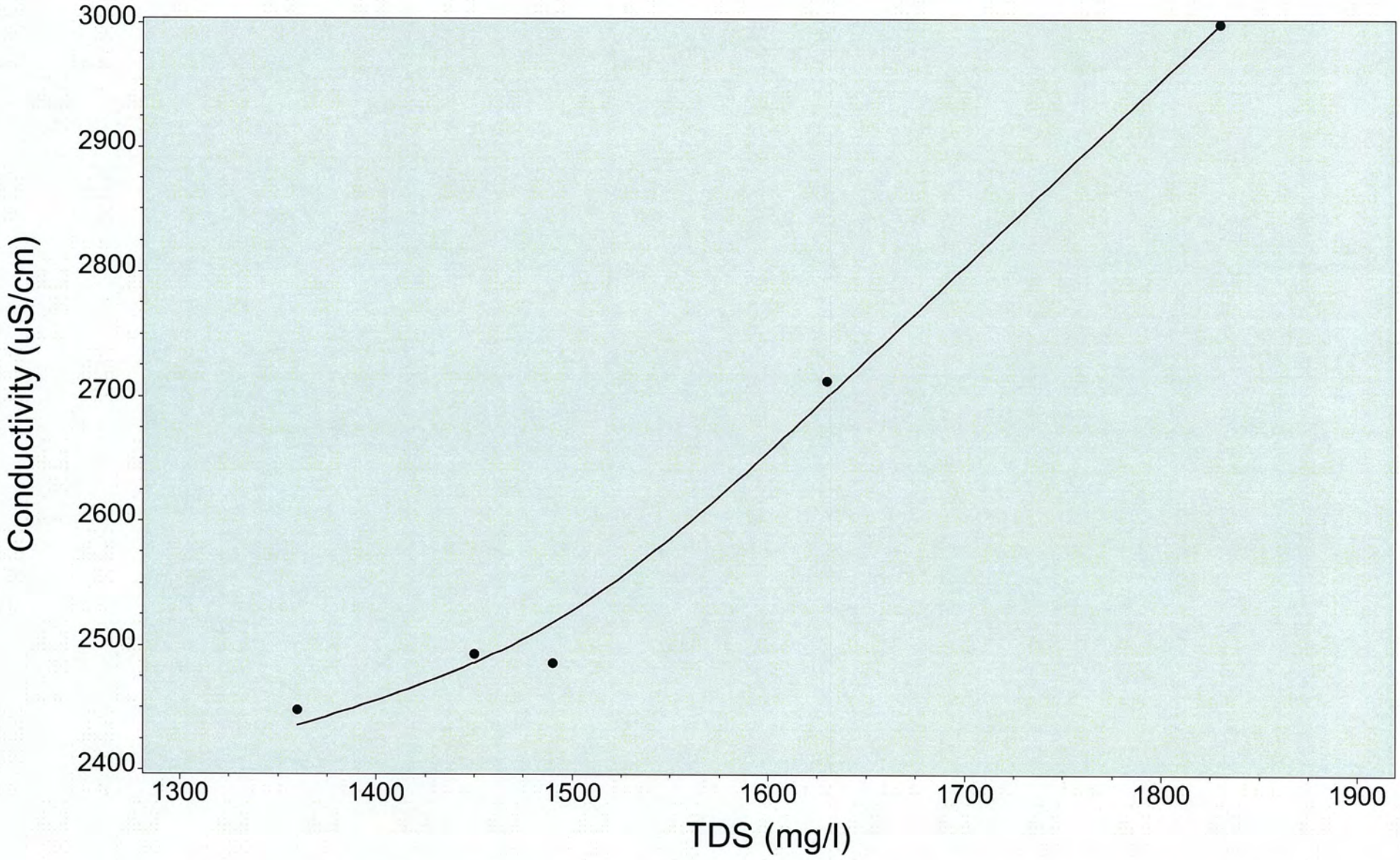
Concentration of Conductivity versus TDS in MW-9 at the Central County Landfill



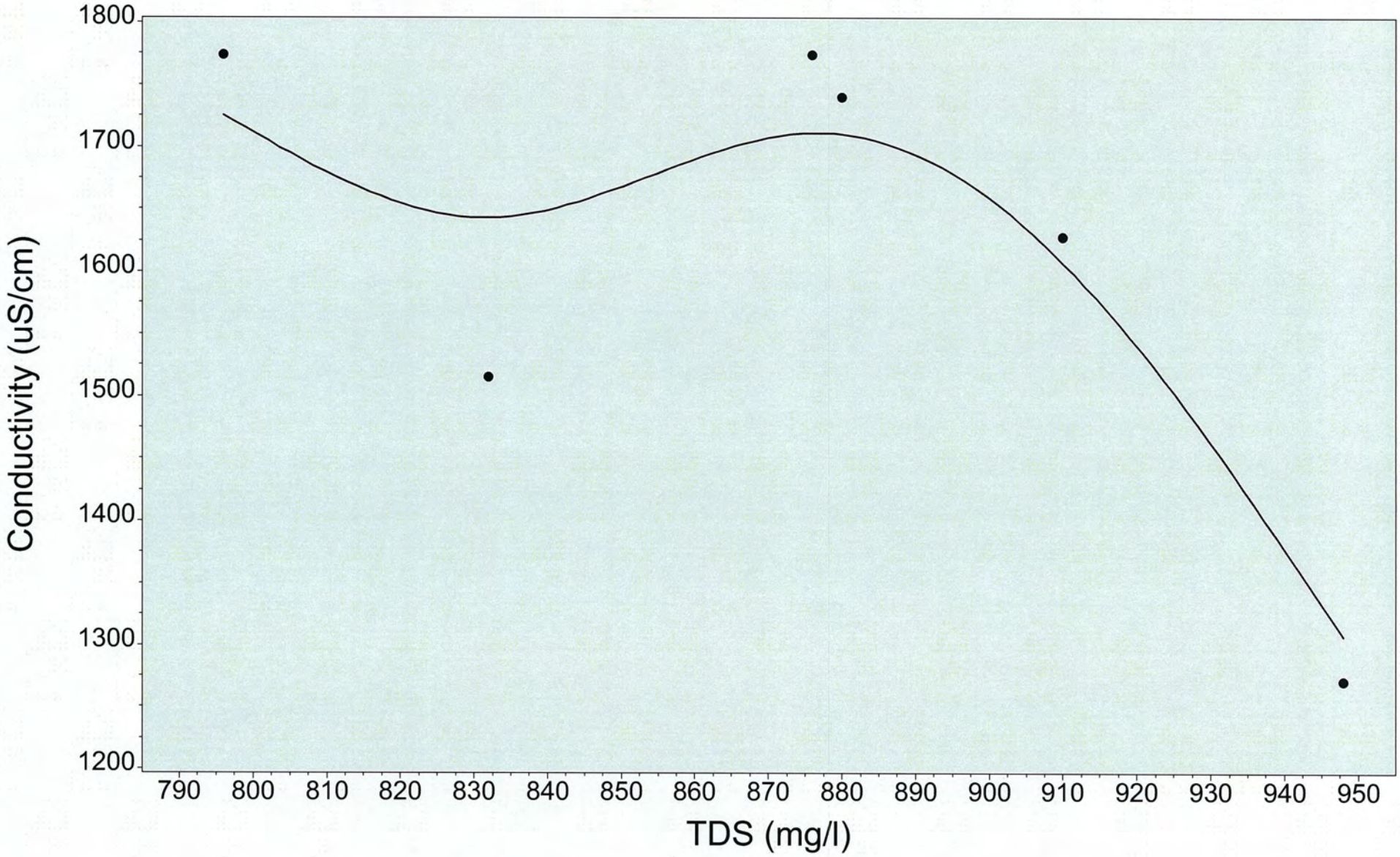
Concentration of Conductivity versus TDS in MW-10R at the Central County Landfill



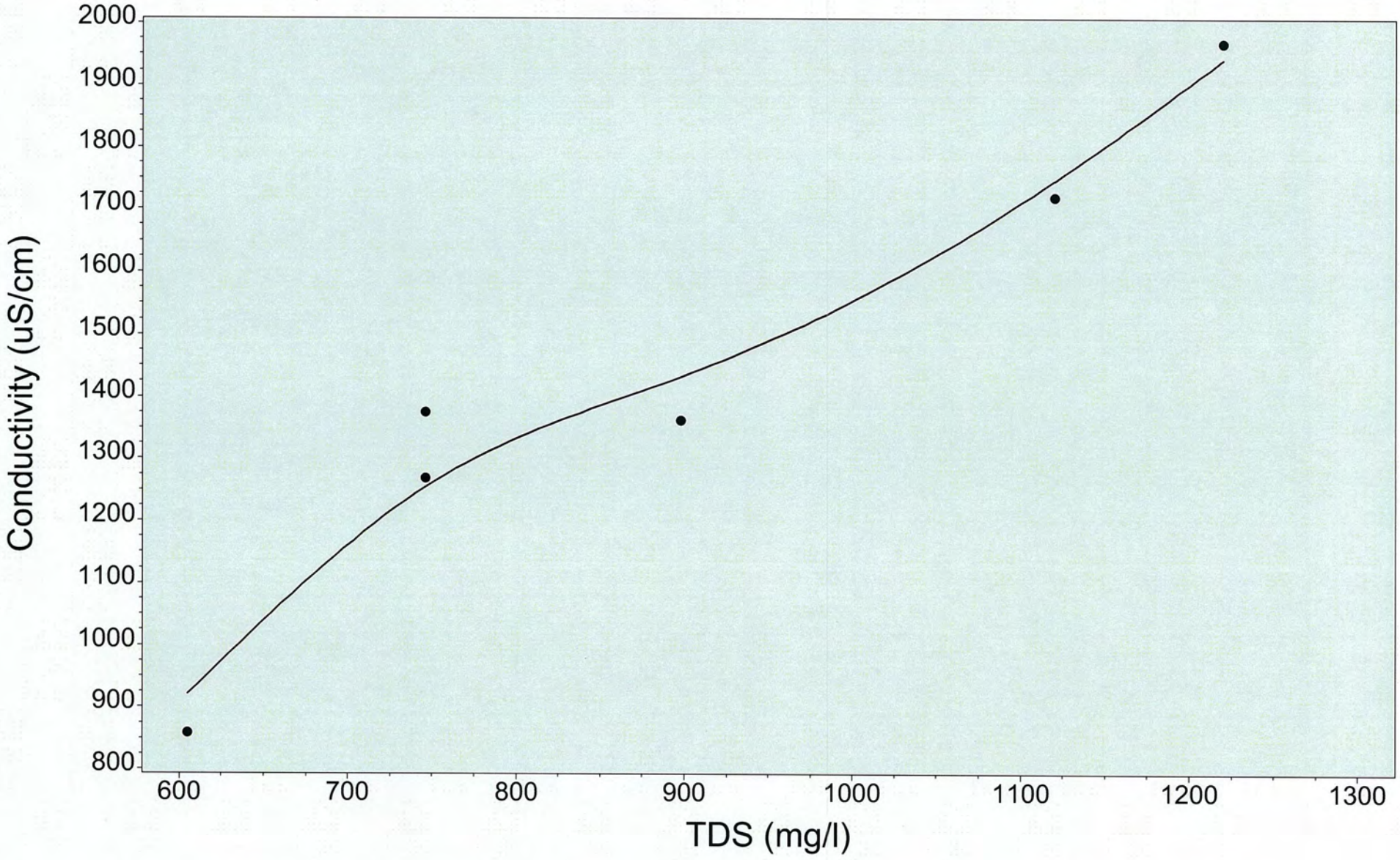
Concentration of Conductivity versus TDS in MW-15 at the Central County Landfill



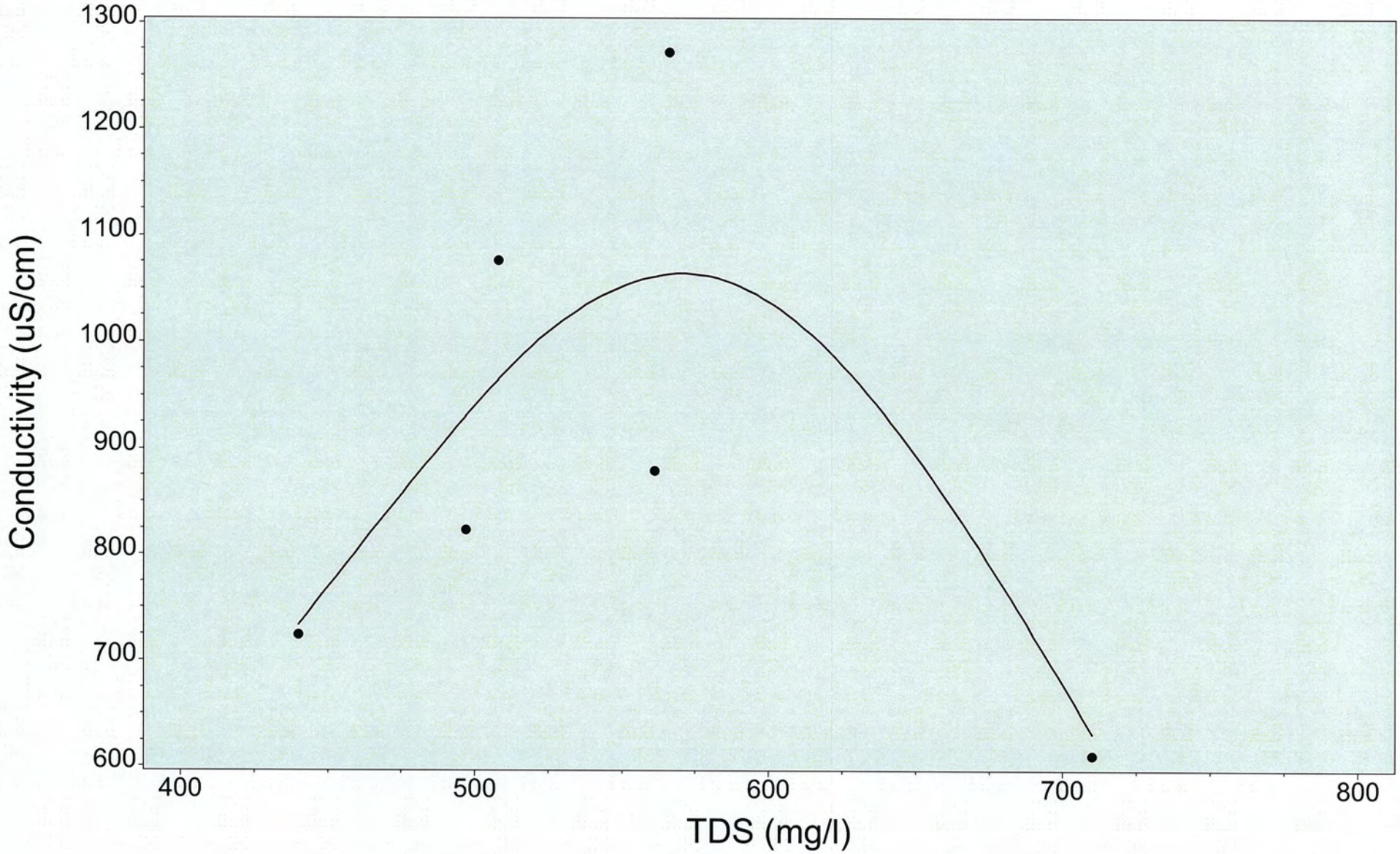
Concentration of Conductivity versus TDS in MW-16 at the Central County Landfill



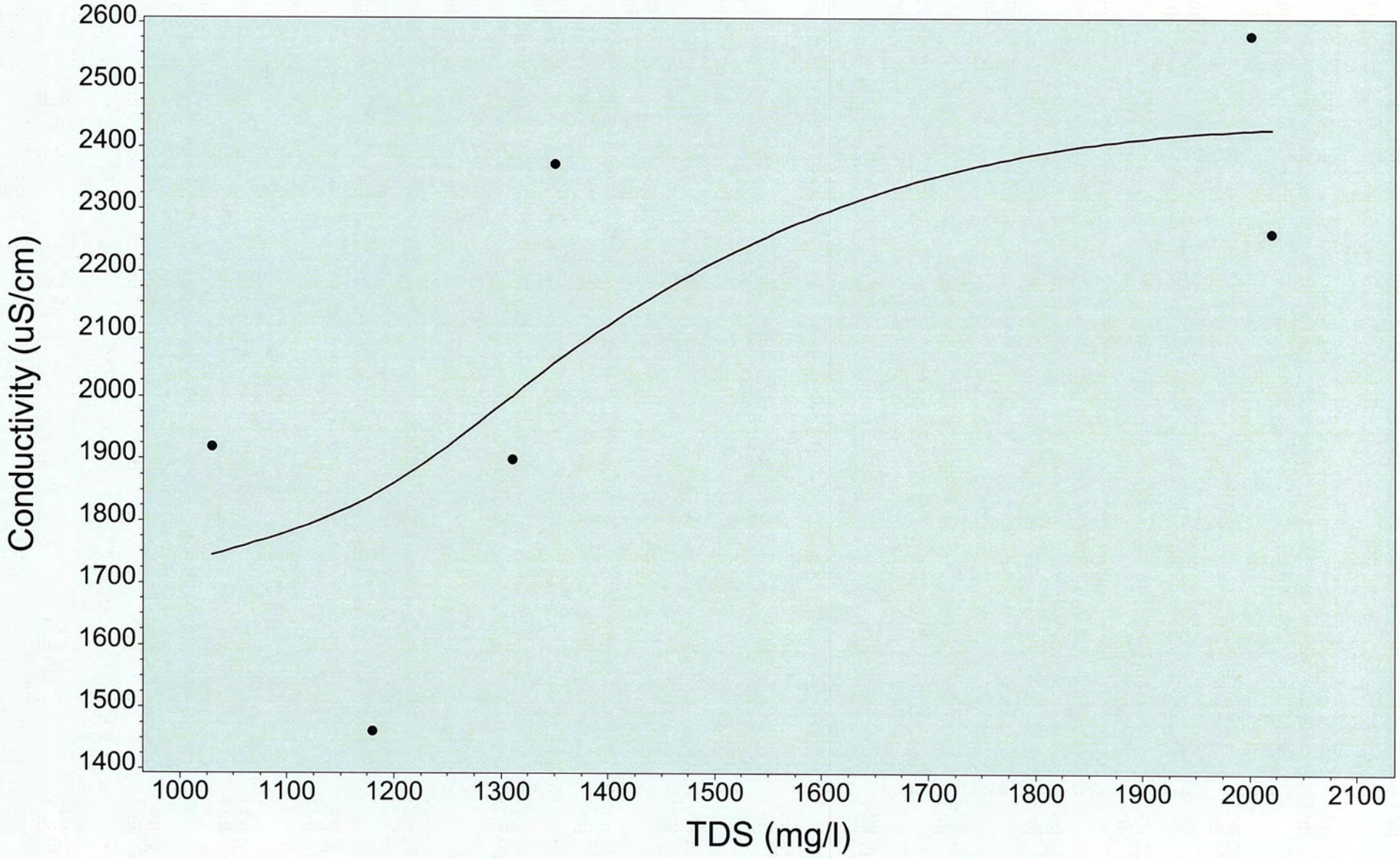
Concentration of Conductivity versus TDS in MW-17 at the Central County Landfill



Concentration of Conductivity versus TDS in MW-18 at the Central County Landfill

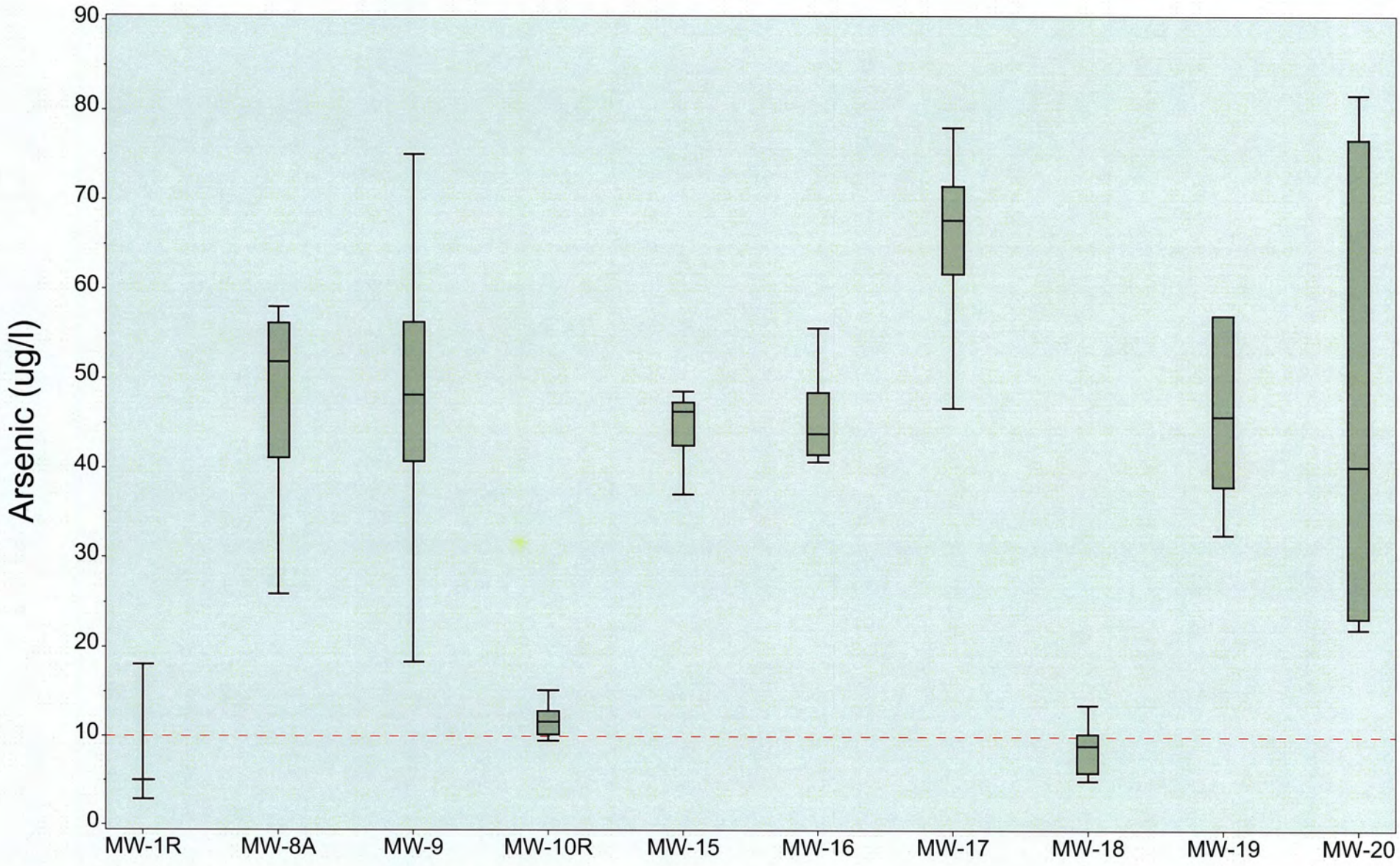


Concentration of Conductivity versus TDS in MW-19 at the Central County Landfill

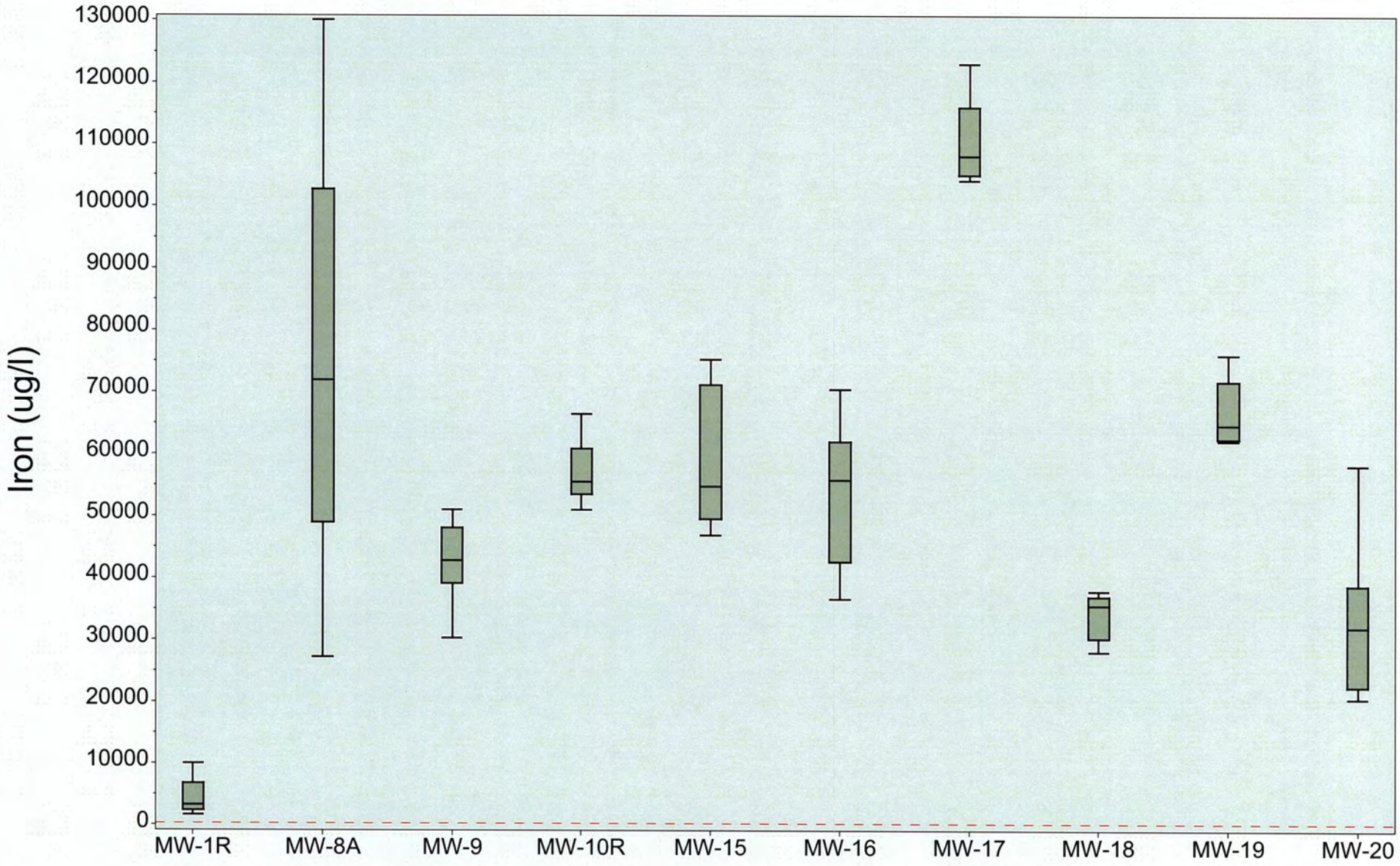


Concentration of Conductivity versus TDS in MW-20 at the Central County Landfill

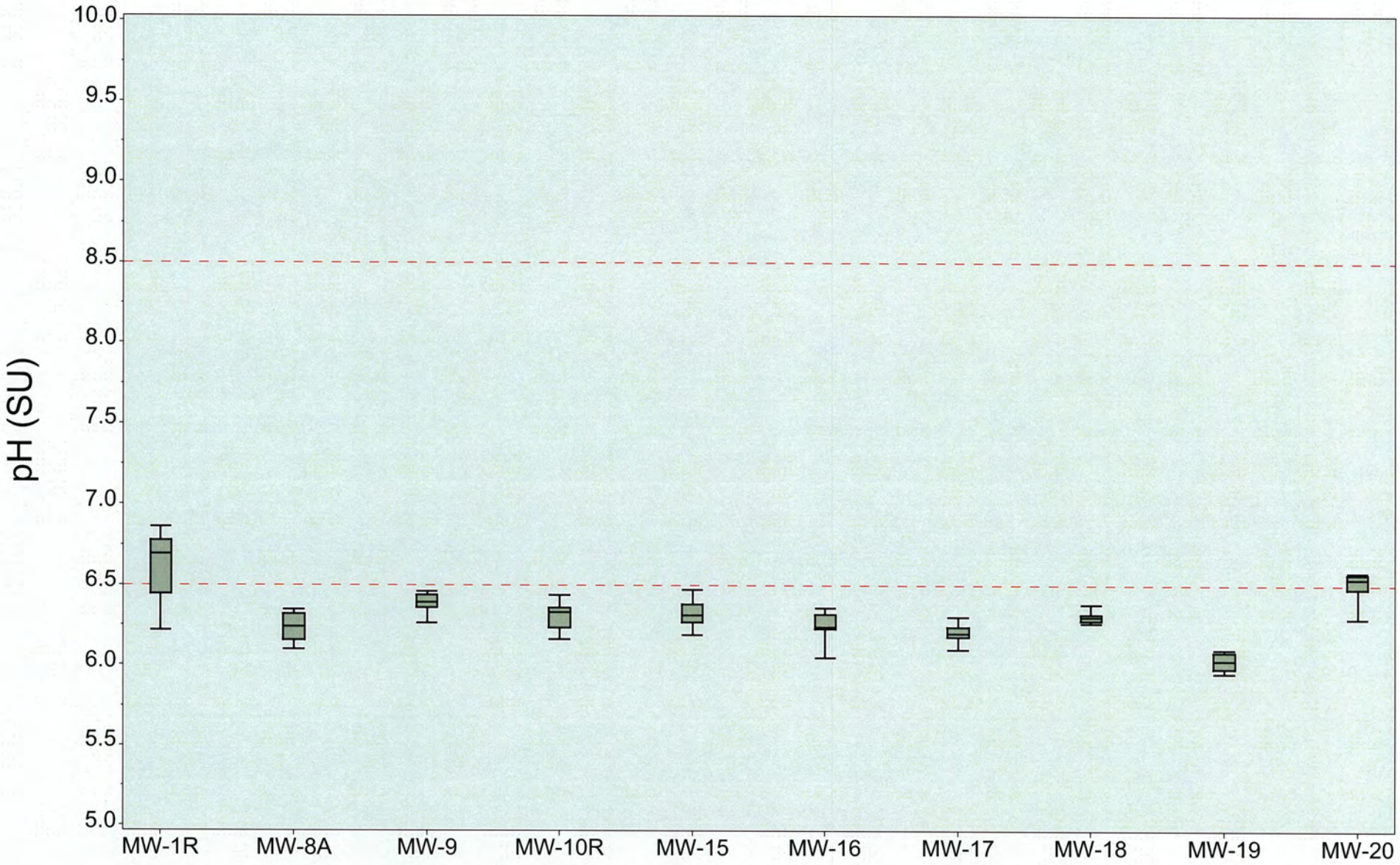
B-4 – Conductivity versus TDS



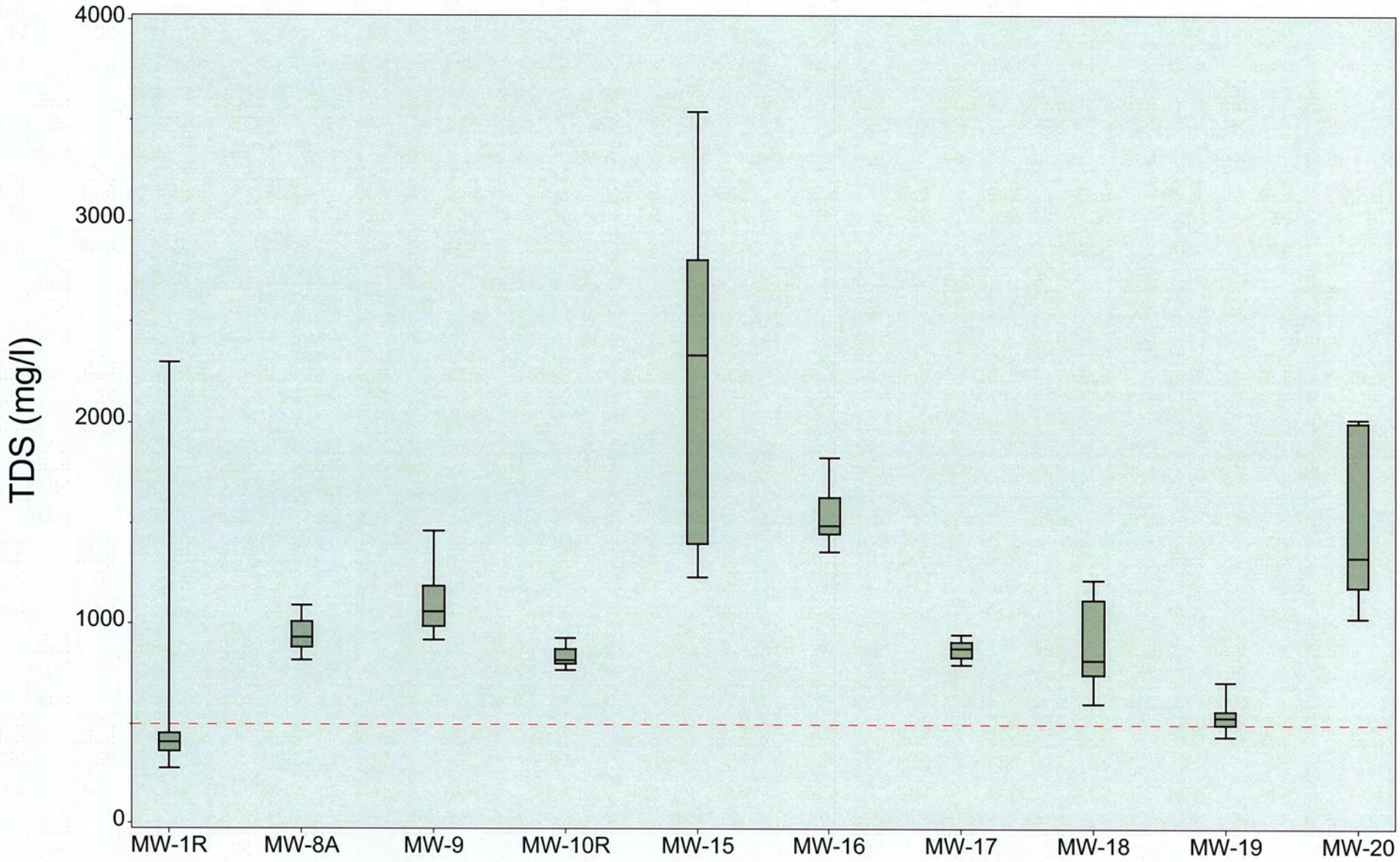
Arsenic concentration from upgradient (MW-1R) to downgradient (MW-20) at the Central County Landfill



Iron concentration from upgradient (MW-1R) to downgradient (MW-20) at the Central County Landfill



pH from upgradient (MW-1R) to downgradient (MW-20) at the Central County Landfill



TDS concentration from upgradient (MW-1R) to downgradient (MW-20) at the Central County Landfill

ATTACHMENT E

CCSWDC TOPOGRAPHIC SURVEY AND LANDFILL CAPACITY REPORT (APRIL 2013)

SARASOTA COUNTY
"Dedicated to Quality Service"

April 11, 2013

Bill Krumbholz
Solid Waste Section
Department of Environmental Protection
South District Office
2295 Victoria Avenue, Suite 364
Ft. Myers, Florida 33902

Re: Central County Solid Waste Disposal Complex
Permit No. 130542-007-SO/01 (Modification #130542-019-SO/MM)
WACS No. 51614
Annual Topographic Survey and Remaining Site Life Report

Dear Mr. Krumbholz:

In accordance with Specific Condition C.13.c of the above reference permit for the Central County Solid Waste Disposal Complex (CCSWDC), the Sarasota County Solid Waste Department is pleased to submit the annual topographic survey and remaining site life report. As shown in the supporting calculations the Phase II Class I Landfill Area has approximately 12.4 years of remaining site life from December 1, 2012 assuming a moderate increase in waste tonnage per year until reaching capacity. The topographic survey dated December 1, 2012, performed by Kucera International, Inc. and provided in Attachment A, demonstrates that the Phase II landfill slopes do not exceed 3 to 1 (H:V) and the top elevations do not exceed the maximum permitted design elevation of 121 feet NGVD. The Phase II Landfill Area is being filled and includes stormwater control features in general accordance with the permitted fill sequence plans and grades.

The following calculations are provided in support of the site life determination:

Objective:

Calculate the remaining landfill air space and site life in the Phase II Landfill Area located at the Central County Solid Waste Disposal Complex. The Phase I Landfill Area did not receive any waste during the subject period. The Phase I Closure commenced in November 2011 and was completed in January 2013 and is currently pending construction certification approval from the FDEP.

Knowns:

- Topographic survey prepared by Kucera International, Inc. dated December 1, 2012 and provided to the Sarasota County Solid Waste Department by Advanced Disposal, Inc. The signed and sealed topographic survey sheets are provided in Attachment A for reference.

- Solid Waste tonnage from December 1, 2011 to November 30, 2012 as reported by scale records for the date range. Please refer to the table provided in Attachment B.

Assumptions:

- Total Phase II Air Space = 6,000,000 cu. yards.
- The final cover soil volume is based on 3 feet of soil which includes a 1.0 foot intermediate cover layer, 1.5 foot protective final cover layer, and 0.5 foot vegetative cover soil layer.
- The final cover surface area for Phase II is 2,659,448 square feet.
- Final Cover Soil Volume = 3 feet x 2,659,448 sq. feet / 27 feet/cu. yard = 295,494 cu. yards
- Operational Air Space Used in Phase II as of December 1, 2012 from comparing surface of waste fill from December 1, 2012 topographic survey to Phase II Bottom Liner As-built is 757,907 cu. yards. The surface volume report prepared by HDR Engineering, Inc. is provided in Attachment A.
- Average Monthly Waste Acceptance Rate is 22,088 tons/month from 2012 waste tonnage records. See table provided in Attachment B.
- Apparent Landfill Density equal to contractual density of 1,428 lb/cy. The apparent landfill density is waste tonnage measured by the scales divided by the Operational Air Space Used which includes waste and initial (daily) cover soils.
- Operational Air Space Available, Used, and Remaining include the volume of waste and initial (daily) cover soils.

Calculations:

1. Total Phase II Air Space – Final Cover Soil Volume = Operational Air Space Available

   6,000,000 cu. yards – 295,494 cu. yards = 5,704,506 cu. yards

2. Operational Air Space Available – Operational Air Space Used in Phase II as of December 2012 = Operational Air Space Remaining

   5,704,506 cu. yards – 757,907 cu. yards = 4,946,599 cu. yards

3. Operational Air Space Remaining x Apparent Landfill Density = Remaining Waste Tonnage

   4,946,599 cu. yards x 1,428 lbs/cu. yard / 2000 lbs/ton = 3,531,871 tons

4. Remaining Waste Tonnage / Average Monthly Waste Acceptance Rate = Remaining Site Life

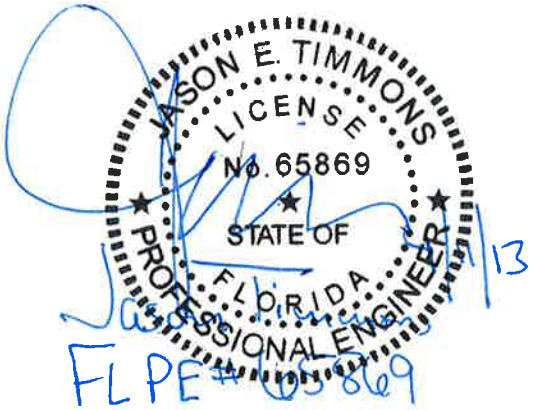
   3,531,871 tons / 22,088 tons/month = 159.9 months = 13.3 years from December 1, 2012

Therefore, the Phase II Landfill is projected to reach capacity on or about March 2026 assuming 0% increase in waste tonnage through the operational life of Phase II.

Using the average annual population increase estimates through 2026 from the Florida Demographic Estimating Conference, February 2013 and UF, BEBR, Florida Population Studies, Volume 46, Bulletin 165, March 2013 medium county projections, an average annual tonnage increase of 1.2% would decrease the remaining site life of Phase II to 149 months (12.4 years). This results in Phase II reaching capacity on or about April 2025.

Please contact me anytime at 941-861-1572 if you have questions or require additional information regarding the site life report and attachments.

Sincerely,



Jason Timmons, PE
Solid Waste Engineer
FL PE#65869

Xc: Lois Rose, Sarasota County
Richard Siemering, HDR Engineering, Inc.

Attachments (2)
Attachment A - Topographic Survey and Volume Report
Attachment B – Monthly Waste Tonnage

ATTACHMENT A

TOPOGRAPHIC SURVEY
DECEMBER 1, 2012
and
SURVEY VOLUME REPORT

THIS PLAN HAS BEEN DEVELOPED BY AERIAL PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHS DATED 12-01-2012
MAPPING DONE BY:

KUCERA INTERNATIONAL INC.

HEADQUARTERS: WILLOUGHBY, OHIO
PLANT CITY, FL – COLUMBUS, OH – PITTSBURGH, PA

See report of topographic survey of lands in Secs. 2 & 3, Twp. 38S, Range 19 E. Sarasota Co., FL dated 12-01-2012. This topographic map and attached report are not valid without the signature and original raised seal of a Florida licensed surveyor and mapper which can be found on the report. The map and report are not full and complete without the other.

John Antalovich, Sr. P.S.M. No. LS5437

NOTES: Accuracy Specifications

1) The contours depicted on this map were compiled to national map accuracy standards by Kucera International, Inc., Willoughby, Ohio, using photogrammetric methods from aerial photography taken 12-01-12. Contours which are in wooded or dense vegetation areas are approximations only and should be treated as "dashed contours".

2) Buildings are shown roofline only.

SHEET INDEX

1	2
3	4

LEGEND

- 5' CONTOUR ELEVATION, FEET (MSL)
- 1' CONTOUR
- FENCE
- DIRT / UNIMPROVED ROAD
- TREE LINE
- DITCH (WATER) LINE
- CONTROL POINT
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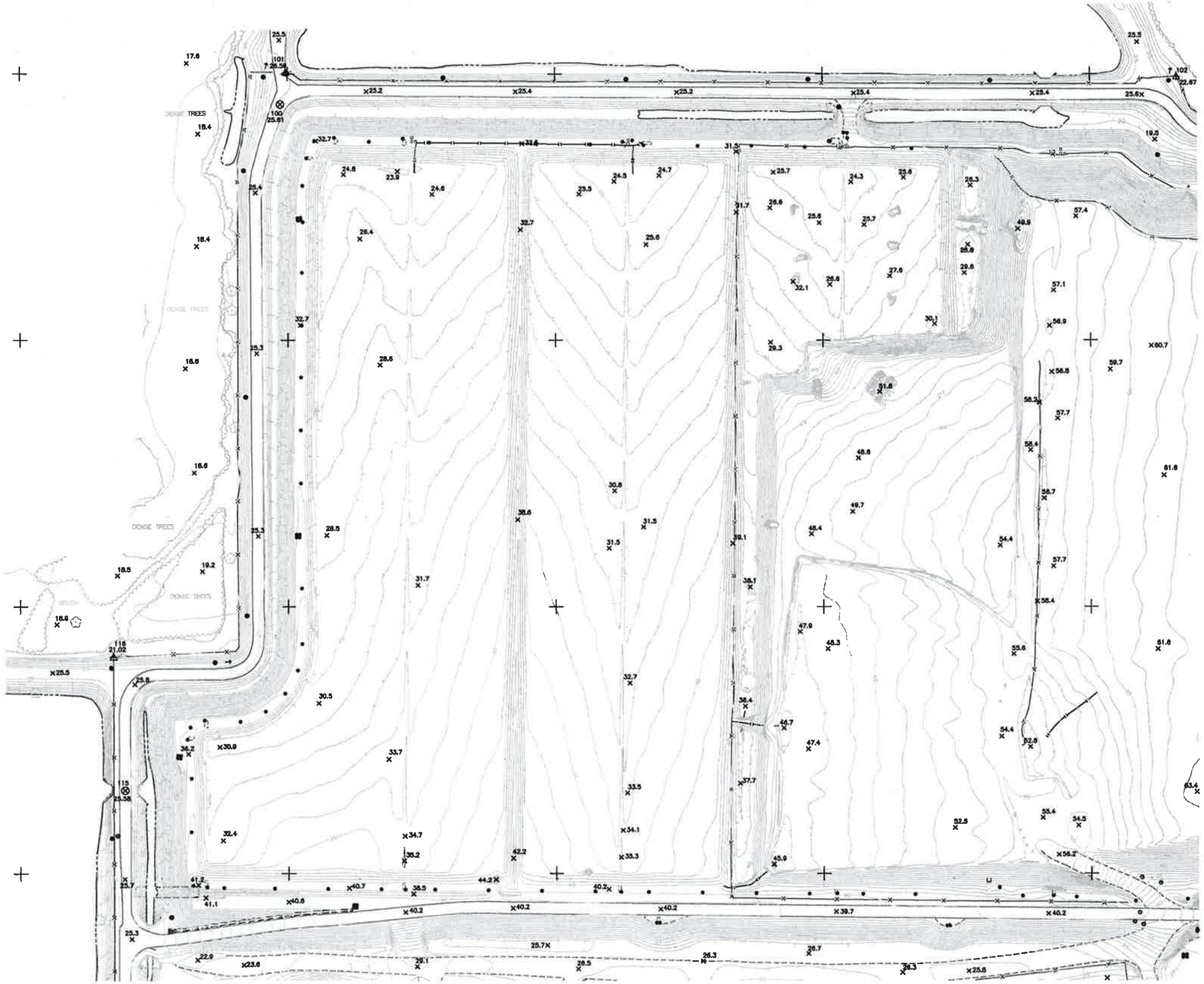
- POWER POLE
- NON-UTILITY POLE
- GUYWIRE
- LIGHT POLE
- POST
- SIGN
- TREE
- CATCH BASIN
- PIPE INLET
- MANHOLE

Not to Scale



100 0 50 100 200
SCALE 1' = 100'

VEOLIA ENVIRONMENTAL SERVICES
4000 Knights Trail Road
Nokomis, Florida 34275

Revisions

No.	Description	Date	By	No.	Description	Date	By

Approved By:
Checked By:
Drawn By:

Project Location:
SITE TOPOGRAPHIC MAP
NOKOMIS, FL

SARASOTA LANDFILL

Drawing No. T-01-05075-175
Scale: As Shown
Date: DEC. 01, 2012
Sheet Number: 1 of 4

THIS PLAN HAS BEEN DEVELOPED BY AERIAL PHOTOGRAMMETRIC METHODS FROM PHOTOGRAPHS DATED 12-01-2012
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KUCERA INTERNATIONAL INC.

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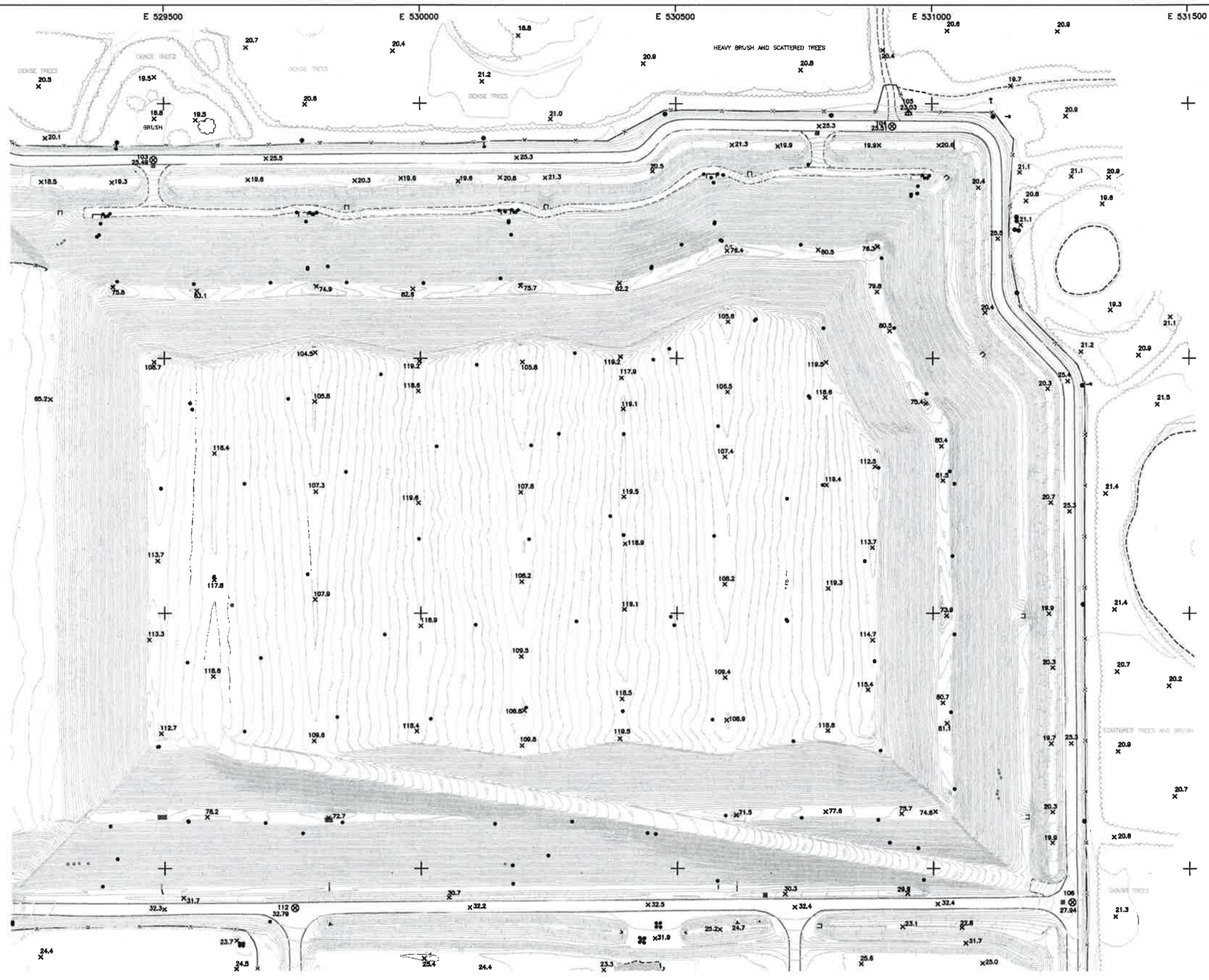

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Nokomis, Florida 34275

Revisions

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Checked By:
Drawn By:

Project Location:
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NOKOMIS, FL

SARASOTA LANDFILL

Drawing No. T-01-05075-175
Scale: As Shown
Date: DEC. 01, 2012
Sheet Number: 2 of 4

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KUCERA INTERNATIONAL INC.

HEADQUARTERS: WILLOUGHBY, OHIO
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- MANHOLE

Not to Scale

E 526500 E 527000 E 527500 E 528000 E 528500 E 529000

N 1042000 N 1041500 N 1041000 N 1040500

100 0 50 100 200
SCALE 1" = 100'

VEOLIA ENVIRONMENTAL SERVICES
4000 Knights Trail Road
Nokomis, Florida 34275

Revisions

No.	Description	Date	By	No.	Description	Date	By

Approved By:
Checked By:
Drawn By:

Project Location:
SITE TOPOGRAPHIC MAP
NOKOMIS, FL

SARASOTA LANDFILL

Drawing No. T-01-05075-175
Scale: As Shown
Sheet Number: 3 of 4
Date: DEC. 01, 2012

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KUCERA INTERNATIONAL INC.

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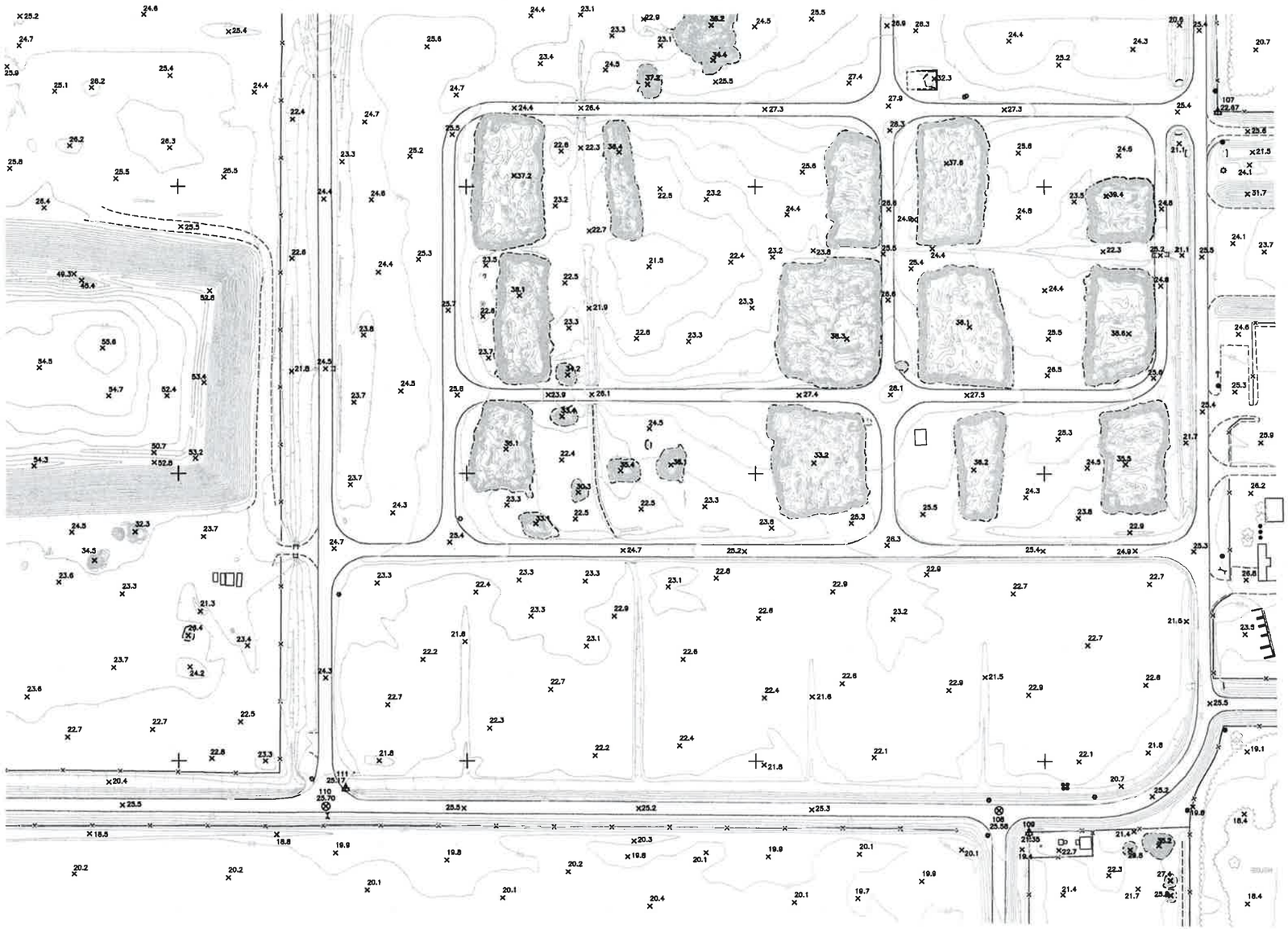

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NOKOMIS, FL

SARASOTA LANDFILL

Drawing No. T-01-05075-175
Scale: As Shown
Sheet Number: 4 of 4
Date: DEC. 01, 2012

Volume Calculations

From: Luis Rodriguez

Sent: Friday, April 10, 2013

To: Richard Siemering

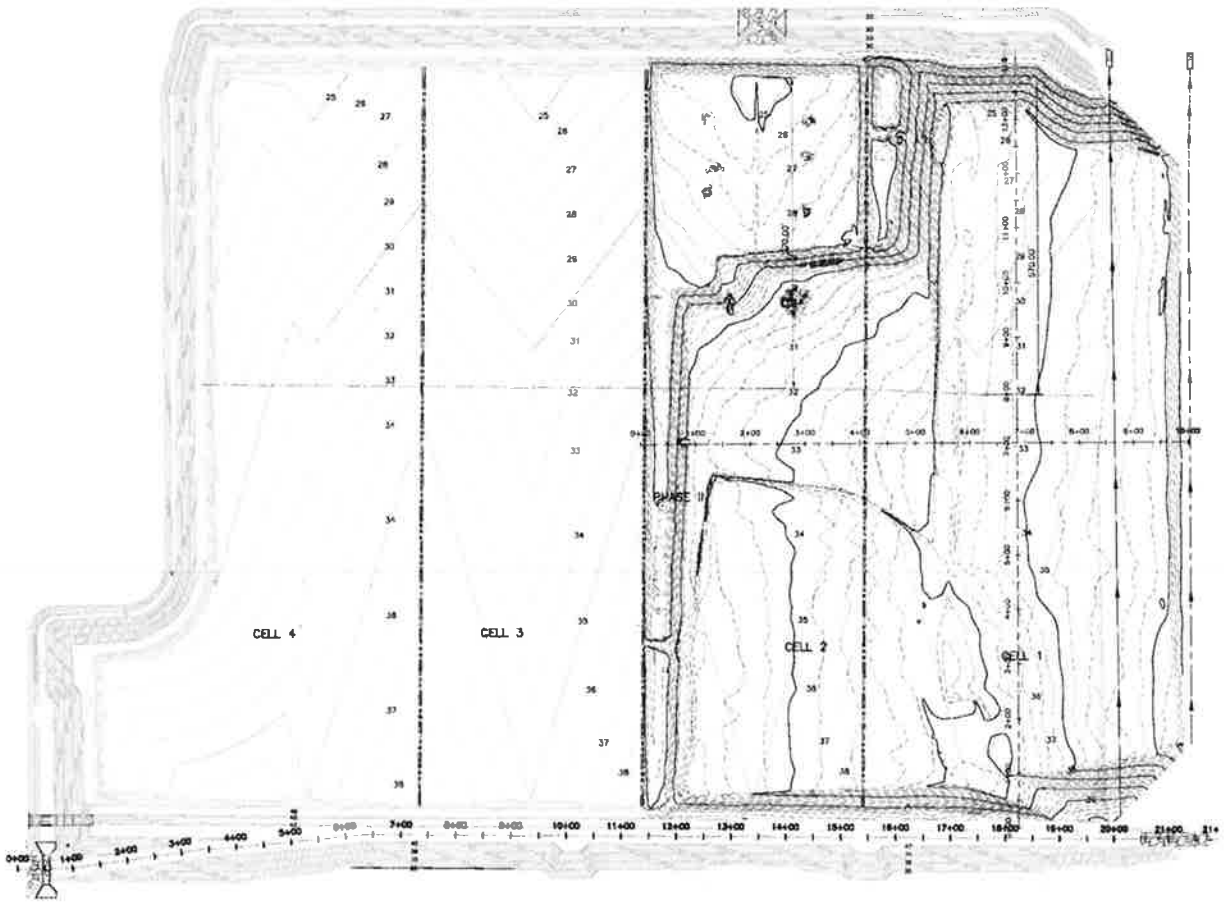
Subject: Sarasota II Class I Landfill Expansion.doc

Sarasota II Class I Landfill Expansion

Surface: Compare Surface Sarasota_DEC-2012 vs Sand Surface

Volume Cut: 0 Volume Fill: 757,907.19 **Volume Total: 757,907.19**

Compare Surface: Sarasota_DEC-2012
Base Surface: Sand Surface



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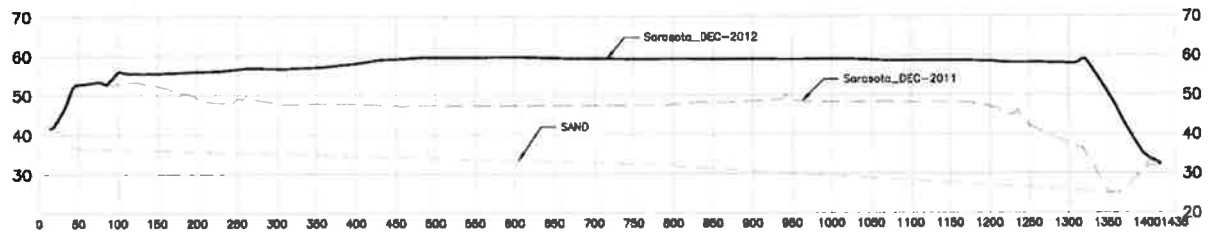

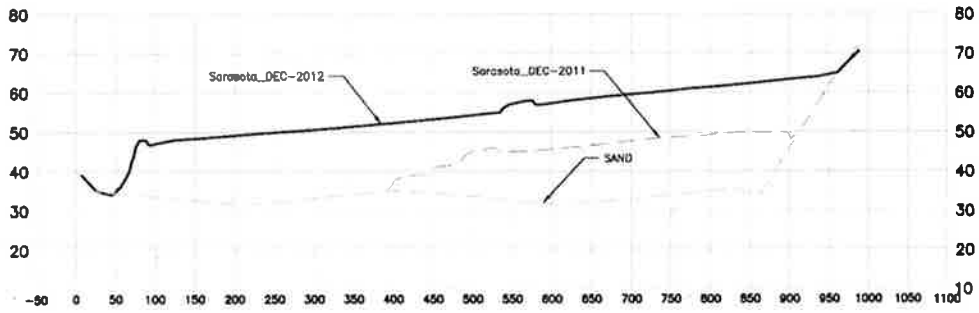

ATTACHMENT B

CCSWDC MONTHLY CLASS I LANDFILL TONNAGE ACCEPTED

CCSWDC Monthly Tonnage to Class I Landfill December 2011 to November 2012

Month	Tonnage to Class I Landfill
Dec-11	20,649
Jan-12	23,454
Feb-12	23,049
Mar-12	24,660
Apr-12	22,820
May-12	21,507
Jun-12	20,630
Jul-12	23,105
Aug-12	24,649
Sep-12	18,663
Oct-12	21,184
Nov-12	20,689
Average	**22,088**
Total	**265,057**

Source: CCSWDC scalehouse tonnage reports.

ATTACHMENT F

WATER QUALITY TESTING LABORATORY CERTIFICATION

State of Florida
Department of Health, Bureau of Public Health Laboratories
This is to certify that

E83079

PACE ANALYTICAL SERVICES-FLORIDA
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

DRINKING WATER - GROUP I UNREGULATED CONTAMINANTS, DRINKING WATER - GROUP II UNREGULATED CONTAMINANTS, DRINKING WATER - OTHER REGULATED CONTAMINANTS, DRINKING WATER - GROUP III UNREGULATED CONTAMINANTS, DRINKING WATER - MICROBIOLOGY, DRINKING WATER - PRIMARY INORGANIC CONTAMINANTS, DRINKING WATER - SECONDARY INORGANIC CONTAMINANTS, DRINKING WATER - RADIOCHEMISTRY, DRINKING WATER - SYNTHETIC ORGANIC CONTAMINANTS, NON-POTABLE WATER - EXTRACTABLE ORGANICS, NON-POTABLE WATER - GENERAL CHEMISTRY, NON-POTABLE WATER - METALS, NON-POTABLE WATER - MICROBIOLOGY, NON-POTABLE WATER - PESTICIDES-HERBICIDES-PCB'S, NON-POTABLE WATER - VOLATILE ORGANICS, SOLID AND CHEMICAL MATERIALS - EXTRACTABLE ORGANICS, SOLID AND CHEMICAL MATERIALS - GENERAL CHEMISTRY, SOLID AND CHEMICAL MATERIALS - METALS, SOLID AND CHEMICAL MATERIALS - MICROBIOLOGY, SOLID AND CHEMICAL MATERIALS - PESTICIDES-HERBICIDES-PCB'S, SOLID AND CHEMICAL MATERIALS - VOLATILE ORGANICS

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 cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Public Health 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.

Date Issued: July 01, 2013 Expiration Date: June 30, 2014

Victor Johnson, Director
Division of Emergency Preparedness and Community Support
DH Form 1697, 7/04
NON-TRANSFERABLE E83079-45-07/01/2013
Supersedes all previously issued certificates

Laboratory Scope of Accreditation

Attachment to Certificate #: E83079-45, expiration date June 30, 2014. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E83079** EPA Lab Code: **FL01264** **(386) 672-5668**

E83079
Pace Analytical Services-Florida
8 East Tower Circle
Ormond Beach, FL 32174

Matrix: **Drinking Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
1,1,1,2-Tetrachloroethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,1,1-Trichloroethane	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,1,2,2-Tetrachloroethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,1,2-Trichloroethane	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,1-Dichloroethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,1-Dichloroethylene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,1-Dichloropropene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,2,3-Trichlorobenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,2,3-Trichloropropane	EPA 504.1	Group II Unregulated Contaminants	NELAP	3/15/2013
1,2,3-Trichloropropane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,2,4-Trichlorobenzene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,2,4-Trimethylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,2-Dibromo-3-chloropropane (DBCP)	EPA 504.1	Synthetic Organic Contaminants	NELAP	1/8/2002
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 504.1	Synthetic Organic Contaminants	NELAP	1/8/2002
1,2-Dichlorobenzene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,2-Dichloroethane	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,2-Dichloropropane	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
1,3,5-Trimethylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,3-Dichlorobenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,3-Dichloropropane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
1,4-Dichlorobenzene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
2,2',3,3',4,5',6,6'-Octachlorobiphenyl (BZ 201)	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
2,2',3',4,6-Pentachlorobiphenyl (525.2 typo for 2,2',3,4',6'-Pentachlorobiphenyl)	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
2,2',4,4'-Tetrachlorobiphenyl (BZ 47)	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
2,2-Dichloropropane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
2,4,5-T	EPA 515.3	Synthetic Organic Contaminants	NELAP	10/14/2004
2,4-D	EPA 515.3	Synthetic Organic Contaminants	NELAP	5/11/2004
2,4-DB	EPA 515.3	Synthetic Organic Contaminants	NELAP	10/14/2004
2-Chlorobiphenyl (BZ 1)	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
2-Chlorotoluene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
3-Hydroxycarbofuran	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002
4-Chlorotoluene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
4-Isopropyltoluene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Acetone	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/3/2012
Acifluorfen	EPA 515.3	Group I Unregulated Contaminants	NELAP	5/11/2004
Alachlor	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Aldicarb (Temik)	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Aldicarb sulfone	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Aldicarb sulfoxide	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Aldrin	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
Alkalinity as CaCO3	SM 2320 B	Primary Inorganic Contaminants	NELAP	1/8/2002
Aluminum	EPA 200.7	Secondary Inorganic Contaminants	NELAP	1/8/2002
Aluminum	EPA 200.8	Secondary Inorganic Contaminants	NELAP	5/11/2004
Ametryn	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Antimony	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Aroclor-1016 (PCB-1016)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Aroclor-1221 (PCB-1221)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Aroclor-1232 (PCB-1232)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Aroclor-1242 (PCB-1242)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Aroclor-1248 (PCB-1248)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Aroclor-1254 (PCB-1254)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Aroclor-1260 (PCB-1260)	EPA 508.1	Synthetic Organic Contaminants	NELAP	3/10/2010
Arsenic	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Arsenic	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Atraton	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Atrazine	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Barium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Barium	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Bentazon	EPA 515.3	Synthetic Organic Contaminants	NELAP	10/14/2004
Benzene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Benzo(a)pyrene	EPA 525.2	Synthetic Organic Contaminants	NELAP	1/8/2002
Beryllium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Beryllium	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 525.2	Synthetic Organic Contaminants	NELAP	1/8/2002
Bromacil	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Bromate	EPA 300.1	Primary Inorganic Contaminants	NELAP	5/11/2004
Bromide	EPA 300.0	Primary Inorganic Contaminants	NELAP	1/8/2002
Bromide	EPA 300.1	Primary Inorganic Contaminants	NELAP	5/11/2004
Bromoacetic acid	EPA 552.2	Group I Unregulated Contaminants	NELAP	8/14/2006
Bromobenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Bromochloroacetic acid	EPA 552.2	Group I Unregulated Contaminants	NELAP	9/14/2010
Bromochloromethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002

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Bromodichloromethane	EPA 524.2	Group II Unregulated Contaminants,Other Regulated Contaminants	NELAP	1/8/2002
Bromoform	EPA 524.2	Group II Unregulated Contaminants,Other Regulated Contaminants	NELAP	1/8/2002
Butachlor	EPA 508.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Butachlor	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
Butyl benzyl phthalate	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
Cadmium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Cadmium	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Calcium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Carbaryl (Sevin)	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Carbofuran (Furadan)	EPA 531.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Carbon tetrachloride	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Carboxin (qualitative only)	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Chlorate	EPA 300.1	Primary Inorganic Contaminants	NELAP	5/11/2004
Chlordane (tech.)	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Chloride	EPA 300.0	Secondary Inorganic Contaminants	NELAP	1/8/2002
Chlorine	SM 4500-Cl D	Primary Inorganic Contaminants	NELAP	1/8/2002
Chlorine dioxide, res. disinfectant	SM 4500-ClO2 D	Primary Inorganic Contaminants	NELAP	10/14/2004
Chlorite	EPA 300.1	Primary Inorganic Contaminants	NELAP	5/11/2004
Chloroacetic acid	EPA 552.2	Group I Unregulated Contaminants	NELAP	8/14/2006
Chlorobenzene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Chloroethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Chloroform	EPA 524.2	Other Regulated Contaminants,Group II Unregulated Contaminants	NELAP	1/8/2002
Chlorpropham	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Chromium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Chromium	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Chromium VI	EPA 218.6	Primary Inorganic Contaminants	NELAP	12/12/2012
Chromium VI	EPA 218.7	Primary Inorganic Contaminants	NELAP	12/12/2012
cis-1,2-Dichloroethylene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
cis-1,3-Dichloropropene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Cobalt	EPA 200.8	Primary Inorganic Contaminants	NELAP	12/12/2012
Color	SM 2120 B	Secondary Inorganic Contaminants	NELAP	1/8/2002
Conductivity	SM 2510 B	Primary Inorganic Contaminants	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Copper	EPA 200.7	Primary Inorganic Contaminants,Secondary Inorganic Contaminants	NELAP	1/8/2002
Copper	EPA 200.8	Primary Inorganic Contaminants,Secondary Inorganic Contaminants	NELAP	5/11/2004
Corrosivity (langlier index)	SM 2330 B	Secondary Inorganic Contaminants	NELAP	1/8/2002
Cyanide	EPA 335.4	Primary Inorganic Contaminants	NELAP	1/8/2002
Cycloate	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Dalapon	EPA 515.3	Synthetic Organic Contaminants	NELAP	5/11/2004
Dalapon	EPA 552.2	Synthetic Organic Contaminants	NELAP	9/14/2010
Di(2-ethylhexyl)adipate	EPA 525.2	Synthetic Organic Contaminants	NELAP	1/8/2002
Diazinon	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Dibromoacetic acid	EPA 552.2	Group I Unregulated Contaminants	NELAP	8/14/2006
Dibromochloromethane	EPA 524.2	Other Regulated Contaminants,Group II Unregulated Contaminants	NELAP	1/8/2002
Dibromomethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Dicamba	EPA 515.3	Group I Unregulated Contaminants	NELAP	5/11/2004
Dichloran	PACE SOP S-FL-O-019/GC-MS	Group I Unregulated Contaminants	NELAP	3/15/2013
Dichloroacetic acid	EPA 552.2	Group I Unregulated Contaminants	NELAP	8/14/2006
Dichlorodifluoromethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Dichloromethane (DCM, Methylene chloride)	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Dichloroprop (Dichlorprop)	EPA 515.3	Synthetic Organic Contaminants	NELAP	10/14/2004
Dichlorovos (DDVP, Dichlorvos)	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Dieldrin	EPA 508.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Dieldrin	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
Diethyl phthalate	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
Dimethyl phthalate	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
Di-n-butyl phthalate	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 515.3	Synthetic Organic Contaminants	NELAP	5/11/2004
Diphenamid	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Diquat	EPA 549.2	Synthetic Organic Contaminants	NELAP	1/8/2002
Dissolved organic carbon (DOC)	SM 5310 B	Primary Inorganic Contaminants	NELAP	1/3/2012
Disulfoton	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Disulfoton sulfone	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Disulfoton sulfoxide	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Endothall	EPA 548.1	Synthetic Organic Contaminants	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Endrin	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
EPTC (Eptam, s-ethyl-dipropyl thio carbamate)	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Escherichia coli	COLISURE	Microbiology	NELAP	11/1/2011
Escherichia coli	SM 9223 B	Microbiology	NELAP	11/1/2011
Ethoprop	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Ethylbenzene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Fenamiphos	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Fenarimol	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Fluorene	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
Fluoride	EPA 300.0	Primary Inorganic Contaminants,Secondary Inorganic Contaminants	NELAP	1/8/2002
Fluridone	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Glyphosate	EPA 547	Synthetic Organic Contaminants	NELAP	1/8/2002
Hardness	SM 2340 B	Secondary Inorganic Contaminants	NELAP	8/14/2006
Hardness (calc.)	EPA 200.7	Secondary Inorganic Contaminants	NELAP	8/14/2006
Heptachlor	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Heptachlor epoxide	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Heterotrophic plate count	SIMPLATE	Microbiology	NELAP	3/15/2013
Heterotrophic plate count	SM 9215 B	Microbiology	NELAP	1/8/2002
Hexachlorobenzene	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Hexachlorobutadiene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Hexachlorocyclopentadiene	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Hexazinone (Velpar)	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Indeno(1,2,3-cd)pyrene	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
Iron	EPA 200.7	Secondary Inorganic Contaminants	NELAP	1/8/2002
Isopropylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Lead	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
m/p-Xylenes	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/3/2012
Magnesium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Manganese	EPA 200.7	Secondary Inorganic Contaminants	NELAP	1/8/2002
Manganese	EPA 200.8	Secondary Inorganic Contaminants	NELAP	5/11/2004
Mercury	EPA 200.8	Primary Inorganic Contaminants	NELAP	1/3/2012
Mercury	EPA 245.1	Primary Inorganic Contaminants	NELAP	1/8/2002
Merphos	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Methiocarb (Mesurol)	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Methomyl (Lannate)	EPA 531.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Methoxychlor	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Methyl bromide (Bromomethane)	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Methyl chloride (Chloromethane)	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Methyl paraoxon	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Methyl tert-butyl ether (MTBE)	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Metolachlor	EPA 508.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Metolachlor	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
Metribuzin	EPA 508.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Metribuzin	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
Mevinphos	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
MGK-264	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Naphthalene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Napropamide	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
n-Butylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Nickel	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Nickel	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Nitrate	EPA 300.0	Primary Inorganic Contaminants	NELAP	1/8/2002
Nitrate	EPA 353.2	Primary Inorganic Contaminants	NELAP	1/8/2002
Nitrite	EPA 300.0	Primary Inorganic Contaminants	NELAP	1/8/2002
Nitrite	EPA 353.2	Primary Inorganic Contaminants	NELAP	1/8/2002
Norflurazon	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
n-Propylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Odor	SM 2150 B	Secondary Inorganic Contaminants	NELAP	1/8/2002
Orthophosphate as P	EPA 300.0	Primary Inorganic Contaminants	NELAP	1/8/2002
Orthophosphate as P	EPA 365.1	Primary Inorganic Contaminants	NELAP	1/8/2002
Oxamyl	EPA 531.1	Synthetic Organic Contaminants	NELAP	1/8/2002
o-Xylene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/3/2012
Paraquat	EPA 549.2	Synthetic Organic Contaminants	NELAP	3/10/2010
PCBs	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Pebulate	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Pentachlorophenol	EPA 515.3	Synthetic Organic Contaminants	NELAP	5/11/2004
Perchlorate	EPA 314.0	Secondary Inorganic Contaminants	NELAP	1/8/2002
pH	SM 4500-H+-B	Secondary Inorganic Contaminants	NELAP	2/19/2008
Picloram	EPA 515.3	Synthetic Organic Contaminants	NELAP	5/11/2004
Potassium	EPA 200.7	Secondary Inorganic Contaminants	NELAP	10/18/2004

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Prometon	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Prometryn	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Pronamide (Kerb)	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Propachlor (Ramrod)	EPA 508.1	Group I Unregulated Contaminants	NELAP	1/8/2002
Propachlor (Ramrod)	EPA 525.2	Group I Unregulated Contaminants	NELAP	1/8/2002
Pyrene	EPA 525.2	Group III Unregulated Contaminants	NELAP	1/8/2002
sec-Butylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Selenium	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Silica as SiO2	EPA 200.7	Primary Inorganic Contaminants	NELAP	12/12/2012
Silica as SiO2	SM 4500-Si D (18th/19th Ed.)/UV-VIS	Primary Inorganic Contaminants	NELAP	1/8/2002
Silver	EPA 200.7	Secondary Inorganic Contaminants	NELAP	1/8/2002
Silver	EPA 200.8	Secondary Inorganic Contaminants	NELAP	5/11/2004
Silvex (2,4,5-TP)	EPA 515.3	Synthetic Organic Contaminants	NELAP	5/11/2004
Simazine	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
Simetryn	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Sodium	EPA 200.7	Primary Inorganic Contaminants	NELAP	1/8/2002
Stirofos	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Strontium	PACE SOP S-FL-M-004/ICP-MS	Secondary Inorganic Contaminants	NELAP	12/12/2012
Styrene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Sulfate	EPA 300.0	Primary Inorganic Contaminants,Secondary Inorganic Contaminants	NELAP	1/8/2002
Surfactants - MBAS	SM 5540 C	Secondary Inorganic Contaminants	NELAP	1/8/2002
Tebuthiuron	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Terbacil	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
tert-Butylbenzene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Tetrachloroethylene (Perchloroethylene)	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Thallium	EPA 200.8	Primary Inorganic Contaminants	NELAP	5/11/2004
Toluene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Total coliforms	COLISURE	Microbiology	NELAP	11/1/2011
Total coliforms	SM 9223 B	Microbiology	NELAP	11/1/2011
Total dissolved solids	SM 2540 C	Secondary Inorganic Contaminants	NELAP	1/8/2002
Total haloacetic acids (HAA5)	EPA 552.2	Synthetic Organic Contaminants	NELAP	8/14/2006
Total nitrate-nitrite	EPA 300.0	Primary Inorganic Contaminants	NELAP	1/8/2002
Total nitrate-nitrite	EPA 353.2	Primary Inorganic Contaminants	NELAP	1/8/2002
Total organic carbon	SM 5310 B	Primary Inorganic Contaminants	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Total trihalomethanes	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Toxaphene (Chlorinated camphene)	EPA 508.1	Synthetic Organic Contaminants	NELAP	1/8/2002
trans-1,2-Dichloroethylene	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
trans-1,3-Dichloropropene	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Trichloroacetic acid	EPA 552.2	Group I Unregulated Contaminants	NELAP	8/14/2006
Trichloroethene (Trichloroethylene)	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Trichlorofluoromethane	EPA 524.2	Group II Unregulated Contaminants	NELAP	1/8/2002
Trifluralin (Treflan)	EPA 525.2	Group I Unregulated Contaminants	NELAP	3/15/2013
Turbidity	EPA 180.1	Secondary Inorganic Contaminants	NELAP	1/8/2002
Uranium	EPA 200.8	Radiochemistry	NELAP	12/12/2012
UV 254	SM 5910 B	Primary Inorganic Contaminants	NELAP	1/8/2002
Vinyl chloride	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Xylene (total)	EPA 524.2	Other Regulated Contaminants	NELAP	1/8/2002
Zinc	EPA 200.7	Secondary Inorganic Contaminants	NELAP	1/8/2002
Zinc	EPA 200.8	Secondary Inorganic Contaminants	NELAP	5/11/2004

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State Laboratory ID: **E83079** EPA Lab Code: **FL01264** **(386) 672-5668**

E83079
Pace Analytical Services-Florida
8 East Tower Circle
Ormond Beach, FL 32174

Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
1,1,1,2-Tetrachloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,1,1-Trichloroethane	EPA 624	Volatile Organics	NELAP	1/8/2002
1,1,1-Trichloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,1,2,2-Tetrachloroethane	EPA 624	Volatile Organics	NELAP	1/8/2002
1,1,2,2-Tetrachloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA 8260	Volatile Organics	NELAP	1/3/2012
1,1,2-Trichloroethane	EPA 624	Volatile Organics	NELAP	1/8/2002
1,1,2-Trichloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,1-Dichloroethane	EPA 624	Volatile Organics	NELAP	1/8/2002
1,1-Dichloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,1-Dichloroethylene	EPA 624	Volatile Organics	NELAP	1/8/2002
1,1-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,1-Dichloropropene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2,3-Trichlorobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2,3-Trichloropropane	EPA 504.1	Volatile Organics	NELAP	3/15/2013
1,2,3-Trichloropropane	EPA 8011	Volatile Organics	NELAP	3/15/2013
1,2,3-Trichloropropane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2,3-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	3/15/2013
1,2,4,5-Tetrachlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,2,4-Trichlorobenzene	EPA 625	Extractable Organics	NELAP	1/8/2002
1,2,4-Trichlorobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2,4-Trichlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,2,4-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2-Dibromo-3-chloropropane (DBCP)	EPA 504.1	Volatile Organics	NELAP	1/3/2012
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8011	Volatile Organics	NELAP	7/1/2003
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 504.1	Volatile Organics	NELAP	1/3/2012
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8011	Volatile Organics	NELAP	7/1/2003
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2-Dichlorobenzene	EPA 624	Volatile Organics	NELAP	1/8/2002
1,2-Dichlorobenzene	EPA 625	Extractable Organics	NELAP	1/8/2002
1,2-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,2-Dichloroethane	EPA 624	Volatile Organics	NELAP	1/8/2002
1,2-Dichloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2-Dichloropropane	EPA 624	Volatile Organics	NELAP	1/8/2002

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Pace Analytical Services-Florida
8 East Tower Circle
Ormond Beach, FL 32174

Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
1,2-Dichloropropane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,2-Dinitrobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,2-Diphenylhydrazine	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,3,5-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,3,5-Trinitrobenzene (1,3,5-TNB)	EPA 8270	Extractable Organics	NELAP	9/2/2008
1,3-Dichlorobenzene	EPA 624	Volatile Organics	NELAP	1/8/2002
1,3-Dichlorobenzene	EPA 625	Extractable Organics	NELAP	1/8/2002
1,3-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,3-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,3-Dichloropropane	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,3-Dinitrobenzene (1,3-DNB)	EPA 8270	Extractable Organics	NELAP	9/2/2008
1,4-Dichlorobenzene	EPA 624	Volatile Organics	NELAP	1/8/2002
1,4-Dichlorobenzene	EPA 625	Extractable Organics	NELAP	1/8/2002
1,4-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,4-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
1,4-Dioxane (1,4-Diethyleneoxide)	EPA 8260	Volatile Organics	NELAP	7/1/2003
1,4-Naphthoquinone	EPA 8270	Extractable Organics	NELAP	8/14/2006
1,4-Phenylenediamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
1-Chlorohexane	EPA 8260	Volatile Organics	NELAP	1/3/2012
1-Methylnaphthalene	EPA 625	Extractable Organics	NELAP	3/15/2013
1-Methylnaphthalene	EPA 8270	Extractable Organics	NELAP	1/3/2012
1-Naphthylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,2-Dichloropropane	EPA 8260	Volatile Organics	NELAP	7/1/2003
2,3,4,6-Tetrachlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,3-Dichloroaniline	EPA 625	Pesticides-Herbicides-PCB's	NELAP	5/11/2004
2,4,5-T	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
2,4,5-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,4,6-Trichlorophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
2,4,6-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,4-D	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
2,4-DB	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
2,4-Dichlorophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
2,4-Dichlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,4-Dimethylphenol	EPA 625	Extractable Organics	NELAP	1/8/2002
2,4-Dimethylphenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,4-Dinitrophenol	EPA 625	Extractable Organics	NELAP	1/8/2002

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Ormond Beach, FL 32174

Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
2,4-Dinitrophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,4-Dinitrotoluene (2,4-DNT)	EPA 625	Extractable Organics	NELAP	1/8/2002
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,6-Dichlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2,6-Dinitrotoluene (2,6-DNT)	EPA 625	Extractable Organics	NELAP	1/8/2002
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Acetylaminofluorene	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Butanone (Methyl ethyl ketone, MEK)	EPA 8260	Volatile Organics	NELAP	7/1/2003
2-Chloroethyl vinyl ether	EPA 624	Volatile Organics	NELAP	1/8/2002
2-Chloroethyl vinyl ether	EPA 8260	Volatile Organics	NELAP	1/3/2012
2-Chloronaphthalene	EPA 625	Extractable Organics	NELAP	1/8/2002
2-Chloronaphthalene	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Chlorophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
2-Chlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Chlorotoluene	EPA 8260	Volatile Organics	NELAP	7/1/2003
2-Hexanone	EPA 8260	Volatile Organics	NELAP	7/1/2003
2-Methyl-4,6-dinitrophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
2-Methyl-4,6-dinitrophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Methylnaphthalene	EPA 625	Extractable Organics	NELAP	3/15/2013
2-Methylnaphthalene	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Methylphenol (o-Cresol)	EPA 625	Extractable Organics	NELAP	3/15/2013
2-Methylphenol (o-Cresol)	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Naphthylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Nitroaniline	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Nitrophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
2-Nitrophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
2-Picoline (2-Methylpyridine)	EPA 8270	Extractable Organics	NELAP	7/1/2003
3,3'-Dichlorobenzidine	EPA 625	Extractable Organics	NELAP	1/8/2002
3,3'-Dichlorobenzidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
3,3-Dimethyl-1-butanol	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
3,3'-Dimethylbenzidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
3/4-Methylphenols (m/p-Cresols)	EPA 625	Extractable Organics	NELAP	3/15/2013
3/4-Methylphenols (m/p-Cresols)	EPA 8270	Extractable Organics	NELAP	1/2/2008
3-Methylcholanthrene	EPA 8270	Extractable Organics	NELAP	7/1/2003
3-Nitroaniline	EPA 8270	Extractable Organics	NELAP	7/1/2003
4,4'-DDD	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002

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Ormond Beach, FL 32174

Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
4,4'-DDD	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
4,4'-DDD	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
4,4'-DDE	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
4,4'-DDE	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
4,4'-DDE	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
4,4'-DDT	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
4,4'-DDT	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
4,4'-DDT	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
4-Aminobiphenyl	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Bromophenyl phenyl ether	EPA 625	Extractable Organics	NELAP	1/8/2002
4-Bromophenyl phenyl ether	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Chloro-3-methylphenol	EPA 625	Extractable Organics	NELAP	1/8/2002
4-Chloro-3-methylphenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Chloroaniline	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Chlorophenyl phenylether	EPA 625	Extractable Organics	NELAP	1/8/2002
4-Chlorophenyl phenylether	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Chlorotoluene	EPA 8260	Volatile Organics	NELAP	7/1/2003
4-Dimethyl aminoazobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Methyl-2-pentanone (MIBK)	EPA 8260	Volatile Organics	NELAP	7/1/2003
4-Nitroaniline	EPA 8270	Extractable Organics	NELAP	7/1/2003
4-Nitrophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
4-Nitrophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
5-Nitro-o-toluidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
7,12-Dimethylbenz(a) anthracene	EPA 8270	Extractable Organics	NELAP	7/1/2003
a,a-Dimethylphenethylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
Acenaphthene	EPA 625	Extractable Organics	NELAP	1/8/2002
Acenaphthene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Acenaphthylene	EPA 625	Extractable Organics	NELAP	1/8/2002
Acenaphthylene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Acetone	EPA 8260	Volatile Organics	NELAP	7/1/2003
Acetonitrile	EPA 8260	Volatile Organics	NELAP	7/1/2003
Acetophenone	EPA 625	Pesticides-Herbicides-PCB's	NELAP	5/11/2004
Acetophenone	EPA 8270	Extractable Organics	NELAP	7/1/2003
Acrolein (Propenal)	EPA 624	Volatile Organics	NELAP	1/8/2002
Acrolein (Propenal)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Acrylonitrile	EPA 624	Volatile Organics	NELAP	1/8/2002

Laboratory Scope of Accreditation

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Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Acrylonitrile	EPA 8260	Volatile Organics	NELAP	7/1/2003
Alachlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Aldrin	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aldrin	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Alkalinity as CaCO3	SM 2320 B	General Chemistry	NELAP	1/8/2002
Allyl chloride (3-Chloropropene)	EPA 8260	Volatile Organics	NELAP	7/1/2003
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
alpha-BHC (alpha-Hexachlorocyclohexane)	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
alpha-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aluminum	EPA 200.7	Metals	NELAP	1/8/2002
Aluminum	EPA 200.8	Metals	NELAP	5/11/2004
Aluminum	EPA 6010	Metals	NELAP	7/1/2003
Aluminum	EPA 6020	Metals	NELAP	5/11/2004
Ammonia as N	EPA 350.1	General Chemistry	NELAP	1/8/2002
Aniline	EPA 8270	Extractable Organics	NELAP	7/1/2003
Anthracene	EPA 625	Extractable Organics	NELAP	1/8/2002
Anthracene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Antimony	EPA 200.7	Metals	NELAP	1/8/2002
Antimony	EPA 200.8	Metals	NELAP	5/11/2004
Antimony	EPA 6010	Metals	NELAP	7/1/2003
Antimony	EPA 6020	Metals	NELAP	5/11/2004
Aramite	EPA 8270	Extractable Organics	NELAP	7/1/2003
Aroclor-1016 (PCB-1016)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1016 (PCB-1016)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aroclor-1221 (PCB-1221)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1221 (PCB-1221)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aroclor-1232 (PCB-1232)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1232 (PCB-1232)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aroclor-1242 (PCB-1242)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1242 (PCB-1242)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aroclor-1248 (PCB-1248)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1248 (PCB-1248)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Aroclor-1254 (PCB-1254)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1254 (PCB-1254)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003

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Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Aroclor-1260 (PCB-1260)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1260 (PCB-1260)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Arsenic	EPA 200.7	Metals	NELAP	1/8/2002
Arsenic	EPA 200.8	Metals	NELAP	5/11/2004
Arsenic	EPA 6010	Metals	NELAP	1/8/2002
Arsenic	EPA 6020	Metals	NELAP	5/11/2004
Aspon	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Atrazine	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Azinphos-ethyl (Ethyl guthion)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Azinphos-methyl (Guthion)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Barium	EPA 200.7	Metals	NELAP	1/8/2002
Barium	EPA 200.8	Metals	NELAP	5/11/2004
Barium	EPA 6010	Metals	NELAP	7/1/2003
Barium	EPA 6020	Metals	NELAP	5/11/2004
Bentazon	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Benzene	EPA 624	Volatile Organics	NELAP	1/8/2002
Benzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Benzidine	EPA 625	Extractable Organics	NELAP	1/8/2002
Benzidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
Benzo(a)anthracene	EPA 625	Extractable Organics	NELAP	1/8/2002
Benzo(a)anthracene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Benzo(a)pyrene	EPA 625	Extractable Organics	NELAP	1/8/2002
Benzo(a)pyrene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Benzo(b)fluoranthene	EPA 625	Extractable Organics	NELAP	1/8/2002
Benzo(b)fluoranthene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Benzo(g,h,i)perylene	EPA 625	Extractable Organics	NELAP	1/8/2002
Benzo(g,h,i)perylene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Benzo(k)fluoranthene	EPA 625	Extractable Organics	NELAP	1/8/2002
Benzo(k)fluoranthene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Benzoic acid	EPA 8270	Extractable Organics	NELAP	1/3/2012
Benzyl alcohol	EPA 8270	Extractable Organics	NELAP	1/2/2008
Beryllium	EPA 200.7	Metals	NELAP	1/8/2002
Beryllium	EPA 200.8	Metals	NELAP	5/11/2004
Beryllium	EPA 6010	Metals	NELAP	7/1/2003
Beryllium	EPA 6020	Metals	NELAP	5/11/2004
beta-BHC (beta-Hexachlorocyclohexane)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002

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Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
beta-BHC (beta-Hexachlorocyclohexane)	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Biochemical oxygen demand	SM 5210 B	General Chemistry	NELAP	10/3/2007
bis(2-Chloroethoxy)methane	EPA 625	Extractable Organics	NELAP	1/8/2002
bis(2-Chloroethoxy)methane	EPA 8270	Extractable Organics	NELAP	7/1/2003
bis(2-Chloroethyl) ether	EPA 625	Extractable Organics	NELAP	1/8/2002
bis(2-Chloroethyl) ether	EPA 8270	Extractable Organics	NELAP	7/1/2003
bis(2-Chloroisopropyl) ether (2,2'-Oxybis(1-chloropropane))	EPA 625	Extractable Organics	NELAP	1/8/2002
bis(2-Chloroisopropyl) ether (2,2'-Oxybis(1-chloropropane))	EPA 8270	Extractable Organics	NELAP	7/1/2003
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 625	Extractable Organics	NELAP	1/8/2002
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 8270	Extractable Organics	NELAP	7/1/2003
Bolstar (Sulprofos)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Boron	EPA 200.7	Metals	NELAP	1/8/2002
Boron	EPA 6010	Metals	NELAP	7/1/2003
Boron (limited CWA use only per EPA ATP)	EPA 200.8	Metals	NELAP	12/12/2012
Bromate	EPA 300.1	General Chemistry	NELAP	12/12/2012
Bromide	EPA 300.0	General Chemistry	NELAP	1/8/2002
Bromide	EPA 9056	General Chemistry	NELAP	7/1/2003
Bromobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Bromochloromethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Bromodichloromethane	EPA 624	Volatile Organics	NELAP	1/8/2002
Bromodichloromethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Bromoform	EPA 624	Volatile Organics	NELAP	1/8/2002
Bromoform	EPA 8260	Volatile Organics	NELAP	7/1/2003
Butyl benzyl phthalate	EPA 625	Extractable Organics	NELAP	1/8/2002
Butyl benzyl phthalate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Cadmium	EPA 200.7	Metals	NELAP	1/8/2002
Cadmium	EPA 200.8	Metals	NELAP	5/11/2004
Cadmium	EPA 6010	Metals	NELAP	1/8/2002
Cadmium	EPA 6020	Metals	NELAP	5/11/2004
Calcium	EPA 200.7	Metals	NELAP	1/8/2002
Calcium	EPA 6010	Metals	NELAP	7/1/2003
Carbazole	EPA 625	Pesticides-Herbicides-PCB's	NELAP	5/11/2004
Carbazole	EPA 8270	Extractable Organics	NELAP	1/3/2012
Carbon disulfide	EPA 8260	Volatile Organics	NELAP	7/1/2003

Laboratory Scope of Accreditation

Attachment to Certificate #: E83079-45, expiration date June 30, 2014. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: **E83079** EPA Lab Code: **FL01264** **(386) 672-5668**

E83079
Pace Analytical Services-Florida
8 East Tower Circle
Ormond Beach, FL 32174

Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Carbon tetrachloride	EPA 624	Volatile Organics	NELAP	1/8/2002
Carbon tetrachloride	EPA 8260	Volatile Organics	NELAP	7/1/2003
Carbonaceous BOD (CBOD)	SM 5210 B	General Chemistry	NELAP	1/8/2002
Carbophenothion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Chemical oxygen demand	EPA 410.4	General Chemistry	NELAP	1/8/2002
Chlorate	EPA 300.1	General Chemistry	NELAP	12/12/2012
Chlordane (tech.)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Chlordane (tech.)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Chlorfenvinphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Chloride	EPA 300.0	General Chemistry	NELAP	1/8/2002
Chloride	EPA 9056	General Chemistry	NELAP	7/1/2003
Chlorite	EPA 300.1	General Chemistry	NELAP	12/12/2012
Chlorobenzene	EPA 624	Volatile Organics	NELAP	1/8/2002
Chlorobenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Chlorobenzilate	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Chloroethane	EPA 624	Volatile Organics	NELAP	1/8/2002
Chloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Chloroform	EPA 624	Volatile Organics	NELAP	1/8/2002
Chloroform	EPA 8260	Volatile Organics	NELAP	7/1/2003
Chlorophylls	SM 10200 H	General Chemistry	NELAP	1/8/2002
Chloroprene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Chlorpyrifos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Chlorpyrifos methyl	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Chromium	EPA 200.7	Metals	NELAP	1/8/2002
Chromium	EPA 200.8	Metals	NELAP	5/11/2004
Chromium	EPA 6010	Metals	NELAP	7/1/2003
Chromium	EPA 6020	Metals	NELAP	5/11/2004
Chromium VI	SM 3500-Cr B (20th/21st Ed.)/UV-VIS	General Chemistry	NELAP	3/10/2010
Chrysene	EPA 625	Extractable Organics	NELAP	1/8/2002
Chrysene	EPA 8270	Extractable Organics	NELAP	7/1/2003
cis-1,2-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	7/1/2003
cis-1,3-Dichloropropene	EPA 624	Volatile Organics	NELAP	1/8/2002
cis-1,3-Dichloropropene	EPA 8260	Volatile Organics	NELAP	7/1/2003
cis-1,4-Dichloro-2-butene	EPA 8260	Volatile Organics	NELAP	1/3/2012
Cobalt	EPA 200.7	Metals	NELAP	1/8/2002
Cobalt	EPA 200.8	Metals	NELAP	5/11/2004

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Cobalt	EPA 6010	Metals	NELAP	7/1/2003
Cobalt	EPA 6020	Metals	NELAP	5/11/2004
Color	SM 2120 B	General Chemistry	NELAP	10/3/2007
Conductivity	EPA 120.1	General Chemistry	NELAP	1/8/2002
Conductivity	EPA 9050	General Chemistry	NELAP	7/1/2003
Conductivity	SM 2510 B	General Chemistry	NELAP	1/3/2012
Copper	EPA 200.7	Metals	NELAP	1/8/2002
Copper	EPA 200.8	Metals	NELAP	5/11/2004
Copper	EPA 6010	Metals	NELAP	1/8/2002
Copper	EPA 6020	Metals	NELAP	5/11/2004
Corrosivity (langlier index)	SM 2330 B	General Chemistry	NELAP	1/8/2002
Coumaphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Crotoxyphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Cyanide	EPA 335.4	General Chemistry	NELAP	1/8/2002
Cyclohexane	EPA 8260	Volatile Organics	NELAP	1/3/2012
Dalapon	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
delta-BHC	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
delta-BHC	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
delta-BHC	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Demeton-o	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Demeton-s	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Diallate	EPA 8270	Pesticides-Herbicides-PCB's	NELAP	8/14/2006
Diazinon	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Dibenz(a,h)anthracene	EPA 625	Extractable Organics	NELAP	1/8/2002
Dibenz(a,h)anthracene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Dibenzofuran	EPA 8270	Extractable Organics	NELAP	7/1/2003
Dibromochloromethane	EPA 624	Volatile Organics	NELAP	1/8/2002
Dibromochloromethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Dibromomethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Dicamba	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Dichlorodifluoromethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Dichlorofenthion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Dichloroprop (Dichlorprop)	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	3/10/2010
Dichlorovos (DDVP, Dichlorvos)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Dicrotophos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Dieldrin	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Dieldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Dieldrin	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Diethyl ether	EPA 8260	Volatile Organics	NELAP	1/3/2012
Diethyl phthalate	EPA 625	Extractable Organics	NELAP	1/8/2002
Diethyl phthalate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Di-isopropylether (DIPE)	EPA 8260	Volatile Organics	NELAP	1/3/2012
Dimethoate	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Dimethyl phthalate	EPA 625	Extractable Organics	NELAP	1/8/2002
Dimethyl phthalate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Di-n-butyl phthalate	EPA 625	Extractable Organics	NELAP	1/8/2002
Di-n-butyl phthalate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Di-n-octyl phthalate	EPA 625	Extractable Organics	NELAP	1/8/2002
Di-n-octyl phthalate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 8270	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Dioxathion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Disulfoton	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/2/2008
Endosulfan I	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endosulfan I	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Endosulfan I	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Endosulfan II	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endosulfan II	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Endosulfan II	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Endosulfan sulfate	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endosulfan sulfate	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Endosulfan sulfate	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Endrin	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Endrin	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Endrin aldehyde	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endrin aldehyde	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Endrin aldehyde	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Endrin ketone	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
EPN	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Ethanol	EPA 8260	Volatile Organics	NELAP	7/1/2003
Ethion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003

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Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Ethoprop	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Ethyl acetate	EPA 8260	Volatile Organics	NELAP	1/3/2012
Ethyl methacrylate	EPA 8260	Volatile Organics	NELAP	7/1/2003
Ethyl methanesulfonate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Ethylbenzene	EPA 624	Volatile Organics	NELAP	1/8/2002
Ethylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Ethyl-t-butylether (ETBE)	EPA 8260	Volatile Organics	NELAP	1/3/2012
Famphur	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Fecal coliforms	SM 9222 D	Microbiology	NELAP	1/8/2002
Fenitrothion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Fensulfothion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Fenthion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Fluoranthene	EPA 625	Extractable Organics	NELAP	1/8/2002
Fluoranthene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Fluorene	EPA 625	Extractable Organics	NELAP	1/8/2002
Fluorene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Fluoride	EPA 300.0	General Chemistry	NELAP	1/8/2002
Fluoride	EPA 9056	General Chemistry	NELAP	7/1/2003
Fonophos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
gamma-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Heptachlor	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Heptachlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Heptachlor	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Heptachlor epoxide	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Heptachlor epoxide	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Heptachlor epoxide	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Hexachlorobenzene	EPA 625	Extractable Organics	NELAP	1/8/2002
Hexachlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Hexachlorobutadiene	EPA 625	Extractable Organics	NELAP	1/8/2002
Hexachlorobutadiene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Hexachlorobutadiene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Hexachlorocyclopentadiene	EPA 625	Extractable Organics	NELAP	1/8/2002

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Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Hexachlorocyclopentadiene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Hexachloroethane	EPA 625	Extractable Organics	NELAP	1/8/2002
Hexachloroethane	EPA 8270	Extractable Organics	NELAP	7/1/2003
Hexachloropropene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Ignitability	EPA 1010	General Chemistry	NELAP	7/1/2003
Indeno(1,2,3-cd)pyrene	EPA 625	Extractable Organics	NELAP	1/8/2002
Indeno(1,2,3-cd)pyrene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Iodomethane (Methyl iodide)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Iron	EPA 200.7	Metals	NELAP	1/8/2002
Iron	EPA 6010	Metals	NELAP	7/1/2003
Iron	EPA 6020	Metals	NELAP	1/3/2012
Isobutyl alcohol (2-Methyl-1-propanol)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Isodrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Isodrin	EPA 8270	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Isophorone	EPA 625	Extractable Organics	NELAP	1/8/2002
Isophorone	EPA 8270	Extractable Organics	NELAP	7/1/2003
Isopropylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Isosafrole	EPA 8270	Extractable Organics	NELAP	7/1/2003
Kepone	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Kepone	EPA 8270	Pesticides-Herbicides-PCB's	NELAP	8/14/2006
Kjeldahl nitrogen - total	EPA 351.2	General Chemistry	NELAP	1/8/2002
Lead	EPA 200.7	Metals	NELAP	1/8/2002
Lead	EPA 200.8	Metals	NELAP	5/11/2004
Lead	EPA 6010	Metals	NELAP	1/8/2002
Lead	EPA 6020	Metals	NELAP	5/11/2004
Leptophos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
m/p-Xylenes	EPA 8260	Volatile Organics	NELAP	1/3/2012
m+p-Xylenes	EPA 624	Volatile Organics	NELAP	1/3/2012
Magnesium	EPA 200.7	Metals	NELAP	1/8/2002
Magnesium	EPA 6010	Metals	NELAP	7/1/2003
Malathion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Manganese	EPA 200.7	Metals	NELAP	1/8/2002
Manganese	EPA 200.8	Metals	NELAP	5/11/2004
Manganese	EPA 6010	Metals	NELAP	7/1/2003
Manganese	EPA 6020	Metals	NELAP	5/11/2004
MCPA	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/3/2012

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Analyte	Method/Tech	Category	Certification Type	Effective Date
MCPP	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Mercury	EPA 200.8	Metals	NELAP	1/3/2012
Mercury	EPA 245.1	Metals	NELAP	1/8/2002
Mercury	EPA 6020	Metals	NELAP	1/3/2012
Mercury	EPA 7470	Metals	NELAP	1/8/2002
Merphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Methacrylonitrile	EPA 8260	Volatile Organics	NELAP	7/1/2003
Methapyrilene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Methoxychlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Methoxychlor	SM 6630 C	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Methyl acetate	EPA 8260	Volatile Organics	NELAP	1/3/2012
Methyl bromide (Bromomethane)	EPA 624	Volatile Organics	NELAP	1/8/2002
Methyl bromide (Bromomethane)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Methyl chloride (Chloromethane)	EPA 624	Volatile Organics	NELAP	1/8/2002
Methyl chloride (Chloromethane)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Methyl methacrylate	EPA 8260	Volatile Organics	NELAP	7/1/2003
Methyl methanesulfonate	EPA 8270	Extractable Organics	NELAP	7/1/2003
Methyl parathion (Parathion, methyl)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Methyl tert-butyl ether (MTBE)	EPA 624	Volatile Organics	NELAP	1/3/2012
Methyl tert-butyl ether (MTBE)	EPA 8260	Volatile Organics	NELAP	10/21/2003
Methylcyclohexane	EPA 8260	Volatile Organics	NELAP	1/3/2012
Methylene chloride	EPA 624	Volatile Organics	NELAP	1/8/2002
Methylene chloride	EPA 8260	Volatile Organics	NELAP	7/1/2003
Mevinphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Mirex	EPA 608	Pesticides-Herbicides-PCB's	NELAP	3/15/2013
Mirex	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Molybdenum	EPA 200.7	Metals	NELAP	1/8/2002
Molybdenum	EPA 200.8	Metals	NELAP	5/11/2004
Molybdenum	EPA 6010	Metals	NELAP	1/8/2002
Molybdenum	EPA 6020	Metals	NELAP	1/3/2012
Monocrotophos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Naled	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Naphthalene	EPA 625	Extractable Organics	NELAP	1/8/2002
Naphthalene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Naphthalene	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Butyl alcohol	EPA 8260	Volatile Organics	NELAP	1/3/2012

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Analyte	Method/Tech	Category	Certification Type	Effective Date
n-Butylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
n-Decane	EPA 625	Pesticides-Herbicides-PCB's	NELAP	5/11/2004
n-Hexane	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
Nickel	EPA 200.7	Metals	NELAP	1/8/2002
Nickel	EPA 200.8	Metals	NELAP	5/11/2004
Nickel	EPA 6010	Metals	NELAP	1/8/2002
Nickel	EPA 6020	Metals	NELAP	5/11/2004
Nitrate	EPA 9056	General Chemistry	NELAP	7/1/2003
Nitrate as N	EPA 300.0	General Chemistry	NELAP	1/8/2002
Nitrate as N	EPA 353.2	General Chemistry	NELAP	1/8/2002
Nitrate-nitrite	EPA 300.0	General Chemistry	NELAP	1/8/2002
Nitrate-nitrite	EPA 353.2	General Chemistry	NELAP	1/8/2002
Nitrite	EPA 9056	General Chemistry	NELAP	7/1/2003
Nitrite as N	EPA 300.0	General Chemistry	NELAP	1/8/2002
Nitrite as N	EPA 353.2	General Chemistry	NELAP	1/8/2002
Nitrobenzene	EPA 625	Extractable Organics	NELAP	1/8/2002
Nitrobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Nitroquinoline-1-oxide	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitrosodiethylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitrosodimethylamine	EPA 625	Extractable Organics	NELAP	1/8/2002
n-Nitrosodimethylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitroso-di-n-butylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitrosodi-n-propylamine	EPA 625	Extractable Organics	NELAP	1/8/2002
n-Nitrosodi-n-propylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitrosodiphenylamine	EPA 625	Extractable Organics	NELAP	1/8/2002
n-Nitrosodiphenylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitrosomethylethylamine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitrosomorpholine	EPA 8270	Extractable Organics	NELAP	10/14/2004
n-Nitrosopiperidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Nitrosopyrrolidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
n-Octadecane	EPA 625	Pesticides-Herbicides-PCB's	NELAP	5/11/2004
n-Propylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
o,o,o-Triethyl phosphorothioate	EPA 8270	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Oil & Grease	EPA 1664A	General Chemistry	NELAP	1/8/2002
Organic nitrogen	TKN minus AMMONIA	General Chemistry	NELAP	1/3/2012
Orthophosphate as P	EPA 300.0	General Chemistry	NELAP	1/8/2002

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Pace Analytical Services-Florida
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Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Orthophosphate as P	EPA 365.1	General Chemistry	NELAP	1/8/2002
Orthophosphate as P	EPA 9056	General Chemistry	NELAP	7/1/2003
o-Toluidine	EPA 8270	Extractable Organics	NELAP	7/1/2003
o-Xylene	EPA 624	Volatile Organics	NELAP	1/3/2012
o-Xylene	EPA 8260	Volatile Organics	NELAP	1/3/2012
Parathion, ethyl	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Pentachlorobenzene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Pentachloroethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Pentachloronitrobenzene (Quintozene)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/2/2008
Pentachlorophenol	EPA 625	Extractable Organics	NELAP	1/8/2002
Pentachlorophenol	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	9/4/2008
Pentachlorophenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
pH	EPA 9040	General Chemistry	NELAP	7/1/2003
pH	SM 4500-H+-B	General Chemistry	NELAP	10/3/2007
Phenacetin	EPA 8270	Extractable Organics	NELAP	7/1/2003
Phenanthrene	EPA 625	Extractable Organics	NELAP	1/8/2002
Phenanthrene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Phenol	EPA 625	Extractable Organics	NELAP	1/8/2002
Phenol	EPA 8270	Extractable Organics	NELAP	7/1/2003
Phorate	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Phosmet (Imidan)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Phosphamidon	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Phosphorus, total	EPA 365.3	General Chemistry	NELAP	12/4/2007
Phosphorus, total	EPA 365.4	General Chemistry	NELAP	1/8/2002
Picloram	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
p-Isopropyltoluene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Potassium	EPA 200.7	Metals	NELAP	1/8/2002
Potassium	EPA 6010	Metals	NELAP	7/1/2003
Pronamide (Kerb)	EPA 8270	Extractable Organics	NELAP	7/1/2003
Propionitrile (Ethyl cyanide)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Pyrene	EPA 625	Extractable Organics	NELAP	1/8/2002
Pyrene	EPA 8270	Extractable Organics	NELAP	7/1/2003
Pyridine	EPA 8270	Extractable Organics	NELAP	7/1/2003
Residual free chlorine	SM 4500-Cl D	General Chemistry	NELAP	1/8/2002
Residue-filterable (TDS)	SM 2540 C	General Chemistry	NELAP	10/3/2007
Residue-nonfilterable (TSS)	SM 2540 D	General Chemistry	NELAP	10/3/2007

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Residue-total	SM 2540 B	General Chemistry	NELAP	10/3/2007
Residue-volatile	EPA 160.4	General Chemistry	NELAP	1/8/2002
Ronnel	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Safrole	EPA 8270	Extractable Organics	NELAP	7/1/2003
sec-Butylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Selenium	EPA 200.7	Metals	NELAP	1/8/2002
Selenium	EPA 200.8	Metals	NELAP	5/11/2004
Selenium	EPA 6010	Metals	NELAP	1/8/2002
Selenium	EPA 6020	Metals	NELAP	1/3/2012
Silica as SiO2	EPA 200.7	Metals	NELAP	1/3/2012
Silica as SiO2	EPA 6010	Metals	NELAP	1/3/2012
Silica as SiO2	SM 4500-SiO2 F (20th/21st Ed.)	General Chemistry	NELAP	3/10/2010
Silica-dissolved	SM 4500-Si D (18th/19th Ed.)/UV-VIS	General Chemistry	NELAP	5/11/2004
Silicon	EPA 200.7	Metals	NELAP	1/3/2012
Silicon	EPA 6010	Metals	NELAP	1/3/2012
Silver	EPA 200.7	Metals	NELAP	1/8/2002
Silver	EPA 200.8	Metals	NELAP	5/11/2004
Silver	EPA 6010	Metals	NELAP	7/1/2003
Silver	EPA 6020	Metals	NELAP	5/11/2004
Silvex (2,4,5-TP)	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Simazine	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Sodium	EPA 200.7	Metals	NELAP	1/8/2002
Sodium	EPA 6010	Metals	NELAP	7/1/2003
Stirofos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Strontium	EPA 200.7	Metals	NELAP	10/14/2004
Strontium	EPA 6010	Metals	NELAP	7/1/2003
Strontium (limited CWA use only per EPA ATP)	EPA 200.8	Metals	NELAP	12/12/2012
Styrene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Sulfate	EPA 300.0	General Chemistry	NELAP	1/8/2002
Sulfate	EPA 9056	General Chemistry	NELAP	7/1/2003
Sulfide	EPA 9030/9034	General Chemistry	NELAP	7/1/2003
Sulfide	SM 4500-S F	General Chemistry	NELAP	1/3/2012
Sulfotepp	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Surfactants - MBAS	SM 5540 C	General Chemistry	NELAP	10/3/2007
T-amylmethylether (TAME)	EPA 8260	Volatile Organics	NELAP	1/3/2012

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Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Terbufos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
tert-Amyl alcohol (2-methyl-2-butanol)	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
tert-Butyl alcohol	EPA 8260	Volatile Organics	NELAP	1/3/2012
tert-Butyl formate	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
tert-Butylbenzene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Tetrachloroethylene (Perchloroethylene)	EPA 624	Volatile Organics	NELAP	1/8/2002
Tetrachloroethylene (Perchloroethylene)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Tetraethyl pyrophosphate (TEPP)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Tetrahydrofuran (THF)	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
Thallium	EPA 200.7	Metals	NELAP	1/8/2002
Thallium	EPA 200.8	Metals	NELAP	5/11/2004
Thallium	EPA 6010	Metals	NELAP	7/1/2003
Thallium	EPA 6020	Metals	NELAP	5/11/2004
Thionazin (Zinophos)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Thionazin (Zinophos)	EPA 8270	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Tin	EPA 200.7	Metals	NELAP	1/8/2002
Tin	EPA 6010	Metals	NELAP	7/1/2003
Titanium	EPA 200.7	Metals	NELAP	1/3/2012
Titanium	EPA 6010	Metals	NELAP	1/3/2012
Tokuthion (Prothiophos)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Toluene	EPA 624	Volatile Organics	NELAP	1/8/2002
Toluene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Total coliforms	SM 9222 B	Microbiology	NELAP	1/8/2002
Total cyanide	EPA 9012	General Chemistry	NELAP	7/1/2003
Total cyanide	SM 4500CN-E	General Chemistry	NELAP	12/12/2012
Total hardness as CaCO3	EPA 200.7	Metals	NELAP	1/8/2002
Total hardness as CaCO3	SM 2340 B	Metals	NELAP	1/8/2002
Total nitrate-nitrite	EPA 9056	General Chemistry	NELAP	7/1/2003
Total nitrogen	TKN + Total nitrate-nitrite	General Chemistry	NELAP	1/3/2012
Total organic carbon	SM 5310 B	General Chemistry	NELAP	2/21/2008
Total Petroleum Hydrocarbons (TPH)	EPA 1664A	General Chemistry	NELAP	8/14/2008
Total Petroleum Hydrocarbons (TPH)	FL-PRO	Extractable Organics	NELAP	7/1/2003
Total phenolics	EPA 420.4	General Chemistry	NELAP	1/8/2002
Total phenolics	EPA 9066	General Chemistry	NELAP	7/1/2003
Toxaphene (Chlorinated camphene)	EPA 608	Pesticides-Herbicides-PCB's	NELAP	1/8/2002

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Matrix: **Non-Potable Water**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Toxaphene (Chlorinated camphene)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
trans-1,2-Dichloroethylene	EPA 624	Volatile Organics	NELAP	1/8/2002
trans-1,2-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	7/1/2003
trans-1,3-Dichloropropene	EPA 624	Volatile Organics	NELAP	1/8/2002
trans-1,3-Dichloropropene	EPA 8260	Volatile Organics	NELAP	7/1/2003
trans-1,4-Dichloro-2-butene	EPA 8260	Volatile Organics	NELAP	7/1/2003
Trichlorfon	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Trichloroethene (Trichloroethylene)	EPA 624	Volatile Organics	NELAP	1/8/2002
Trichloroethene (Trichloroethylene)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Trichlorofluoromethane	EPA 624	Volatile Organics	NELAP	1/8/2002
Trichlorofluoromethane	EPA 8260	Volatile Organics	NELAP	7/1/2003
Trichloronate	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	7/1/2003
Turbidity	EPA 180.1	General Chemistry	NELAP	1/8/2002
Turbidity	SM 2130 B	General Chemistry	NELAP	1/3/2012
Un-ionized Ammonia	DEP SOP 10/03/83	General Chemistry	NELAP	1/8/2002
Uranium	EPA 200.8	Metals	NELAP	3/10/2010
Vanadium	EPA 200.7	Metals	NELAP	1/8/2002
Vanadium	EPA 200.8	Metals	NELAP	5/11/2004
Vanadium	EPA 6010	Metals	NELAP	7/1/2003
Vanadium	EPA 6020	Metals	NELAP	1/3/2012
Vinyl acetate	EPA 8260	Volatile Organics	NELAP	7/1/2003
Vinyl chloride	EPA 624	Volatile Organics	NELAP	1/8/2002
Vinyl chloride	EPA 8260	Volatile Organics	NELAP	7/1/2003
Xylene (total)	EPA 624	Volatile Organics	NELAP	1/8/2002
Xylene (total)	EPA 8260	Volatile Organics	NELAP	7/1/2003
Zinc	EPA 200.7	Metals	NELAP	1/8/2002
Zinc	EPA 200.8	Metals	NELAP	5/11/2004
Zinc	EPA 6010	Metals	NELAP	1/8/2002
Zinc	EPA 6020	Metals	NELAP	5/11/2004

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Matrix: **Solid and Chemical Materials**

Analyte	Method/Tech	Category	Certification Type	Effective Date
1,1,1,2-Tetrachloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,1,1-Trichloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,1,2,2-Tetrachloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA 8260	Volatile Organics	NELAP	1/3/2012
1,1,2-Trichloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,1-Dichloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,1-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,1-Dichloropropene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2,3-Trichlorobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2,3-Trichloropropane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2,4-Trichlorobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2,4-Trichlorobenzene	EPA 8270	Extractable Organics	NELAP	1/8/2002
1,2,4-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	1/8/2002
1,2-Dichloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2-Dichloropropane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,2-Diphenylhydrazine	EPA 8270	Extractable Organics	NELAP	1/8/2002
1,3,5-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,3-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,3-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	1/8/2002
1,3-Dichloropropane	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,4-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
1,4-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	1/8/2002
1-Chlorohexane	EPA 8260	Volatile Organics	NELAP	1/3/2012
1-Methylnaphthalene	EPA 8270	Extractable Organics	NELAP	1/3/2012
2,2-Dichloropropane	EPA 8260	Volatile Organics	NELAP	1/8/2002
2,3,4,6-Tetrachlorophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2,4,5-T	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
2,4,5-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2,4,6-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2,4-D	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
2,4-DB	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
2,4-Dichlorophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002

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Matrix: **Solid and Chemical Materials**

Analyte	Method/Tech	Category	Certification Type	Effective Date
2,4-Dimethylphenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2,4-Dinitrophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270	Extractable Organics	NELAP	1/8/2002
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Butanone (Methyl ethyl ketone, MEK)	EPA 8260	Volatile Organics	NELAP	1/8/2002
2-Chloroethyl vinyl ether	EPA 8260	Volatile Organics	NELAP	1/3/2012
2-Chloronaphthalene	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Chlorophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Chlorotoluene	EPA 8260	Volatile Organics	NELAP	1/8/2002
2-Hexanone	EPA 8260	Volatile Organics	NELAP	1/8/2002
2-Methyl-4,6-dinitrophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Methylnaphthalene	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Methylphenol (o-Cresol)	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Naphthylamine	EPA 8270	Extractable Organics	NELAP	1/2/2008
2-Nitroaniline	EPA 8270	Extractable Organics	NELAP	1/8/2002
2-Nitrophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
3,3'-Dichlorobenzidine	EPA 8270	Extractable Organics	NELAP	1/8/2002
3,3-Dimethyl-1-butanol	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
3/4-Methylphenols (m/p-Cresols)	EPA 8270	Extractable Organics	NELAP	1/2/2008
3-Nitroaniline	EPA 8270	Extractable Organics	NELAP	1/8/2002
4,4'-DDD	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
4,4'-DDE	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
4,4'-DDT	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
4-Bromophenyl phenyl ether	EPA 8270	Extractable Organics	NELAP	1/8/2002
4-Chloro-3-methylphenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
4-Chloroaniline	EPA 8270	Extractable Organics	NELAP	1/8/2002
4-Chlorophenyl phenylether	EPA 8270	Extractable Organics	NELAP	1/8/2002
4-Chlorotoluene	EPA 8260	Volatile Organics	NELAP	1/8/2002
4-Methyl-2-pentanone (MIBK)	EPA 8260	Volatile Organics	NELAP	1/8/2002
4-Nitroaniline	EPA 8270	Extractable Organics	NELAP	1/8/2002
4-Nitrophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
Acenaphthene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Acenaphthylene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Acetone	EPA 8260	Volatile Organics	NELAP	1/8/2002
Acetonitrile	EPA 8260	Volatile Organics	NELAP	1/8/2002
Acetophenone	EPA 8270	Extractable Organics	NELAP	1/8/2002

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Matrix: **Solid and Chemical Materials**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Acrolein (Propenal)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Acrylonitrile	EPA 8260	Volatile Organics	NELAP	1/8/2002
Alachlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Aldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Allyl chloride (3-Chloropropene)	EPA 8260	Volatile Organics	NELAP	1/8/2002
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
alpha-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aluminum	EPA 6010	Metals	NELAP	1/8/2002
Ammonia as N	EPA 350.1	General Chemistry	NELAP	8/14/2008
Aniline	EPA 8270	Extractable Organics	NELAP	1/3/2012
Anthracene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Antimony	EPA 6010	Metals	NELAP	1/8/2002
Aroclor-1016 (PCB-1016)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1221 (PCB-1221)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1232 (PCB-1232)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1242 (PCB-1242)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1248 (PCB-1248)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1254 (PCB-1254)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Aroclor-1260 (PCB-1260)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Arsenic	EPA 6010	Metals	NELAP	1/8/2002
Arsenic	EPA 6020	Metals	NELAP	1/3/2012
Aspon	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Atrazine	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Azinphos-ethyl (Ethyl guthion)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Azinphos-methyl (Guthion)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Barium	EPA 6010	Metals	NELAP	1/8/2002
Barium	EPA 6020	Metals	NELAP	1/3/2012
Bentazon	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Benzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Benzidine	EPA 8270	Extractable Organics	NELAP	1/8/2002
Benzo(a)anthracene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Benzo(a)pyrene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Benzo(b)fluoranthene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Benzo(g,h,i)perylene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Benzo(k)fluoranthene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Benzoic acid	EPA 8270	Extractable Organics	NELAP	1/3/2012

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Matrix: **Solid and Chemical Materials**

Analyte	Method/Tech	Category	Certification Type	Effective Date
Benzyl alcohol	EPA 8270	Extractable Organics	NELAP	1/3/2012
Beryllium	EPA 6010	Metals	NELAP	1/8/2002
Beryllium	EPA 6020	Metals	NELAP	1/3/2012
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
bis(2-Chloroethoxy)methane	EPA 8270	Extractable Organics	NELAP	1/8/2002
bis(2-Chloroethyl) ether	EPA 8270	Extractable Organics	NELAP	8/4/2008
bis(2-Chloroisopropyl) ether (2,2'-Oxybis(1-chloropropane))	EPA 8270	Extractable Organics	NELAP	1/8/2002
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 8270	Extractable Organics	NELAP	1/8/2002
Bolstar (Sulprofos)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Boron	EPA 6010	Metals	NELAP	1/8/2002
Bromide	EPA 9056	General Chemistry	NELAP	8/14/2008
Bromobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Bromochloromethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Bromodichloromethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Bromoform	EPA 8260	Volatile Organics	NELAP	1/8/2002
Butyl benzyl phthalate	EPA 8270	Extractable Organics	NELAP	1/8/2002
Cadmium	EPA 6010	Metals	NELAP	1/8/2002
Cadmium	EPA 6020	Metals	NELAP	1/3/2012
Calcium	EPA 6010	Metals	NELAP	1/8/2002
Carbazole	EPA 8270	Extractable Organics	NELAP	1/3/2012
Carbon disulfide	EPA 8260	Volatile Organics	NELAP	1/8/2002
Carbon tetrachloride	EPA 8260	Volatile Organics	NELAP	1/8/2002
Carbophenothion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Chlordane (tech.)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Chlorfenvinphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Chloride	EPA 9056	General Chemistry	NELAP	8/14/2008
Chlorobenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Chloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Chloroform	EPA 8260	Volatile Organics	NELAP	1/8/2002
Chloroprene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Chlorpyrifos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Chlorpyrifos methyl	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Chromium	EPA 6010	Metals	NELAP	1/8/2002
Chromium	EPA 6020	Metals	NELAP	1/3/2012
Chrysene	EPA 8270	Extractable Organics	NELAP	1/8/2002
cis-1,2-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
cis-1,3-Dichloropropene	EPA 8260	Volatile Organics	NELAP	1/8/2002
cis-1,4-Dichloro-2-butene	EPA 8260	Volatile Organics	NELAP	1/3/2012
Cobalt	EPA 6010	Metals	NELAP	1/8/2002
Cobalt	EPA 6020	Metals	NELAP	1/3/2012
Copper	EPA 6010	Metals	NELAP	1/8/2002
Copper	EPA 6020	Metals	NELAP	1/3/2012
Coumaphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Crotoxyphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Cyclohexane	EPA 8260	Volatile Organics	NELAP	1/3/2012
Dalapon	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
delta-BHC	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Demeton-o	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Demeton-s	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Diazinon	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Dibenz(a,h)anthracene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Dibenzofuran	EPA 8270	Extractable Organics	NELAP	1/8/2002
Dibromochloromethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Dibromomethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Dicamba	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Dichlorodifluoromethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Dichlorofenthion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Dichloroprop (Dichlorprop)	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	3/10/2010
Dichlorovos (DDVP, Dichlorvos)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Dicrotophos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Dieldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Diethyl ether	EPA 8260	Volatile Organics	NELAP	1/3/2012
Diethyl phthalate	EPA 8270	Extractable Organics	NELAP	1/8/2002
Di-isopropylether (DIPE)	EPA 8260	Volatile Organics	NELAP	1/3/2012
Dimethoate	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Dimethyl phthalate	EPA 8270	Extractable Organics	NELAP	1/8/2002
Di-n-butyl phthalate	EPA 8270	Extractable Organics	NELAP	1/8/2002
Di-n-octyl phthalate	EPA 8270	Extractable Organics	NELAP	1/8/2002
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Disulfoton	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/2/2008
Endosulfan I	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endosulfan II	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Endosulfan sulfate	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endrin aldehyde	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Endrin ketone	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
EPN	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Ethanol	EPA 8260	Volatile Organics	NELAP	1/8/2002
Ethion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Ethoprop	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Ethyl acetate	EPA 8260	Volatile Organics	NELAP	1/3/2012
Ethyl methacrylate	EPA 8260	Volatile Organics	NELAP	1/8/2002
Ethylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Ethyl-t-butylether (ETBE)	EPA 8260	Volatile Organics	NELAP	1/3/2012
Famphur	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Fecal coliforms	SM 9221 E	Microbiology	NELAP	8/14/2006
Fenitrothion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Fensulfothion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Fenthion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Fluoranthene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Fluorene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Fluoride	EPA 9056	General Chemistry	NELAP	8/14/2008
Fonophos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
gamma-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Heptachlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Heptachlor epoxide	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Hexachlorobenzene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Hexachlorobutadiene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Hexachlorobutadiene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Hexachlorocyclopentadiene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Hexachloroethane	EPA 8270	Extractable Organics	NELAP	1/8/2002
Ignitability	EPA 1010	General Chemistry	NELAP	1/8/2002
Ignitability	EPA 1030	General Chemistry	NELAP	1/8/2002
Indeno(1,2,3-cd)pyrene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Iodomethane (Methyl iodide)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Iron	EPA 6010	Metals	NELAP	1/8/2002
Isobutyl alcohol (2-Methyl-1-propanol)	EPA 8260	Volatile Organics	NELAP	1/8/2002

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Isodrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Isophorone	EPA 8270	Extractable Organics	NELAP	1/8/2002
Isopropylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Kjeldahl nitrogen - total	EPA 351.2	General Chemistry	NELAP	8/14/2008
Lead	EPA 6010	Metals	NELAP	1/8/2002
Lead	EPA 6020	Metals	NELAP	1/3/2012
Leptophos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
m/p-Xylenes	EPA 8260	Volatile Organics	NELAP	1/3/2012
Magnesium	EPA 6010	Metals	NELAP	1/8/2002
Malathion	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Manganese	EPA 6010	Metals	NELAP	1/8/2002
Manganese	EPA 6020	Metals	NELAP	1/3/2012
MCPA	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
MCPP	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Mercury	EPA 7471	Metals	NELAP	1/8/2002
Merphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Methacrylonitrile	EPA 8260	Volatile Organics	NELAP	1/8/2002
Methoxychlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Methyl acetate	EPA 8260	Volatile Organics	NELAP	1/3/2012
Methyl bromide (Bromomethane)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Methyl chloride (Chloromethane)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Methyl methacrylate	EPA 8260	Volatile Organics	NELAP	1/8/2002
Methyl parathion (Parathion, methyl)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Methyl tert-butyl ether (MTBE)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Methylcyclohexane	EPA 8260	Volatile Organics	NELAP	1/3/2012
Methylene chloride	EPA 8260	Volatile Organics	NELAP	1/8/2002
Mevinphos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Mirex	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Molybdenum	EPA 6010	Metals	NELAP	1/8/2002
Monocrotophos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Naled	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Naphthalene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Naphthalene	EPA 8270	Extractable Organics	NELAP	1/8/2002
n-Butyl alcohol	EPA 8260	Volatile Organics	NELAP	1/3/2012
n-Butylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
n-Hexane	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Nickel	EPA 6010	Metals	NELAP	1/8/2002
Nickel	EPA 6020	Metals	NELAP	1/3/2012
Nitrate	EPA 9056	General Chemistry	NELAP	8/14/2008
Nitrate as N	EPA 353.2	General Chemistry	NELAP	7/1/2003
Nitrite	EPA 9056	General Chemistry	NELAP	1/8/2002
Nitrite as N	EPA 353.2	General Chemistry	NELAP	7/1/2003
Nitrobenzene	EPA 8270	Extractable Organics	NELAP	1/8/2002
n-Nitrosodimethylamine	EPA 8270	Extractable Organics	NELAP	1/8/2002
n-Nitrosodi-n-propylamine	EPA 8270	Extractable Organics	NELAP	1/8/2002
n-Nitrosodiphenylamine	EPA 8270	Extractable Organics	NELAP	1/8/2002
n-Propylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Organic nitrogen	TKN minus AMMONIA	General Chemistry	NELAP	1/3/2012
Orthophosphate as P	EPA 9056	General Chemistry	NELAP	8/14/2008
o-Xylene	EPA 8260	Volatile Organics	NELAP	1/3/2012
Paint Filter Liquids Test	EPA 9095	General Chemistry	NELAP	1/8/2002
Parathion, ethyl	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
p-Dioxane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Pentachloroethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Pentachlorophenol	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Pentachlorophenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
pH	EPA 9040	General Chemistry	NELAP	1/8/2002
pH	EPA 9045	General Chemistry	NELAP	1/8/2002
Phenanthrene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Phenol	EPA 8270	Extractable Organics	NELAP	1/8/2002
Phorate	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Phosmet (Imidan)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Phosphamidon	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Phosphorus, total	EPA 365.4	General Chemistry	NELAP	8/14/2008
Picloram	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
p-Isopropyltoluene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Potassium	EPA 6010	Metals	NELAP	1/8/2002
Propionitrile (Ethyl cyanide)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Pyrene	EPA 8270	Extractable Organics	NELAP	1/8/2002
Pyridine	EPA 8270	Extractable Organics	NELAP	1/8/2002
Residue-total	SM 2540 G	General Chemistry	NELAP	5/11/2004
Ronnel	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012

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Analyte	Method/Tech	Category	Certification Type	Effective Date
sec-Butylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Selenium	EPA 6010	Metals	NELAP	1/8/2002
Selenium	EPA 6020	Metals	NELAP	1/3/2012
Silver	EPA 6010	Metals	NELAP	1/8/2002
Silvex (2,4,5-TP)	EPA 8151	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Simazine	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Sodium	EPA 6010	Metals	NELAP	1/8/2002
Stirofos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Strontium	EPA 6010	Metals	NELAP	1/8/2002
Styrene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Sulfate	EPA 9056	General Chemistry	NELAP	8/14/2008
Sulfide	EPA 9030/9034	General Chemistry	NELAP	1/8/2002
Sulfotepp	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Synthetic Precipitation Leaching Procedure	EPA 1312	General Chemistry	NELAP	1/8/2002
T-amylmethylether (TAME)	EPA 8260	Volatile Organics	NELAP	1/3/2012
Terbufos	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
tert-Amyl alcohol (2-methyl-2-butanol)	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
tert-Butyl alcohol	EPA 8260	Volatile Organics	NELAP	1/3/2012
tert-Butyl formate	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
tert-Butylbenzene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Tetrachloroethylene (Perchloroethylene)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Tetraethyl pyrophosphate (TEPP)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Tetrahydrofuran (THF)	EPA 8260	Volatile Organics	NELAP	1/3/2012
Tetrahydrofuran (THF)	PACE SOP S-FL-O-037/GC-MS	Volatile Organics	NELAP	1/3/2012
Thallium	EPA 6010	Metals	NELAP	1/8/2002
Thallium	EPA 6020	Metals	NELAP	1/3/2012
Thionazin (Zinophos)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Tin	EPA 6010	Metals	NELAP	1/8/2002
Titanium	EPA 6010	Metals	NELAP	3/15/2013
Tokuthion (Prothiophos)	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Toluene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Total cyanide	EPA 9012	General Chemistry	NELAP	1/8/2002
Total nitrate-nitrite	EPA 353.2	General Chemistry	NELAP	7/1/2003
Total nitrate-nitrite	EPA 9056	General Chemistry	NELAP	1/8/2002
Total nitrogen	TKN + Total nitrate-nitrite	General Chemistry	NELAP	1/3/2012

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Analyte	Method/Tech	Category	Certification Type	Effective Date
Total Petroleum Hydrocarbons (TPH)	FL-PRO	Extractable Organics	NELAP	1/8/2002
Total phenolics	EPA 9066	General Chemistry	NELAP	1/8/2002
Toxaphene (Chlorinated camphene)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Toxicity Characteristic Leaching Procedure	EPA 1311	General Chemistry	NELAP	1/8/2002
trans-1,2-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	1/8/2002
trans-1,3-Dichloropropene	EPA 8260	Volatile Organics	NELAP	1/8/2002
trans-1,4-Dichloro-2-butene	EPA 8260	Volatile Organics	NELAP	1/8/2002
Trichlorfon	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/3/2012
Trichloroethene (Trichloroethylene)	EPA 8260	Volatile Organics	NELAP	12/22/2010
Trichlorofluoromethane	EPA 8260	Volatile Organics	NELAP	1/8/2002
Trichloronate	EPA 8141	Pesticides-Herbicides-PCB's	NELAP	1/8/2002
Vanadium	EPA 6010	Metals	NELAP	1/8/2002
Vanadium	EPA 6020	Metals	NELAP	1/3/2012
Vinyl acetate	EPA 8260	Volatile Organics	NELAP	1/8/2002
Vinyl chloride	EPA 8260	Volatile Organics	NELAP	1/8/2002
Xylene (total)	EPA 8260	Volatile Organics	NELAP	1/8/2002
Zinc	EPA 6010	Metals	NELAP	1/8/2002
Zinc	EPA 6020	Metals	NELAP	1/3/2012

Florida
HEALTH
State of Florida

Department of Health, Bureau of Public Health Laboratories

This is to certify that

E84167

BENCHMARK ENVIROANALYTICAL, INC.
1711 12TH STREET EAST
PALMETTO, FL 34221

has complied with Florida Administrative Code 64E-1,
for the examination of environmental samples in the following categories

DRINKING WATER - GROUP I UNREGULATED CONTAMINANTS, DRINKING WATER - GROUP II UNREGULATED CONTAMINANTS, DRINKING WATER - MICROBIOLOGY, DRINKING WATER - OTHER REGULATED CONTAMINANTS, DRINKING WATER - PRIMARY INORGANIC CONTAMINANTS, DRINKING WATER - SECONDARY INORGANIC CONTAMINANTS, DRINKING WATER - SYNTHETIC ORGANIC CONTAMINANTS, NON-POTABLE WATER - EXTRACTABLE ORGANICS, NON-POTABLE WATER - MICROBIOLOGY, NON-POTABLE WATER - GENERAL CHEMISTRY, NON-POTABLE WATER - METALS, NON-POTABLE WATER - VOLATILE ORGANICS, SOLID AND CHEMICAL MATERIALS - GENERAL CHEMISTRY, SOLID AND CHEMICAL MATERIALS - METALS, SOLID AND CHEMICAL MATERIALS - MICROBIOLOGY

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 cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Public Health 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.

Date Issued: July 01, 2013 Expiration Date: June 30, 2014

Victor Johnson

Victor Johnson, Director
Division of Emergency Preparedness and Community Support
DH Form 1697, 7/04
NON-TRANSFERABLE E84167-26-07/01/2013
Supersedes all previously issued certificates

Florida HEALTH

State of Florida

Department of Health, Bureau of Public Health Laboratories

This is to certify that

E85086

BENCHMARK EA SOUTH
1001 CORPORATE AVENUE, SUITE 102
NORTH PORT, FL 34289

has complied with Florida Administrative Code 64E-1,
for the examination of environmental samples in the following categories

DRINKING WATER - MICROBIOLOGY, DRINKING WATER - PRIMARY INORGANIC CONTAMINANTS, NON-POTABLE WATER - GENERAL CHEMISTRY, NON-POTABLE WATER - MICROBIOLOGY

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 cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Public Health 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.

Date Issued: July 01, 2013 Expiration Date: June 30, 2014

Victor Johnson

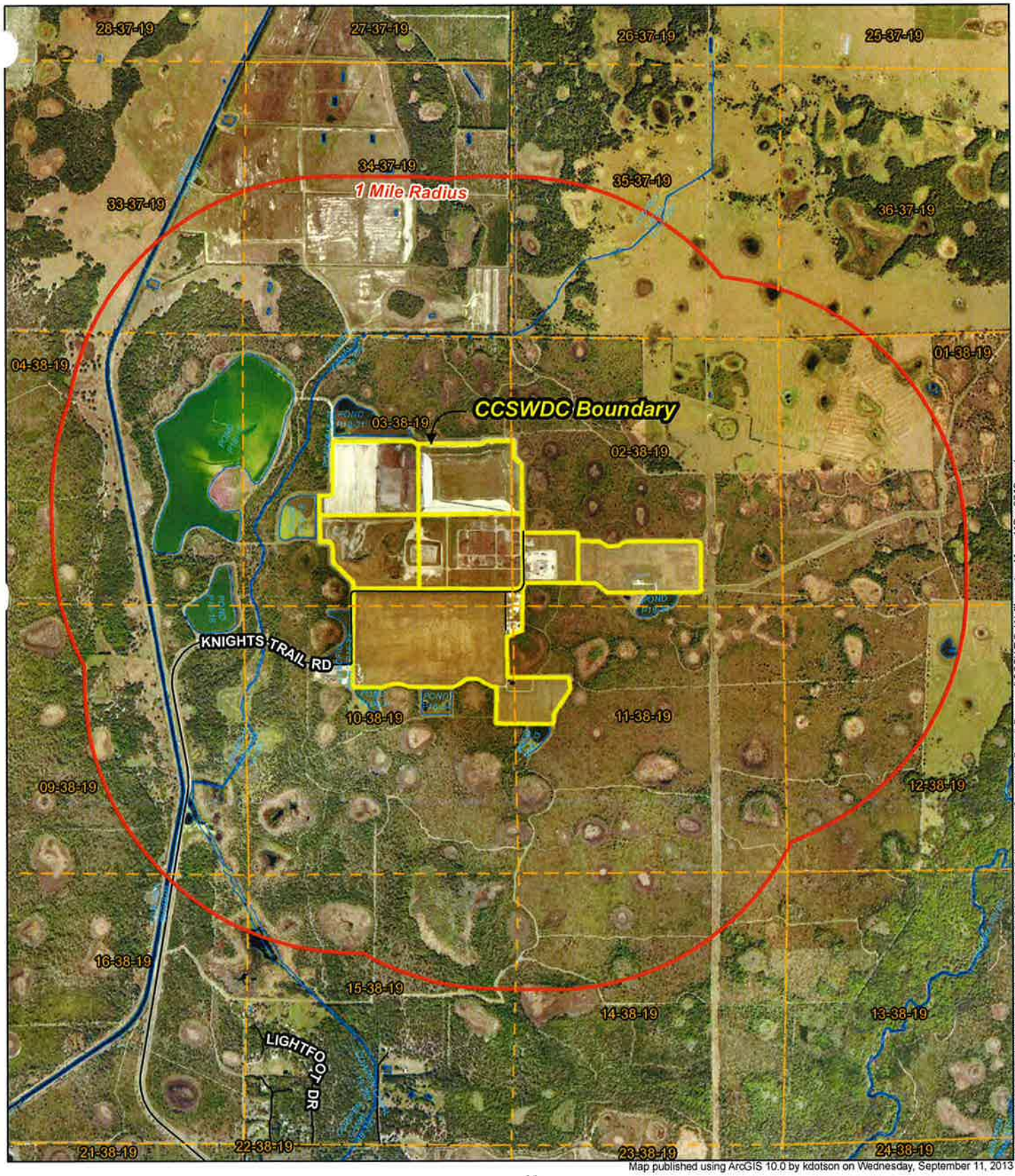
Victor Johnson, Director
Division of Emergency Preparedness and Community Support
DH Form 1697, 7/04
NON-TRANSFERABLE E85086-14-07/01/2013
Supersedes all previously issued certificates

ATTACHMENT G

SWFWMD WATER WELL INVENTORY

Central County Solid Waste Disposal Complex

Well Inventory Map



Map published using ArcGIS 10.0 by kdotson on Wednesday, September 11, 2013

Path: N:\Environmental\Solid Waste\Central Landfill\CCSWDC Solid Waste Operation Permit Renewal\CCSWDC_WellInventoryMap_11Sep2013.mxd

Sarasota County
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Aerial Imagery Provided by Pictometry International:
Sarasota County, FL
February 2013
4" Resolution
N.A.D. 1983 HARN State Plane Florida West FIPS 0902 (U.S. Survey Feet)

N
W E
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0 0.25 0.5
Miles

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Water Well Inventory for Area Surrounding Central County Solid Waste Disposal Complex

Permit #	Permit Status	Owner	Well Location Street	Contractor	Well Use	County	Section	Township	Range	Diameter	Static Water Level	Casing Depth	Depth	Application Received On	Well Completion On
821720	Completed	Sarasota County	4000 KNIGHTS TRAIL RD	Daniel Peace	REPAIR IRRIGATION	SARASOTA	3	38	19	2	9	14	24	5/29/2012 1:36 PM	8/8/2012
821716	Completed	Sarasota County	4000 KNIGHTS TRAIL RD	Daniel Peace	REPAIR IRRIGATION	SARASOTA	3	38	19	2	14	14	24	5/29/2012 1:24 PM	8/8/2012
813400	Completed	Sarasota County OFF OF MNGMT & BUDGET	3445 RUSTIC RD	Daniel Peace	PLUGGING	SARASOTA	21	38	19	2	6.45	8.7	8.7	6/8/2011 12:54 PM	6/15/2011
812938	Completed	SARASOTA COUNTY	4000 KNIGHTS TRAIL RD	Keith W. Myers	PLUGGING	SARASOTA	34	37	19	12	1	481	600	5/23/2011 10:42 AM	7/13/2011
812936	Completed	Sarasota County Board of County	4000 KNIGHTS TRAIL RD	Keith W. Myers	PLUGGING	SARASOTA	34	37	19	12	1	477	756	5/23/2011 10:30 AM	7/13/2011
812935	Completed	Sarasota County Board of County	4000 KNIGHTS TRAIL RD	Keith W. Myers	PLUGGING	SARASOTA	34	37	19	12	12	479	652	5/23/2011 10:03 AM	7/13/2011
808020	Completed	Sarasota County Utilities	1800 MABRY CARLTON PKWY	Stuart C Anderson	MONITOR (OR PIEZOMETER)	SARASOTA	23	38	19	6	0	275	442	10/12/2010 11:09 AM	1/10/2011
808019	Completed	Sarasota County	1800 MABRY CARLTON PKWY	Stuart C Anderson	MONITOR (OR PIEZOMETER)	SARASOTA	23	38	19	2	2	5, 15	15	10/12/2010 11:04 AM	10/18/2010
807973	Completed	Sarasota County	1800 MABRY CARLTON PKWY	Stuart C Anderson	PUBLIC WATER SUPPLY	SARASOTA	23	38	19	16	0	275	440	10/8/2010 1:50 PM	11/19/2010
807843	Completed	Sarasota County	4000 KNIGHTS TRAIL ROAD	Christopher M Galetti	MONITOR (OR PIEZOMETER)	SARASOTA	3	38	19	2	8.3	17	17.5	10/4/2010 2:07 PM	10/25/2010
807680	Completed	Sarasota County	3445 RUSTIC RD	Christopher M Galetti	MONITOR (OR PIEZOMETER)	SARASOTA	21	38	19	2	3	10	10	9/24/2010 1:57 PM	9/29/2010
807678	Completed	Sarasota County	3445 RUSTIC RD	Christopher M Galetti	MONITOR (OR PIEZOMETER)	SARASOTA	21	38	19	2	1.5	10	10	9/24/2010 1:23 PM	9/29/2010
806164	Completed	Sarasota County	KNIGHTS TRAIL RD	Gregory W Campbell	MONITOR (OR PIEZOMETER)	SARASOTA	34	37	19	2	5	4	14	7/7/2010 5:14 PM	7/15/2010
805260	Completed	Sarasota County	KNIGHTS TRAIL RD	Christopher M Galetti	MONITOR (OR PIEZOMETER)	SARASOTA	3	38	19	2	0	15	15	5/27/2010 12:03 PM	6/9/2010
805259	Completed	Sarasota County	KNIGHTS TRAIL RD	Christopher M Galetti	MONITOR (OR PIEZOMETER)	SARASOTA	3	38	19	2	0	15	15	5/27/2010 11:57 AM	6/9/2010
802023	Completed	Sarasota County Office Of Mgmt & Budget	3445 Rustic Rd	Daniel Peace	MONITOR (OR PIEZOMETER)	SARASOTA	16	38	19	2	8.3	11	21	1/12/2010 2:17 PM	1/15/2010
787295	Completed	Cemex Construction Matl Fl LLC	700 GENE GREEN RD	Ronald Young	IRRIGATION COMMERCIAL	SARASOTA	22	38	19					9/17/2009 12:13 PM	
786332	Completed	Sarasota County Board of County Commissioner	1800 MABRY CARLTON PKWY	Jeffrey J Hausinger	REPAIR DOMESTIC	SARASOTA	19	38	20	16	1	305	720	7/28/2009 3:21 PM	11/13/2009
785263	Completed	Sarasota County	4000 KNIGHTS TRAIL RD	Daniel Peace	MONITOR (OR PIEZOMETER)	SARASOTA	3	38	19	2	17.04	8.8	18.8	6/11/2009 10:42 AM	6/16/2009
782465	Completed	Sarasota County Off Mgmt & Budge	3445 RUSTIC RD	James A Bennett	MONITOR (OR PIEZOMETER)	SARASOTA	16	38	19	2	4.9	5.5	10.5	3/5/2009 8:09 AM	3/12/2009
782464	Completed	Sarasota County Off Mgmt & Budge	3445 RUSTIC RD	James A Bennett	MONITOR (OR PIEZOMETER)	SARASOTA	16	38	19	2	0	6	18	3/5/2009 8:01 AM	3/11/2009
782463	Completed	Sarasota County Off Mgmt & Budge	3445 RUSTIC RD	James A Bennett	MONITOR (OR PIEZOMETER)	SARASOTA	9	38	19	2	3.7	4.5	16	3/5/2009 7:48 AM	3/10/2009
782460	Completed	Sarasota County Off Mgmt & Budge	3445 RUSTIC RD	James A Bennett	MONITOR (OR PIEZOMETER)	SARASOTA	9	38	19	2	7.1	10	20	3/5/2009 7:21 AM	3/10/2009
782451	Completed	Sarasota County Off Mgmt & Budge	4000 KNIGHTS TRAIL RD	James A Bennett	MONITOR (OR PIEZOMETER)	SARASOTA	4	38	19	2	7.5	11	16	3/4/2009 4:21 PM	3/11/2009
782367	Completed	Sarasota County Off Mgmt & Budge	4000 KNIGHTS TRAIL RD	James A Bennett	PLUGGING	SARASOTA	3	38	19	2	10.8	19.8	19.8	3/2/2009 2:40 PM	3/4/2009
781354	Completed	Sarasota County	4000 KNIGHTS TRAIL RD	James A Bennett	PLUGGING	SARASOTA	3	38	19	2	10.9	15	15	1/23/2009 9:40 AM	1/27/2009
781350	Completed	Sarasota County	4000 KNIGHTS TRAIL RD	James A Bennett	PLUGGING	SARASOTA	3	38	19	2	7.2	10.8	10.8	1/23/2009 9:33 AM	1/27/2009
781344	Completed	Sarasota County	4000 KNIGHTS TRAIL RD	James A Bennett	PLUGGING	SARASOTA	3	38	19	2	6.6	15.4	15.4	1/23/2009 9:18 AM	1/27/2009
781339	Completed	Sarasota County	4000 KNIGHTS TRAIL RD	James A Bennett	PLUGGING	SARASOTA	3	38	19	2	10.2	19.3	19.3	1/23/2009 8:23 AM	1/27/2009
780458	Completed	Smith Center Theraputic Riding I	1621 RANCH RD	Samuel T Parrish	IRRIGATION COMMERCIAL	SARASOTA	20	38	19	4	20	48	170	12/11/2008 10:19 AM	12/18/2008
771964	Completed	Sarasota Co Budget & Mgmt Office	MABRY CARLTON PKWY	Robert J Kohlmeier	MONITOR (OR PIEZOMETER)	SARASOTA	19	38	20	6	0	275	420	3/5/2008 7:54 AM	3/11/2008
770320	Completed	Sarasota County Off Mgmt & Budge	4000 KNIGHTS TRAIL RD	Randy H. Conrad	MONITOR (OR PIEZOMETER)	SARASOTA	10	38	19	2	4	2	12	1/17/2008 11:24 AM	1/24/2008
769327	Completed	Sarasota County Board of County Commissioner	1800 MABRY CARLTON PKWY	Robert J Kohlmeier	MONITOR (OR PIEZOMETER)	SARASOTA	19	38	20	16	0	275	420	12/12/2007 8:54 AM	2/26/2008
767736	Completed	Sarasota Co	1255 MABRY CARLTON PKWY	Robert J Kohlmeier	MONITOR (OR PIEZOMETER)	SARASOTA	19	38	20					10/25/2007 2:00 PM	
767732	Completed	Sarasota County	1255 MABRY CARLTON PKWY	Robert J Kohlmeier	MONITOR (OR PIEZOMETER)	SARASOTA	19	38	20	6	0	110	170	10/25/2007 1:46 PM	2/14/2008
766634	Completed	Sarasota Co Mgmt Office	500 GENE GREEN RD	Christopher M Galetti	MONITOR (OR PIEZOMETER)	SARASOTA	23	38	19	2	0	22, 24	30	9/26/2007 12:04 PM	9/30/2007
765640	Completed	Sarasota Co Mgmt Office	500 GENE GREEN RD	Christopher M Galetti	MONITOR (OR PIEZOMETER)	SARASOTA	23	38	19	2	1	30, 40	40	8/28/2007 2:42 PM	8/31/2007
765639	Completed	Sarasota Co Mgmt Office	500 GENE GREEN RD	Christopher M Galetti	MONITOR (OR PIEZOMETER)	SARASOTA	23	38	19	2	0	17, 19	25	8/28/2007 2:36 PM	8/31/2007
765637	Completed	Sarasota Co Mgmt Office	500 GENE GREEN RD	Christopher M Galetti	MONITOR (OR PIEZOMETER)	SARASOTA	23	38	19	2	0	2, 10	10	8/28/2007 2:32 PM	8/31/2007
765636	Completed	Sarasota Co Mgmt Office	500 GENE GREEN RD	Christopher M Galetti	MONITOR (OR PIEZOMETER)	SARASOTA	23	38	19	2	0	29, 27	35	8/28/2007 2:28 PM	8/31/2007
765633	Completed	Sarasota Co Mgmt Office	500 GENE GREEN RD	Christopher M Galetti	MONITOR (OR PIEZOMETER)	SARASOTA	23	38	19	2	0	29, 27	37	8/28/2007 2:20 PM	8/31/2007
765631	Completed	Sarasota Co Mgmt Office	500 GENE GREEN RD	Christopher M Galetti	SOIL BORINGS	SARASOTA	23	38	19	4	0	50	50	8/28/2007 2:13 PM	8/29/2007
761088	Completed	Sarasota Co Central Solid Waste	4000 KNIGHTS TRAIL RD	Michael Gribble	PLUGGING	SARASOTA	2	38	19	2	0	15	15	5/22/2007 11:11 AM	5/23/2007
761072	Completed	Sarasota Co Central Solid Waste	4000 KNIGHTS TRAIL RD	Michael Gribble	MONITOR (OR PIEZOMETER)	SARASOTA	2	38	19	2	0	2	15	5/22/2007 9:17 AM	5/23/2007
751928	Completed	Lawrence E Sibley	202 LAUREL OAKS ROAD	Stacey Adams	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	22	38	19	4	8	42	88	11/30/2006	12/15/2006
751529	Completed	Greg R & Jane Whittier	8323 LIGHT FOOT DR NOKOMIS	Stacey Adams	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	15	38	19	4	14	47	89	11/21/2006	11/29/2006
747147	Completed	Sarasota County Board of County Commissioner	4000 KNIGHTS TRAIL RD	James A Bennett	REMEDIATION - AIR SPARGING	SARASOTA	3	38	19	2	4.6	5	15	8/30/2006	9/26/2006
747152	Completed	Sarasota County Board of County Commissioner	4000 KNIGHTS TRAIL RD	James A Bennett	REMEDIATION - AIR SPARGING	SARASOTA	3	38	19	2	9.35	60	70	8/30/2006	9/29/2006
747150	Completed	Sarasota County Board of County Commissioner	4000 KNIGHTS TRAIL RD	James A Bennett	REMEDIATION - AIR SPARGING	SARASOTA	3	38	19	2	8.85	60	70	8/30/2006	10/2/2006
745908	Completed	William & Karen Kuchar	LAUREL OAKS ROAD	Ronald Reese	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	15	38	19	4	2	43	120	8/11/2006	9/18/2006
732541	Completed	Miami Valley Ready Mix Of Fla	500 GENE GREEN ROAD	David D Cannon	PLUGGING	SARASOTA	22	38	19	4		400	400	1/11/2006	2/16/2006
725082	Denied	Miami Valley Ready Mix Of Fla	500 GENE GREEN ROAD	David D Cannon	PLUGGING	SARASOTA	22	38	19	4				8/23/2005	
724457	Completed	Carol J Graham	2405 UPPAKRIK LANE	Benjamin S Saxby	IRRIGATION	SARASOTA	20	38	19	4		63	96	8/15/2005	8/23/2005
724659	Completed	Miami Valley Concrete Company	500 GENE GREEN RD	David D Cannon		SARASOTA	22	38	19	5		180	300	8/9/2005	9/27/2005
719354	Completed	Paul & Stephanie Cettei	225 LAUREL OAKS ROAD	Benjamin S Saxby	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	15	38	19	4		58	147	5/5/2005	5/19/2005
706683	Completed	Sondra Salus	2215 KNIGHTS TRAIL ROAD	Benjamin S Saxby	IRRIGATION	SARASOTA	21	38	19	5		76	176	9/7/2004	9/16/2004
703607	Completed	Steven A Graszl	2406 UPPAKRIK LANE	James J Lloyd	IRRIGATION	SARASOTA	20	38	19	4	20	49	88	6/30/2004	7/9/2004
698084	Completed	George & Susan Aristizabal	1526 EWING STREET	Benjamin S Saxby	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	20	38	19	4		58	97	3/23/2004	3/30/2004
698082	Completed	George & Susan Aristizabal	1526 EWING STREET/NE 140' OF 113	Benjamin S Saxby	PLUGGING	SARASOTA	20	38	19	4		91	91	3/23/2004	4/21/2004
697016	Completed	Marjorie A Bryson	1598 RANCH ROAD	Martin G. Fabiszak	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	20	38	19	4	15	55	90	3/2/2004	6/11/2004
687658	Completed	Rodney Green Homes	2415 UPPAKRIK LANE	Stacey Adams	IRRIGATION	SARASOTA	20	38	19	4	15	50	98	7/24/2003	7/26/2003
683866	Completed	Lisa & Barbara Mccarthy	1588 RANCH ROAD	Darryl Adams	IRRIGATION	SARASOTA	20	38	19	4		50	120	4/25/2003	4/27/2003
678438	Completed	Anthony Fiore Construction Inc	2401 UPPAKRIK LANE	Howard Adkins	IRRIGATION	SARASOTA	20	38	19	4	18	40	155	12/5/2002	12/19/2002
671512	Completed	Michael & Janet Boyle	9571 KNIGHTSBRIDGE CIRCLE	Harry B Hall	IRRIGATION	SARASOTA	34	37	19	4	25	42	120	6/25/2002	6/30/2002
669389	Completed	Steve & Jill Armstrong	3452 RUSIC RD NOKOMIS	Darryl Adams	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19	4		66	97	5/17/2002	5/20/2002
666396	Completed	Rodney Green	2410 UPPAKRIK LANE	Darryl Adams	IRRIGATION	SARASOTA	20	38	19	4	20	60	106	3/19/2002	3/21/2002
659675	Completed	Mission Valley Country Club	1851 MISSION VALLEY BOULEVARD	Jim Edwards	REMEDIATION - AIR SPARGING	SARASOTA	24	38	19	2		2	12	10/8/2001	10/9/2001
659676	Denied	Mission Valley Country Club	1851 MISSION VALLEY BOULEVARD	Jim Edwards	REMEDIATION - AIR SPARGING	SARASOTA	24	38	19					10/8/2001	

Water Well Inventory for Area Surrounding Central County Solid Waste Disposal Complex

Permit #	Permit Status	Owner	Well Location Street	Contractor	Well Use	County	Section	Township	Range	Diameter	Static Water Level	Casing Depth	Depth	Application Received Dt	Well Completion Dt
649392	Completed	Stephen And Mary Deans	RUSTIC ROAD	Michael Neri		SARASOTA	20	38	19	4	15	46	156	3/5/2001	5/17/2001
636576	Completed	Sondra L Salus	1180 KNIGHTS TRAIL	Michael Neri	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19	4	6	57	120	5/24/2000	5/26/2000
636213	Completed	R Gene Smith	500 GENE GREEN ROAD	Timothy Pitts	PLUGGING	SARASOTA	23	38	19	2		15	15	5/17/2000	5/18/2000
635401	Completed	R Gene Smith	500 GENE GREEN ROAD	Timothy Pitts	PUBLIC WATER SUPPLY	SARASOTA	22	38	19	4	1.5	300	320	4/26/2000	6/15/2000
635399	Completed	R Gene Smith	500 GENE GREEN RD	Timothy Pitts	PUBLIC WATER SUPPLY	SARASOTA	22	38	19	4		60	70	4/26/2000	6/21/2000
634437	Completed	Mary Jo Pattison	RUSTIC ROAD	Harry B Hall	IRRIGATION	SARASOTA	21	38	19	4	20	63	108	4/14/2000	4/20/2000
633562	Completed	Lawrence & Denise Sibley	202 LAUREL OAKS ROAD	Stacey Adams	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	15	38	19	4	16	50	98	3/28/2000	4/5/2000
632494	Completed	R Gene Smith	500 GENE GREEN ROAD	Timothy Pitts	PLUGGING	SARASOTA	23	38	19	3		75	75	3/3/2000	3/8/2000
629424	Completed	Gene R Smith	500 GENE GREEN ROAD	David I. Griffey	REMEDIATION - AIR SPARGING	SARASOTA	22	38	19	2		2	13	12/21/1999	12/28/1999
624588	Completed	Greg & Janey Whittier	221 LAUREL OAKS ROAD	Darryl Adams	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	15	38	19	4	10	44	86	8/19/1999	8/22/1999
622901	Completed	Robert & Leonor Durst	2342 SENOMA DRIVE/UNIT 2	William Diegel	IRRIGATION	SARASOTA	24	38	19	4	25	57	100	7/13/1999	7/16/1999
616235	Completed	Sarasota County Physical Plant Services	3445 RUSTIC ROAD	Earl R Milum		SARASOTA	21	38	19	4		2	2	3/2/1999	3/5/1999
615880	Completed	Ajax Paving Industries, Inc.	500 GENE GREEN-ADM. BUILDING	Michael Neri	PUBLIC WATER SUPPLY	SARASOTA	22	38	19	4	7	55	80	2/19/1999	3/17/1999
615879	Completed	Ajax Paving Industries, Inc.	500 GENE GREEN	Michael Neri	PUBLIC WATER SUPPLY	SARASOTA	22	38	19	4	3	55	80	2/19/1999	8/17/1999
609897	Completed	Sarasota County Board of County Commissioner	4000 KNIGHTS TRAIL, NOKOMIS	Bob Matthews	REMEDIATION - AIR SPARGING	SARASOTA	17	38	19	1	7	2	7	9/1/1998	9/1/1998
609749	Completed	Meyer And Gabbert Excavating Contractors Inc	4000 KNIGHTS TRAIL/WASTE COMPLEX	Samuel T Parrish	PUBLIC WATER SUPPLY	SARASOTA	2	38	19	4	12	60	130	8/28/1998	9/22/1998
606128	Completed	James F & Nancy J Blem	MISSION VALLEY BLVD OFF EWING	Michael Neri	IRRIGATION	SARASOTA	20	38	19	4	19	49	100	5/21/1998	6/22/1998
605594	Completed	Sarasota County Environmental Utilities	KNIGHTS TRAIL ROAD	Leroy Dyer	PLUGGING	SARASOTA	16	38	19	4		86	86	5/12/1998	5/19/1998
600868	Completed	Dr. Stephen Wahl	433 EAST MAC EWEN DRIVE	Earl R Milum	IRRIGATION	SARASOTA	2	38	19	4		51	110	12/26/1997	12/31/1997
600393	Completed	Donald M & Sherril E Farr	FISHERMAN'S BAY DRIVE	George Hacking	SOIL BORINGS	SARASOTA	33	37	19	2	2.7	40	49.4	12/10/1997	12/15/1997
597561	Completed	Sarasota County Environmental Utilities	KNIGHTS TRAIL & RUSTIC ROAD	Bob Matthews	PLUGGING	SARASOTA	14	38	19	2		16	16	9/23/1997	9/25/1997
594168	Completed	Sarasota County Board of County Commissioner	4000 KNIGHTS TRAIL ROAD	William B Ziegler	IRRIGATION	SARASOTA	11	38	19	5	7.5	72	90	6/24/1997	10/10/1997
592314	Denied	Steve Dvoskin Clarke Dvoskin	3130 WALTER TRAVIS DRIVE	Tyrone Harris	IRRIGATION	SARASOTA	32	37	19					5/7/1997	
592186	Completed	Sarasota County Environmental Utilities	KNIGHT TRAIL & RUSTIC ROAD	Bob Matthews	REMEDIATION - AIR SPARGING	SARASOTA	10	38	19	2	12	8.5	19	5/6/1997	5/16/1997
592182	Completed	Sarasota County Environmental Utilities	KNIGHT TRAIL & RUSTIC ROAD	Bob Matthews	PUBLIC WATER SUPPLY	SARASOTA	10	38	19	5	9.7	67	100	5/2/1997	5/6/1997
592179	Completed	Sarasota County Environmental Utilities	4000 KNIGHT TRAIL & RUSTIC ROAD	Bob Matthews	PUBLIC WATER SUPPLY	SARASOTA	11	38	19	5	10.6	66	100	5/2/1997	5/7/1997
585892	Completed	Cliff Wallace Jr	220 LAUREL OAK'S ROAD	Darryl Adams	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	15	38	19	4	6	40	80	11/21/1996	11/24/1996
585353	Completed	Brian Oconner	2355 MISSION VALLEY BOULEVARD	Harry B Hall	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	20	38	19	4	10	63	90	11/12/1996	11/14/1996
585309	Completed	Sarasota Co	KNIGHTS TRAIL & RUSTIC ROAD	Bob Matthews	PLUGGING	SARASOTA	14	38	19	2		18	18	11/12/1996	2/27/1997
585293	Completed	Sarasota Co	KNIGHTS TRAIL & RUSTIC ROAD	Bob Matthews	PLUGGING	SARASOTA	14	38	19	2		17	17	11/7/1996	2/27/1997
581240	Denied	Jeff Chadwick	MCINTOSH & VALLEY BOULEVARD	Stacey Adams	IRRIGATION	SARASOTA	20	38	19					6/27/1996	
579666	Completed	Sarasota Co Solid Waste Dept	COW PEN SLOUGH	Bob Matthews	REMEDIATION - AIR SPARGING	SARASOTA	2	38	19	2	3	4	6.5	5/15/1996	5/28/1996
579198	Completed	Robert Schulman Susan Schulman	3154 WALTER TRAVIS DRIVE	Stacey Adams	IRRIGATION	SARASOTA	32	37	19	4	22	71	165	5/3/1996	5/25/1996
576529	Completed	Sarasota Co Bocc C/O Utilities Dept	KNIGHT'S TRAIL & RUSTIC ROAD	Bob Matthews	PLUGGING	SARASOTA	14	38	19	2	1	10	10	2/1/1996	2/1/1996
575424	Completed	Allan Redmon	KNIGHTS TRAIL ROAD	Harry B Hall	IRRIGATION	SARASOTA	21	38	19	4	2	41	90	1/18/1996	1/18/1996
574379	Completed	Apac-Florida, Inc.	520 GENE GREEN ROAD	Anthony Guest	PUBLIC WATER SUPPLY	SARASOTA	22	38	19	4	6	61	150	12/1/1995	12/7/1995
566949	Completed	Walter Mannini	249 SHELL MIDDEN COURT	Earl R Milum	IRRIGATION	SARASOTA	3	38	19	4		40	120	5/3/1995	5/9/1995
564551	Completed	Sarasota County Environmental Utilities	KNIGHTS TRAIL & RUSTIC ROAD	Bob Matthews	PLUGGING	SARASOTA	14	38	19	2		17	17	3/6/1995	4/6/1995
562618	Completed	Pat Munz	523 MIRO CIRCLE	William Diegel		SARASOTA	23	38	19	4			113	1/10/1995	1/12/1995
561802	Completed	Sarasota County Environmental Utilities	CORNER OF KNIGHT'S TRAIL & RUSTE	Bob Matthews	PLUGGING	SARASOTA	14	38	19	2		21	21	12/20/1994	2/28/1995
559489	Completed	Sarasota County Solid Waste	101 SOUTH WASHINGTON BOULEVARD	James A Bennett	REMEDIATION - AIR SPARGING	SARASOTA	9	38	19	4		4.5	6	10/21/1994	10/21/1994
558296	Completed	Ajax Paving Industries Inc	500 HAUL RD	John R Shrode	IRRIGATION	SARASOTA	22	38	19	3	7	13	17	9/22/1994	9/23/1994
558378	Completed	Hubbard Construction	105 N FALKENBURG SUITE D	Robert Adkins	PUBLIC WATER SUPPLY	SARASOTA	16	38	19	4	7	68	86	8/30/1994	9/3/1994
555189	Completed	Mike Hughes Building	2351 MISSION VALLEY BOULEVARD	Michael Neri	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	20	38	19	4	24	53	97	7/8/1994	7/13/1994
555190	Completed	John Holmes	480 BLACKBURN POINT ROAD	Michael Neri	IRRIGATION	SARASOTA	1	38	19	4	4	57	100	7/8/1994	10/27/1994
554584	Completed	Ron Sepanski	104 TINA ISLAND DRIVE	Michael Neri		SARASOTA	23	38	19	4	12		170	6/23/1994	6/29/1994
552841	Completed	Boardwalk Properties	1811 ENGLEWOOD ROAD STE 268	Robert Adkins	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19	4	8	41	105	5/20/1994	6/9/1994
551721	Completed	Sarasota Co Solid Waste Dept	8350 BEE RIDGE RD	James A Bennett		SARASOTA	10	38	19	2		4	10	4/26/1994	4/30/1994
550232	Completed	Jessie Cristello	1970 BARBARA DRIVE	Paul D Milum	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19	4	11	45	90	3/30/1994	4/22/1994
550281	Completed	Sarasota County Solid Waste	101 SOUTH WASHINGTON BOULEVARD	Bob Matthews	REMEDIATION - AIR SPARGING	SARASOTA	2	38	19	2		2	10	3/29/1994	4/5/1994
550282	Completed	Sarasota County Solid Waste	101 SOUTH WASHINGTON BOULEVARD	Bob Matthews	REMEDIATION - AIR SPARGING	SARASOTA	3	38	19	2		2	11	3/29/1994	4/5/1994
550283	Completed	Sarasota County Solid Waste	101 SOUTH WASHINGTON BOULEVARD	Bob Matthews	REMEDIATION - AIR SPARGING	SARASOTA	3	38	19	2		3	11	3/29/1994	4/6/1994
549050	Completed	Camp, Dresser And Mckee, Inc.	201 MONTGOMERY AVENUE	James A Bennett		SARASOTA	21	38	19	1.25		2	4	2/22/1994	2/25/1994
549051	Completed	Camp, Dresser And Mckee, Inc.	201 MONTGOMERY AVENUE	James A Bennett		SARASOTA	21	38	19	1.25		2	3	2/22/1994	2/25/1994
549042	Completed	Camp, Dresser And Mckee, Inc.	201 MONTGOMERY AVENUE	James A Bennett		SARASOTA	21	38	19	1.5		4	6	2/22/1994	2/26/1994
549048	Completed	Camp, Dresser And Mckee, Inc.	201 MONTGOMERY AVENUE	James A Bennett		SARASOTA	21	38	19	1.25		4	7	2/22/1994	2/26/1994
545385	Completed	Cory Hawkins	2311 KNIGHTS TRAIL ROAD	Michael Neri	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19	4		54	95	11/18/1993	12/2/1993
543781	Completed	Sarasota Co Govt	RUSTIC ROAD	Tim Youngquist		SARASOTA	21	38	19	4		1140	1150	10/6/1993	12/10/1994
543866	Completed	Clark Ricky Sandra	ORANGE BLOSSOM LANE	Ray Kazmierski	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	23	38	19	4	8	42	92	10/4/1993	10/14/1993
541738	Completed	Cumberland Farms	1920 S. TAMIAMI TRAIL	Michael White	REMEDIATION - AIR SPARGING	SARASOTA	20	38	19	2		3	13	8/9/1993	9/1/1993
539598	Completed	Sarasota Co Solid Waste Dept	8350 BEE RIDGE RD	James A Bennett	PLUGGING	SARASOTA	1	38	19	2		62	82	6/15/1993	8/16/1993
534111	Completed	Peregrine Homes	5560 BEE RIDGE ROAD	Harry B Hall	IRRIGATION	SARASOTA	32	37	19	4	17	84	143	1/14/1993	1/28/1993
534112	Completed	Peregrine Homes	5560 BEE RIDGE ROAD	Harry B Hall	IRRIGATION	SARASOTA	32	37	19	4	17	84	143	1/14/1993	1/28/1993
531832	Completed	Thomas Haskett	570 CENTRAL AVE.,	Howard Adkins	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	15	38	19	4	6	45	70	11/12/1992	11/18/1992
531007	Completed	Patrick Davis	1520 EWING STREET	Michael Neri	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	20	38	19	4	6	51	93	9/9/1992	9/16/1992
104821	Completed	Robert Flanders	3106 DICK WILSON DRIVE	Robert Thompson	IRRIGATION	SARASOTA	33	37	19	4		46	135	7/14/1992	7/15/1992
104810	Completed	Ron Sepanski	104 TINA ISLAND DRIVE	Michael Neri	PLUGGING	SARASOTA	23	38	19	4	15	58	91	7/13/1992	7/15/1992
532332	Completed	Hoskins Grove	2201 KNIGHTS TRAIL RD	Harry Cannon	IRRIGATION	SARASOTA	20	38	19	12		274	870	5/29/1992	6/20/1992

Source - SWFWMD Water Well Inventory Website Data Generated June 21, 2013
07/01/2013

Water Well Inventory for Area Surrounding Central County Solid Waste Disposal Complex

Permit #	Permit Status	Owner	Well Location Street	Contractor	Well Use	County	Section	Township	Range	Diameter	Static Water Level	Casing Depth	Depth	Application Received Dt	Well Completion Dt
104505	Denied	Boyd Hobson	15450 GOLF COURSE RD	Harry Cannon		SARASOTA	20	38	19					5/29/1992	
104081	Completed	William Molin	4609 34TH AVE DR W	Ronald Young	IRRIGATION	SARASOTA	4	38	19	4	8	38	117	3/19/1992	3/22/1992
104076	Denied	Gregg Mills	4607 34TH AVE DR W	Ronald Young	IRRIGATION	SARASOTA	4	38	19					3/19/1992	
103538	Denied	Ward, Michael	3320 RUSTIC ROAD	Permit Personal	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	22	38	19					12/16/1991	
103393	Completed	Rob D Peterson	3330 RUSTIC RD	Stacey Adams	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	2	38	19	4	14	48	92	11/18/1991	11/21/1991
103336	Completed	Camp Dresser & Mckee Inc.	N END OF HAUL RD	James A Bennett	REMEDIATION - AIR SPARGING	SARASOTA	9	38	19	2		68	91	11/8/1991	11/14/1991
103136	Completed	Hynantic Inc	1035 OLD VENICE ROAD	James A Bennett	REMEDIATION - AIR SPARGING	SARASOTA	14	38	19	2		30	40	10/1/1991	10/23/1991
103100	Completed	Frizzell, William L.	170 LAUREL OAKS ROAD	Stacey Adams	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	15	38	19	4	10	40	76	9/24/1991	9/27/1991
102483	Completed	John And Lynda Newcomb	1 RUSTIC RD	Stacey Adams	PLUGGING	SARASOTA	21	38	19	4		42	42	5/16/1991	5/18/1991
102330	Completed	City of Venice Engineering Department	4001 NW VENICE AVE	Jerry A. Howell	REMEDIATION - AIR SPARGING	SARASOTA	4	38	19	6	5	221	300	4/19/1991	5/8/1991
102305	Completed	City of Venice Engineering Department	401 NW VENICE AVE	Jerry A. Howell	REMEDIATION - AIR SPARGING	SARASOTA	4	38	19	8		5	23	4/15/1991	4/29/1991
101986	Completed	Us Geological Survey	KNIGHTS TRAIL & WALTON TRACT	Greg Mcquown		SARASOTA	9	38	19	3		89	304	2/12/1991	3/5/1991
101989	Denied	Us Geological Survey	KNIGHTS TRAL & WALTON TRACT	Greg Mcquown		SARASOTA	9	38	19					2/12/1991	
101748	Completed	Westra Construction Corp.	NW CORNER OF HAML RD & RUSTIC RD	James A Bennett	REMEDIATION - AIR SPARGING	SARASOTA	21	38	19	2		3	20	12/17/1990	12/20/1990
101567	Completed	Enrico Fox	537 GLEN OAKS ROAD	William Diegel	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19	4	26	61	127	11/22/1990	11/23/1990
101619	Completed	Mr. Friend	3443 SUMBEAM DRIVE	Earl R Milum		SARASOTA	32	37	19	4	15	53	160	11/19/1990	12/3/1990
101498	Completed	John & Irene Mennella	102 DIVINCI DR-SORRENTO EAST	Permit Personal	IRRIGATION	SARASOTA	14	38	19	4	8	47	97	10/23/1990	10/29/1990
101326	Completed	Klm Contruction Inc	1520 EWING STREET	Howard Adkins	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	20	38	19	4	12	59	77	9/13/1990	9/17/1990
101212	Completed	City Of Sarasota	RUSTIC ROAD - BARN	Robert Putnam	IRRIGATION	SARASOTA	21	38	19	4	9	50	150	8/17/1990	8/27/1990
101180	Completed	Arlington Homes	3362 CHARLES MCDONALD DRIVE	Robert Putnam	IRRIGATION	SARASOTA	33	37	19	4	18	60	97	8/10/1990	9/14/1990
101081	Completed	Myakka River Resources, Inc.	UNKNOWN	Steven Fisher	PLUGGING	SARASOTA	23	38	19	2	16.5	3	20	7/23/1990	7/26/1990
101082	Completed	Myakka River Resources, Inc.	UNKNOWN	Steven Fisher	PLUGGING	SARASOTA	14	38	19	1.5		19	19	7/23/1990	7/26/1990
101083	Completed	Myakka River Resources, Inc.	UNKNOWN	Steven Fisher	PLUGGING	SARASOTA	22	38	19	1.5	14	17	20	7/23/1990	7/26/1990
590944	Completed	River Resources	PZ-6	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	14	38	19	2	0	0	0	7/23/1990	7/26/1990
590945	Completed	River Resources	GM-3, GM-4	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	23	38	19	1	0	20	20	7/23/1990	7/26/1990
590946	Completed	River Resources	GM-3, GM-4	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	23	38	19	1	0	20	20	7/5/1990	7/5/1990
100986	Denied	Myakka River Resources, Inc.	PO BOX 747	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	22	38	19					7/5/1990	
100987	Denied	Myakka River Resources, Inc.	PO BOX 747	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	14	38	19					7/5/1990	
100988	Denied	Myakka River Resources, Inc.	PO BOX 747	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	23	38	19					7/5/1990	
100786	Completed	Camp Dresser & Mckee Inc.	2 MI E I-75 & 4.5 MI N LAUREL RD	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	4	38	19	2	6.2	55	77	5/29/1990	5/29/1990
590757	Completed	Albritton Grove	9600 CLARK ROAD	Joseph C Cannon Sr.		SARASOTA	34	37	19	12	0	648	648	5/7/1990	5/21/1990
100529	Completed	Camp Dresser & Mckee Inc.	5 MI E OF I-75 & 4.5 MI N LAUREL	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	1	38	19	2	6.5	80	90	4/11/1990	5/6/1990
100412	Completed	Camp Dresser & Mckee Inc	5 MILES EAST OF I-75	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	1	38	19	2	3.6	10	15	3/21/1990	3/22/1990
100411	Completed	Camp Dresser & Mckee Inc	4 MILES EAST OF I-75	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	2	38	19	2	3.5	10	15	3/21/1990	4/7/1990
100407	Completed	Camp Dresser & Mckee Inc	4 MILES EAST OF I-75	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	11	38	19	2	2.7	6	10.5	3/21/1990	4/9/1990
100410	Completed	Camp Dresser & Mckee Inc	3 MILES EAST OF I-75	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	3	38	19	2	3.2	6	11	3/21/1990	5/14/1990
100409	Completed	Camp Dresser & Mckee Inc	2 MILES EAST OF I-75	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	4	38	19	2	5.9	9.3	12.7	3/21/1990	5/15/1990
100408	Completed	Camp Dresser & Mckee Inc	3 MILES EAST OF I-75	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	10	38	19	2	4.9	10	15	3/21/1990	5/18/1990
100413	Completed	Camp Dresser & Mckee Inc	2 MILES EAST OF I-75	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	9	38	19	2	7.4	7	15	3/21/1990	6/13/1990
100406	Denied	Camp Dresser & Mckee Inc.	3 MILES EAST OF I-75	Steven Fisher	REMEDIATION - AIR SPARGING	SARASOTA	10	38	19					3/21/1990	
172796	Completed	John And Lynda Newcomb		Stacey Adams	IRRIGATION	SARASOTA	21	38	19			42	97	10/19/1989	10/23/1989
172682	Completed	William Adams		Ferman Adams	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19			42	75	8/30/1989	9/10/1989
172660	Completed	Robert Obendorff		Robert Putnam	IRRIGATION	SARASOTA	20	38	19			50	90	8/23/1989	8/25/1989
172637	Completed	Blue Ridge Homes		Howard Adkins	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	10	38	19			53	90	8/9/1989	8/16/1989
482249	Completed	Hilary, Jeko F.	3226 PALMETTO ROAD	Jesse K. Driggers	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	36	37	19	4	22	98	240	6/19/1989	12/23/1989
527490	Completed	Peter Weiss	1520 MAIN STREET	Anthony Guest	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	32	37	19	4	21	78	140	6/5/1989	6/12/1989
536759	Denied	Sarasota Co-Solid Waste Mgt	8350 BEE RIDGE RD	John C Mcdonald	PLUGGING	SARASOTA	1	38	19					5/31/1989	
536760	Denied	Sarasota Co-Solid Waste Mgt	8350 BEE RIDGE RD	John C Mcdonald	PLUGGING	SARASOTA	9	38	19					5/31/1989	
536618	Completed	Sarasota Co-Solid Waste Mgt	8350 BEE RIDGE RD	John C Mcdonald	PLUGGING	SARASOTA	9	38	19	4		40	312	4/28/1989	6/22/1989
536619	Completed	Sarasota Co-Solid Waste Mgt	8350 BEE RIDGE RD	John C Mcdonald	PLUGGING	SARASOTA	1	38	19	2		90	90	4/28/1989	6/22/1989
536572	Completed	John Bennett	803 CHURCH STREET	Robert Putnam	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	20	38	19	4		47	270	4/18/1989	4/25/1989
469857	Denied	Diversified Drilling Corp	P O BOX 290699	Bob Matthews	REMEDIATION - AIR SPARGING	SARASOTA	21	38	19					8/19/1988	
170347	Completed	Donald Pavlat		Robert Putnam	IRRIGATION	SARASOTA	20	38	19			50	85	7/26/1988	7/28/1988
469738	Denied	Richmond, Paul	2271 MISSION VALLEY BLVD	Robert Putnam	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	11	38	19					7/26/1988	
468575	Completed	Diversified Drilling Corp	P O BOX 290699	Bob Matthews	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19	4	6	65	147	5/4/1988	5/24/1988
468572	Denied	Sarasota Co Bocc C/O Utilities Dept	1001 SARASOTA CENTER BLVD	Bob Matthews	REMEDIATION - AIR SPARGING	SARASOTA	21	38	19					5/4/1988	
468442	Completed	Palmer Ranch	PALMER RANCH EAST OF I-75	Horace Sutcliffe		SARASOTA	8	38	19	4	12	73	203	3/25/1988	4/7/1988
468415	Completed	Albritian Fruit Co(Hi Hat Ranch	9600 CLARK ROAD	Joseph C Cannon Sr.	IRRIGATION	SARASOTA	34	37	19	12		379	600	3/21/1988	3/30/1988
469276	Completed	Owen, Chris	2406 HERMITAGE	Robert Thompson	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	36	37	19	4	12	84	100	3/17/1988	3/22/1988
469070	Completed	Fiore Const.	1540 EWING STREET	Howard Adkins	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	20	38	19	3	8	46	71	1/5/1988	1/6/1988
462026	Completed	Brock, Michael & Zukowdki, Susa	3232 RUSTIC ROAD	Ferman Adams	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19	4	4	38	90	6/24/1987	6/24/1987
461943	Completed	Michael Brook	3232 RUSKIN RD	William Diegel	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19	3	8	42	83	6/4/1987	6/30/1987
461930	Completed	Monieaham, Tom	316 OLIVIA ROAD	Howard Adkins	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	33	37	19					6/4/1987	
462726	Completed	Albritton Groves Limited Partner Ship	9600 PROCTOR RD	Joseph C Cannon Sr.	IRRIGATION	SARASOTA	34	37	19	12		362	747	4/6/1987	4/21/1987
460971	Completed	Hoehsteher, Mel	1935 RACIMO DRIVE	Earl R Milum	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	8	38	19	4	25	80	180	6/30/1986	7/5/1986
459611	Completed	Beacom	241 SORRENTO RANCHES DRIVE	Horace Sutcliffe	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19	4	5	50	110	6/26/1986	7/9/1986
458650	Completed	Structural Concepts	7766 S.TAMIAMI TRAIL	Earl R Milum	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	5	38	19	4	23	50	160	8/9/1985	8/11/1985
457943	Completed	Smith, Bill	3200 RUSTIC ROAD	William Diegel	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19					7/1/1985	

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458346	Completed	Sarasota Co	PO BOX 2553	William C Ziegler		SARASOTA	24	38	19					5/17/1985	
170358	Completed	Holland, Freddie J.		Ferman Adams	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	20	38	19			42	135	1/12/1985	1/12/1985
170323	Completed	Howell Montgomery		Ferman Adams	IRRIGATION	SARASOTA	22	38	19			42	75	12/18/1984	12/22/1984
170172	Completed	Victor R. Smith		Ferman Adams	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19			38	100	8/8/1984	8/11/1984
170701	Completed	John Newcombe		Earl R Milum	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19			50	115	6/20/1984	7/19/1984
454047	Completed	Tehns, Stephen	LAUREL OAKS ROAD	William Diegel	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	15	38	19	3	1	38	80	8/25/1983	9/12/1983
456755	Completed	Gingerich, A. E.	4700 SPAHN RD	Robert Thompson	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	17	38	19	4	17	35	105	6/3/1983	6/7/1983
453653	Completed	Austin, Richard C.	LAUREL OAKS ROAD	John C Mcdonald	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	15	38	19	3	6	63	81	4/6/1983	4/12/1983
456338	Completed	Southwest Fla Water Mgt District, Attn: Brandt H	2379 BROAD ST	James Lavender	REMEDIATION - AIR SPARGING	SARASOTA	22	38	19					1/25/1983	
456339	Completed	Southwest Fla Water Mgt District, Attn: Brandt H	2379 BROAD ST	James Lavender	REMEDIATION - AIR SPARGING	SARASOTA	22	38	19					1/25/1983	
456340	Completed	Southwest Fla Water Mgt District, Attn: Brandt H	2379 BROAD ST	James Lavender	REMEDIATION - AIR SPARGING	SARASOTA	22	38	19					1/25/1983	
453360	Completed	Austin	LAUREL OAKS ROAD	John A. Hobson	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	15	38	19	3		42	80	10/25/1982	10/28/1982
453208	Completed	Derly	RUSTIO ROAD	Robert Putnam	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19	3		42	76	7/26/1982	7/30/1982
455802	Completed	Walton, Mike	NO KNOWN WELL LOCATION ADDRESS	Gary Lamb	IRRIGATION	SARASOTA	3	38	19	4	5	54	110	5/24/1982	5/28/1982
170989	Completed	Tomb, Robert		J. C. Mcdonald	IRRIGATION	SARASOTA	24	38	19			65	109	4/14/1982	4/18/1982
170892	Completed	Energy Homes Inc		Dewey Kingery	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19			41	80	3/30/1982	3/30/1982
171716	Completed	Hoskins		Dewey Kingery	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19			42	75	5/11/1981	
171120	Completed	Ward, Roger		James E. Lovan	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	21	38	19			45	100	7/21/1980	7/22/1980
170792	Completed	Fred Francis		James E. Lovan	IRRIGATION	SARASOTA	15	38	19			44	125	6/23/1980	6/27/1980
451245	Completed	Southwest Fla Water Mgt District, Attn: Brandt H	2379 BROAD ST	James Lavender	REMEDIATION - AIR SPARGING	SARASOTA	18	38	20	6	2	32	67	6/11/1980	10/27/1980
451243	Completed	Southwest Fla Water Mgt District, Attn: Brandt H	2379 BROAD ST	James Lavender	REMEDIATION - AIR SPARGING	SARASOTA	18	38	20	4	9	410	425	6/11/1980	11/5/1980
173722	Completed	Brenda Henderson		J. C. Mcdonald	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	22	38	19			40	100	10/15/1979	10/15/1979
173250	Completed	G.W. Henderson		James R. Guest	IRRIGATION	SARASOTA	22	38	19			297	725	4/26/1979	6/1/1979
449845	Completed	Geist, Carl	IGUANA LANE	Gary Lamb	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	35	37	19	4	7	50	108	2/27/1979	3/1/1979
174720	Completed	Shirley Porrenecchio		Nonlicensed Driller	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	20	38	19					6/8/1978	
174627	Denied	Julius Boghar		Nonlicensed Driller	IRRIGATION	SARASOTA	24	38	19					3/24/1978	
301867	Completed	Hallmark Hms	NO ADDRESS	No Name No Name	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	23	38	19	3	7	42	58	1/1/1970	7/1/1979
301893	Completed	Porrenecchi	NO ADDRESS	William Diegel	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	20	38	19	3	8	32	93	1/1/1970	7/1/1979
302012	Completed	Jones,H	NO ADDRESS	Roy Jones	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	15	38	19	3	8	42	87	1/1/1970	7/1/1979
302488	Completed	Swearingen	3735 DUNCAN PL.	C. A. Hawkins	IRRIGATION	SARASOTA	35	37	19	3	10	47	155	1/1/1970	7/1/1979
302779	Completed	Ferrara, P	2136 CORDES WAY	Gary Lamb	DOMESTIC (NEW CONSTRUCTION)	SARASOTA	3	38	19	3	1	39	72	1/1/1970	7/1/1979

Source - SWFWMD Water Well Inventory Website Data Generated June 21, 2013
07/01/2013

ATTACHMENT H

CCSWDC PHASE I AND PHASE II CLEANING AND VIDEO INSPECTION REPORT (APRIL 2013)

SARASOTA COUNTY
"Dedicated to Quality Service"

April 10, 2013

Bill Krumbholz
Solid Waste Section
Department of Environmental Protection
South District Office
2295 Victoria Avenue, Suite 364
Ft. Myers, Florida 33902

Re: Central County Solid Waste Disposal Complex
Permit No. 130542-007-SO/01 (Modification #130542-019-SO/MM)
WACS No. 51614
Phase I and II Leachate Collection System Inspection Report and Video Logs

Dear Mr. Krumbholz:

In accordance with Specific Condition C.8.c.(2) of the above reference permit for the Central County Solid Waste Disposal Complex (CCSWDC), the Sarasota County Solid Waste Department is pleased to submit the leachate collection system inspection report for the Phases I and II Landfill Areas. The leachate collection HDPE piping in Phase I, Cells 1 through 5 and the leachate collection and detection HDPE piping in Phase II Cells 1 and 2 and the gravity connection pipe between the Phase II Cell 1 and Cell 2 collection sumps were water pressure cleaned and video inspected to determine the functionality of the collection lines. The work was performed by Florida JetClean from December 2012 to March 2013. As shown in the attached reports prepared by Florida Jet Clean and the associated video inspection logs, the leachate collection lines in Phase I and the leachate collection and detection lines in Phase II Cells 1 and 2 appear to be in good condition and are operating normally allowing flow to the leachate collection sumps and pump stations. There was no visible damage to the piping and no substantial obstructions were found. There was some sand encountered in the Phase II Cells 1 and 2 leachate collection lines, which was removed by jet cleaning, however flow was not impeded by the sand and following removal flow appeared normal and effective. In addition, a small piece of plastic was encountered at approximately 45 feet from the north cleanout of Phase I Cell 3. This piece of plastic is not impeding flow or obstructing the pipe and does not pose a functionality problem for the leachate collection system.

Please note that because there has been no waste placed in Phase II Cells 3 and 4, an inspection was not performed during this event for these areas in Phase II. Cells 3 and 4 leachate collection and detection piping will be included in the inspection event following the first placement of waste in those cells.

The Sarasota County Solid Waste Department will continue to monitor the accumulation of sand in the Phase II collection sumps and remove the sand as needed. The next scheduled inspection for Phase I and Phase II will be performed before March 15, 2018.

Please contact me anytime at 941-861-1572 if you have questions or require additional information regarding the inspection or attached reports.

Sincerely,

Jason Timmons, P.E.
Solid Waste Engineer

Xc: Lois Rose, Sarasota County

Attachments:

1. Florida Jet Clean Phase 2 Cells 1 and 2 LCS Maintenance Report and 2 DVDs (December 2012)
2. Florida Jet Clean Phase I – Cells 1 – 5 and Phase 2 Cells 1-2 Sump Connector and 6 DVDs (February – March 2013)

FLORIDA JETCLEAN

HIGH PRESSURE WATER JETTING
PIPELINE VIDEO INSPECTION (EX)
VACUUM TRUCK SERVICES
LASER PROFILING / NO DIG REPAIRS

7538 DUNBRIDGE DR., ODESSA, FL 33556
TEL: 800-226-8013 FAX: 813-926-4616
WEB: WWW.FLORIDAJETCLEAN.COM
EMAIL: FLORIDAJETCLEAN@YAHOO.COM

Veolia Environmental Services
Sarasota - Nokomis Landfill
Annual LCS Maintenance
Phase 2 - Cells 1 & 2

Work Performed
December 2012

RECEIVED
JAN 11 2013
SOLID WASTE OPERATION

Conducted By:
Florida Jetclean
800-226-8013

FLORIDA JETCLEAN

HIGH PRESSURE WATER JETTING
PIPELINE VIDEO INSPECTION (EX)
VACUUM TRUCK SERVICES
LASER PROFILING / NO DIG REPAIRS

7538 DUNBRIDGE DR., ODESSA, FL 33556
TEL: 800-226-8013 FAX: 813-926-4616
WEB: WWW.FLORIDAJETCLEAN.COM
EMAIL: FLORIDAJETCLEAN@YAHOO.COM

DATE : 12/26/2012
TO : Tim Ferris - Veolia Environmental
FROM : Ralph Calistri (floridajetclean@yahoo.com)
SUBJECT : Sarasota CCSWDC – Nokomis Landfill – Phase II - Cells 1 & 2

Florida Jetclean completed the Phase 2 - Cells 1 & 2 leachate collection piping high-pressure water-jetting and explosion-proof video-inspection work at the above landfill on 12/8/2011. Included with this letter are 3 hard-copy video inspection reports and the DVD's of the inspection footage.

High-Pressure Water-Jetting:

As the jetting log (below) indicates, all pipes were jetcleaned end-to-end, and were clean and blockage free upon completion.

JETCLEANING LOG REPORT

Customer: Sarasota CCSWDC - Nokomis Landfill - Phase II - Cells 1 & 2
Purpose: Maintenance related jetcleaning of Leachate Collection System lines.
Date: 12/3/12 – 12/5/12

Location	Distance Achieved	Result
Cell 1 - Collection (N-S, S-N)	1,450'	Pipe jetcleaned end-to-end
Cell 1 - Detection (N-S, S-N)	1,450'	Pipe jetcleaned end-to-end
Cell 1 - Toe Drain (N-S, S-N)	1,750'	Pipe jetcleaned end-to-end
Cell 2 - Collection (N-S, S-N)	1,450'	Pipe jetcleaned end-to-end
Cell 2 - Collection (N-S, S-N)	1,450'	Pipe jetcleaned end-to-end

Explosion-Proof Video-Inspection:

After the above jetcleaning was completed all pipes were video-inspected as far as possible from all available access points using certified explosion-proof equipment. All areas of the leachate collection piping viewed with the inspection camera are clean and blockage free with no defects identified (see included CCTV Survey Listing, Pipe Graphic Reports, and DVD's for more detailed information).

The leachate collection system appears to flow and drain properly, and looks to be in good condition to deliver leachate.

Please call us with questions or concerns.

Regards,

Ralph Calistri

Ralph Calistri - Florida Jetclean - 800-226-8013

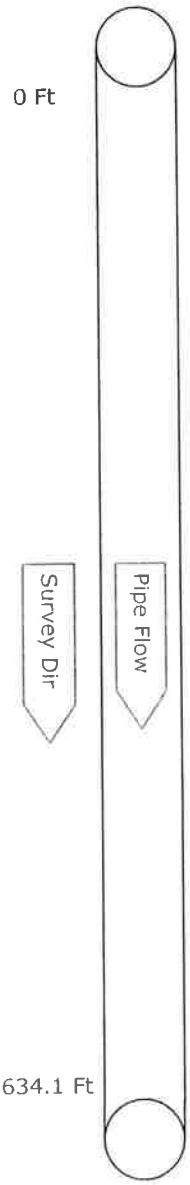
CCTV Surveys List for VEOLIA

Number of surveys in this list is 14 **as of** Friday, December 07, 2012 **Unit of measure:** ft

Setup	Date	Street	Start MH	Finish MH	Dir	Size inch	Pre Clean	Vid Cassette	Scheduled Length	Surveyed Length
1	12/3/2012	NOKOMIS PHASE 2 CELL 1	CO2SC	CO2NC	D	8		1		634.1
2	12/3/2012	NOKOMIS PHASE 2 CELL 2	CO1SC	CO1NC	D	8		1		29.9
3	12/3/2012	NOKOMIS PHASE 2 CELL 1	CO1NC	CO2SC	U	8		1		53.8
4	12/3/2012	NOKOMIS PHASE 2 CELL 1	CO2NC	CO2SC	U	8		1		49.8
5	12/3/2012	NOKOMIS PHASE 2 CELL 2	CO1SC	CO1NC	D	8		1		881.8
6	12/4/2012	NOKOMIS PHASE 2 CELL 1	CO2SC	CO2NC	D	8		1		640.0
7	12/4/2012	NOKOMIS PHASE 2 CELL 1	CO1SC	CO1NC	D	8		1		929.2
8	12/4/2012	NOKOMIS PHASE 2 CELL 2	CO1NC	CO1SC	U	8		2		435.9
9	12/4/2012	NOKOMIS PHASE 2 CELL 2	CO1ND	CO1SD	U	6		2		426.9
10	12/5/2012	NOKOMIS PHASE 2 CELL 1	CO1ND	CO1SD	U	6		2		371.9
11	12/5/2012	NOKOMIS PHASE 2 CELL 1	CO1NC	CO1SC	U	8		2		300.9
12	12/5/2012	NOKOMIS PHASE 2 CELL 1	CO2NC	CO2SC	U	8		2		338.4
13	12/5/2012	NOKOMIS PHASE 2 CELL 1	CO1SD	CO1ND	D	6		2		419.0
14	12/5/2012	NOKOMIS PHASE 2 CELL 2	CO1SD	CO1ND	D	6		2		410.5
								Total Scheduled Length	0.0	
								Total Length Surveyed		5,922.1

Pipe Graphic Report of PLR CO2SC | **for** VEOLIA

Work Order		**Contract**		**Video** 1	**Setup** 1
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/03/2012
Street Name	NOKOMIS PHASE 2 CELL 1	**City**	NOKOMOS		
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather** Dry	
Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From** CO2SC	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CO2NC	**Depth** Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean**	**Last cleaned**
General note	HDPE LEACHATE COLLECTION			Structural Service Constructional	
Location note				Miscellaneous Hydraulic	



0.0 Ft Start of Survey
Manhole/Node [COS2C]
Water level 0

634.1 Ft Survey abandoned [LOSS OF TRACTION AT WELD]

PIPE INC

FLORIDA JETCLEAN
Phone: 800-226-8013

Pipe Graphic Report of PLR CO1SC B **for** VEOLIA

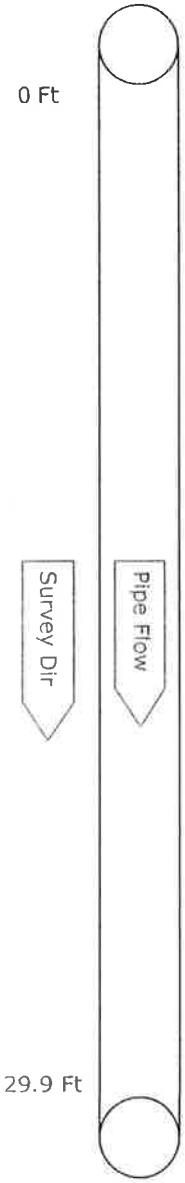
Work Order		**Contract**		**Video** 1	**Setup** 2
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/03/2012
Street Name	NOKOMIS PHASE 2 CELL 2	**City**	NOKOMOS		
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather**	Dry

Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From** CO1SC	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CO1NC	**Depth** Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction**	Downstream
Lining		**Year laid**		**Pre-clean**	**Last cleaned**

General note HDPE LEACHATE COLLECTION

Location note

Structural Service Constructional
Miscellaneous Hydraulic

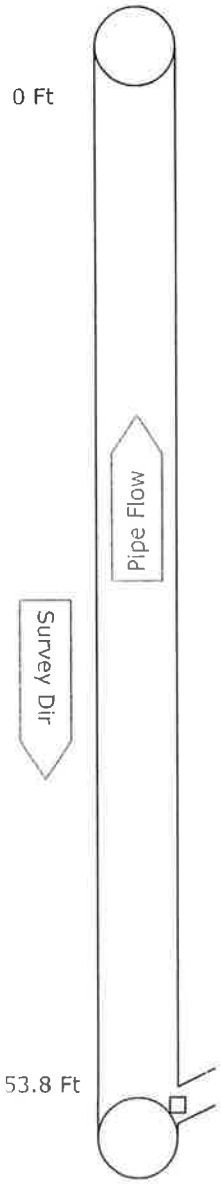


0.0 Ft Start of Survey
Manhole/Node [CO1SC]
Water level 0

29.9 Ft Survey abandoned [DEBRIS]

Pipe Graphic Report of PLR CO2SC C **for** VEOLIA

Work Order		**Contract**		**Video** 1	**Setup** 3
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/03/2012
Street Name	NOKOMIS PHASE 2 CELL 1		**City**	NOKOMOS	
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather**	Dry
Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From** CO1NC	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CO2SC	**Depth** Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean**	**Last cleaned**
General note	HDPE LEACHATE COLLECTION			Structural Service	Constructional
Location note	FINISH SHOULD READ CO1NC			Miscellaneous Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [CO2NC] Water level 0
52.2 Ft	Lateral or connection exists OK 09 o'clock [HEADER]
53.8 Ft	General observation [CORRECTION FINISH IS CO1SC] Survey abandoned [90 DEGREE BEND]

CCTV pictures of CO2SC C **for** VEOLIA

Work Order		**Surveyed On** 12/03/2012	**Setup** 3
Street Name	NOKOMIS PHASE 2 CELL 1		**Video** 1
City Name	NOKOMOS	**Weather** Dry	
Location	Berm		
From Manhole	CO1NC	**To Manhole** CO2SC	**Direction** Upstream

Date: 12/03/2012 **Distance:** 52.2 Ft **Obs:** Lateral or connection exists OK

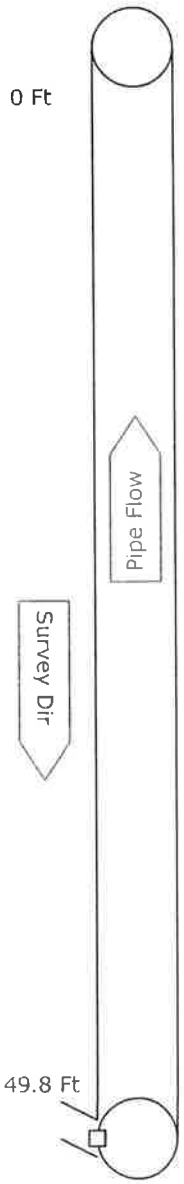
Comments: HEADER

Date: 12/03/2012 **Distance:** 53.8 Ft **Obs:** Survey abandoned

Comments: 90 DEGREE BEND

Pipe Graphic Report of PLR CO2SC D **for** VEOLIA

Work Order		**Contract**		**Video** 1	**Setup** 4
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/03/2012
Street Name	NOKOMIS PHASE 2 CELL 1	**City**	NOKOMOS		
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather** Dry	
Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From** CO2NC	**Depth** Ft
Shape	Circular	**Size** 8	**by** ins	**To** CO2SC	**Depth** Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean**	**Last cleaned**
General note	HDPE LEACHATE COLLECTION			Structural Service Constructional	
Location note				Miscellaneous **Hydraulic**	



0.0 Ft Start of Survey
Manhole/Node [CO2NC]
Water level 0

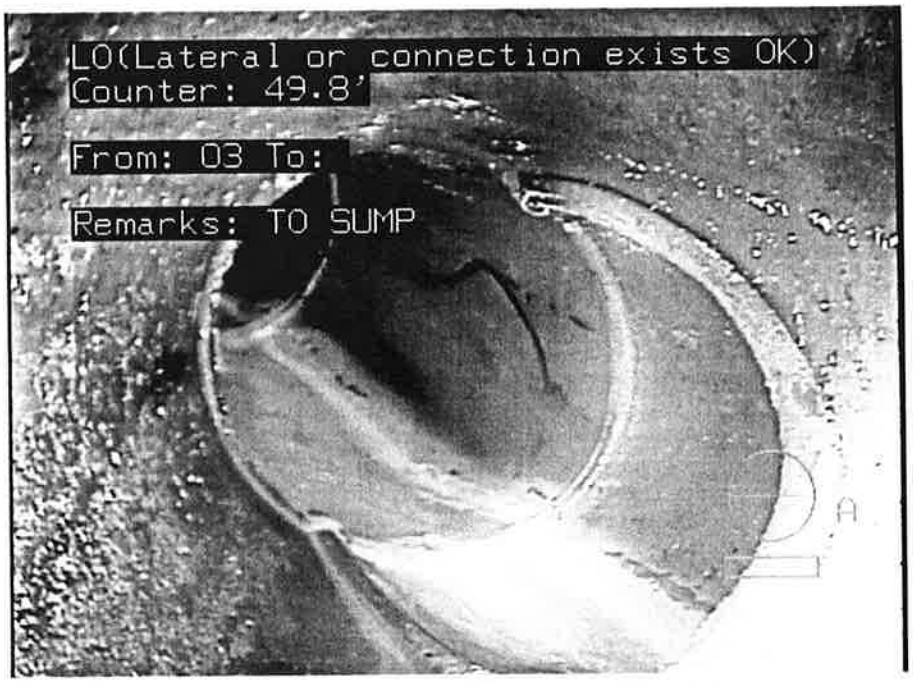
49.8 Ft Lateral or connection exists OK 03 o'clock [TO SUMP]
Survey abandoned [90 BEND]

PIPE INC

FLORIDA JETCLEAN
Phone: 800-226-8013

CCTV pictures of CO2SC D **for** VEOLIA

Work Order		**Surveyed On** 12/03/2012	**Setup** 4
Street Name	NOKOMIS PHASE 2 CELL 1		**Video** 1
City Name	NOKOMOS	**Weather** Dry	
Location	Berm		
From Manhole	CO2NC	**To Manhole** CO2SC	**Direction** Upstream

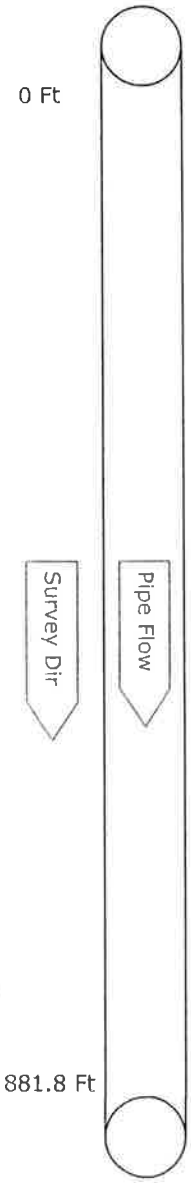


Date: 12/03/2012 **Distance:** 49.8 Ft **Obs:** Lateral or connection exists OK

Comments: TO SUMP

Pipe Graphic Report of PLR CO1SC E **for** VEOLIA

Work Order		**Contract**		**Video** 1	**Setup** 5
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/03/2012
Street Name	NOKOMIS PHASE 2 CELL 2	**City**	NOKOMOS		
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather** Dry	
Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From** CO1SC	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CO1NC	**Depth** Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean**	**Last cleaned**
General note	HDPE LEACHATE COLLECTION			Structural Service	Constructional
Location note	AFTER JETTING			Miscellaneous Hydraulic	



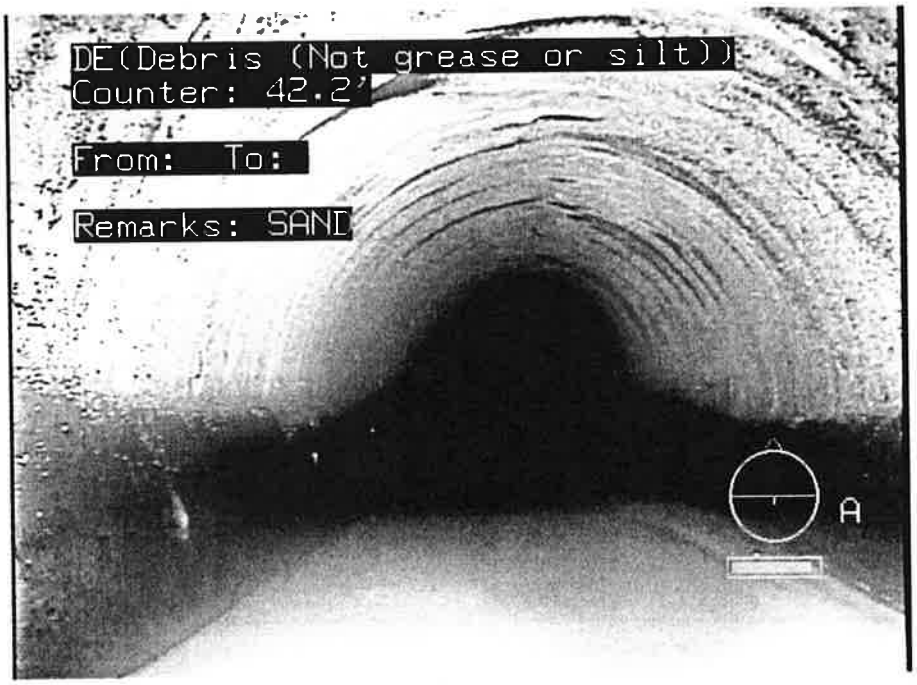
	Start of Survey
0.0 Ft	Manhole/Node [CO1SC]
	Water level 0
42.2 Ft	Debris (Not grease or silt) SE: 25 [SAND]
881.8 Ft	Survey abandoned [LOSS OF TRACTION AT WELD]

PIPE INC

FLORIDA JETCLEAN
Phone: 800-226-8013

CCTV pictures of CO1SC E **for** VEOLIA

Work Order		**Surveyed On** 12/03/2012	**Setup** 5
Street Name	NOKOMIS PHASE 2 CELL 2		**Video** 1
City Name	NOKOMOS	**Weather** Dry	
Location	Berm		
From Manhole	CO1SC	**To Manhole** CO1NC	**Direction** Downstream

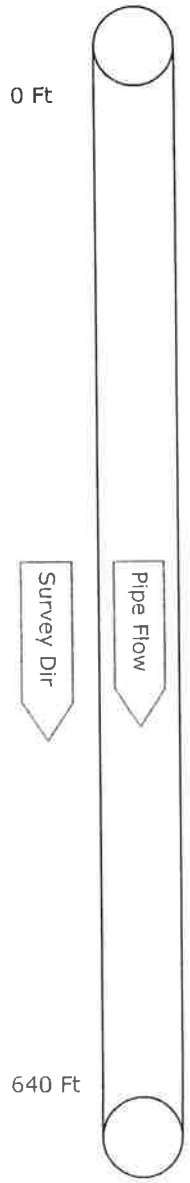


Date: 12/03/2012 **Distance:** 42.2 Ft **Obs:** Debris (Not grease or silt)

Comments: SAND

Pipe Graphic Report of PLR CO2SC G **for** VEOLIA

Work Order		**Contract**		**Video** 1	**Setup** 6
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/04/2012
Street Name	NOKOMIS PHASE 2 CELL 1	**City**	NOKOMOS		
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather** Dry	
Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From** CO2SC	**Depth** Ft
Shape	Circular	**Size** 8	**by** ins	**To** CO2NC	**Depth** Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean**	**Last cleaned**
General note	HDPE LEACHATE COLLECTION			Structural Service	Constructional
Location note	AFTER JETTING			Miscellaneous Hydraulic	

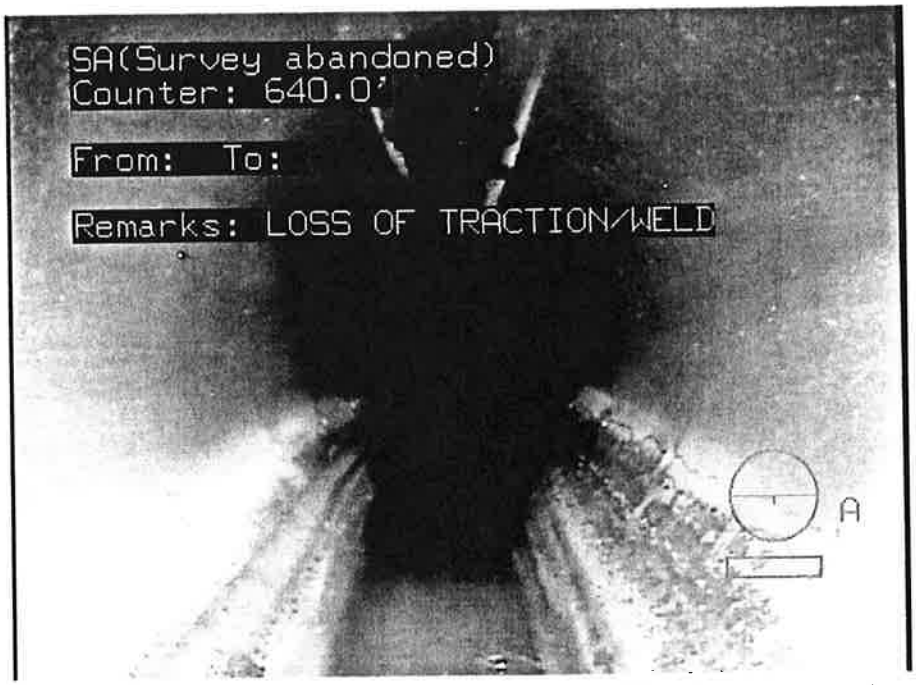


0.0 Ft Start of Survey
Manhole/Node [CO2SCO]
Water level 0

640.0 Ft Survey abandoned [LOSS OF TRACTION/WELD]

CCTV pictures of CO2SC G **for** VEOLIA

Work Order		**Surveyed On** 12/04/2012	**Setup** 6
Street Name	NOKOMIS PHASE 2 CELL 1		**Video** 1
City Name	NOKOMOS	**Weather** Dry	
Location	Berm		
From Manhole	CO2SC	**To Manhole** CO2NC	**Direction** Downstream

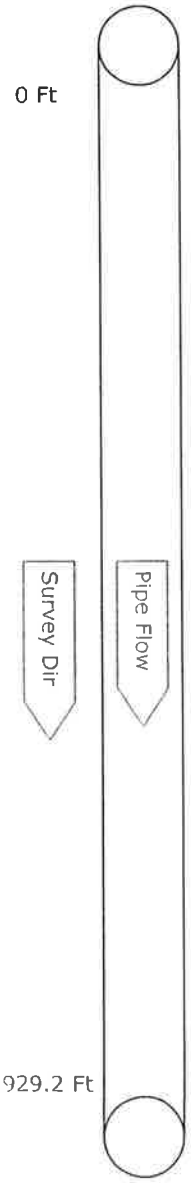


Date: 12/04/2012 **Distance:** 640.0 Ft **Obs:** Survey abandoned

Comments: LOSS OF TRACTION/WELD

Pipe Graphic Report of PLR CO1SC H **for** VEOLIA

Work Order		**Contract**		**Video** 1	**Setup** 7
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/04/2012
Street Name	NOKOMIS PHASE 2 CELL 1	**City**	NOKOMOS		
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather** Dry	
Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From** CO1SC	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CO1NC	**Depth** Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean**	**Last cleaned**
General note	HDPE LEACHATE COLLECTION			Structural Service	Constructional
Location note	DVD COUNTINUES ON DISC 2			Miscellaneous **Hydraulic**	



0.0 Ft Start of Survey
Manhole/Node [CO1SCO]
Water level 0

800.6 Ft General observation [CONTINUE FROM DVD 1]

929.2 Ft General observation [FINGER HEAT WELDS]
Survey abandoned [HEAT WELDS]

PIPE INC
FLORIDA JETCLEAN
Phone: 800-226-8013

CCTV pictures of CO1SC H **for** VEOLIA

Work Order	**Video** 1	**Surveyed On** 12/04/2012	**Direction** Downstream **Setup** 7
Street Name NOKOMIS PHASE 2 CELL 1	**City Name** NOKOMOS		**Weather** Dry
Location Berm		**From Manhole** CO1SC	**To Manhole** CO1NC

Date: 12/04/2012
Distance: 800.6 Ft
Obs: General observation

Comments:
CONTINUE FROM DVD 1

Date: 12/04/2012
Distance: 929.2 Ft
Obs: General observation

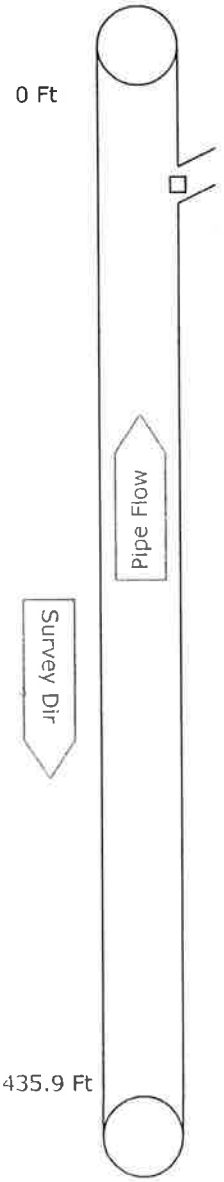
Comments:
FINGER HEAT WELDS

Date: 12/04/2012
Distance: 929.2 Ft
Obs: Survey abandoned

Comments:
HEAT WELDS

Pipe Graphic Report of PLR CO1SC H **for** VEOLIA

Work Order		**Contract**		**Video** 2	**Setup** 8
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/04/2012
Street Name	NOKOMIS PHASE 2 CELL 2	**City**	NOKOMOS		
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather** Dry	
Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From** CO1NC	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CO1SC	**Depth** Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean**	**Last cleaned**
General note	HDPE LEACHATE COLLECTION			Structural Service	Constructional
Location note				Miscellaneous Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [CO1NCO] Water level 0
55.9 Ft	Lateral or connection exists OK 09 o'clock [HEADER]
341.4 Ft	Camera Submerged Begin
357.2 Ft	Camera Submerged End
435.9 Ft	Survey abandoned [CABLE RESISTANCE]

PIPE INC

FLORIDA JETCLEAN
Phone: 800-226-8013

CCTV pictures of CO1SC H **for** VEOLIA

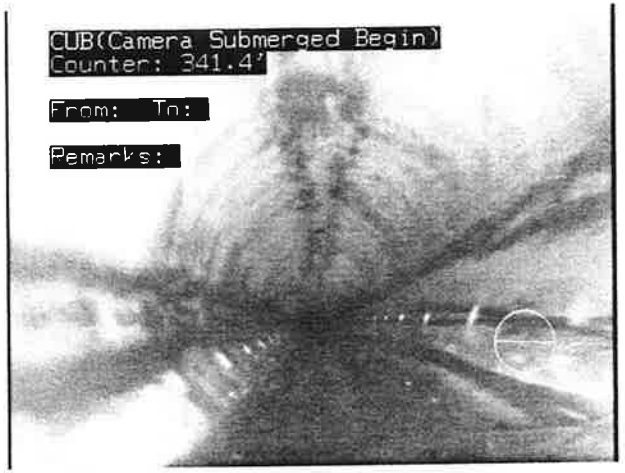
Work Order		**Video** 2	**Surveyed On** 12/04/2012	**Direction** Upstream **Setup** 8
Street Name NOKOMIS PHASE 2 CELL 2	**City Name** NOKOMOS			**Weather** Dry
Location Berm			**From Manhole** CO1NC	**To Manhole** CO1SC

Date: 12/04/2012
Distance: 55.9 Ft
Obs: Lateral or connection exists OK

Comments:
HEADER

Date: 12/04/2012
Distance: 341.4 Ft
Obs: Camera Submerged Begin

Comments:

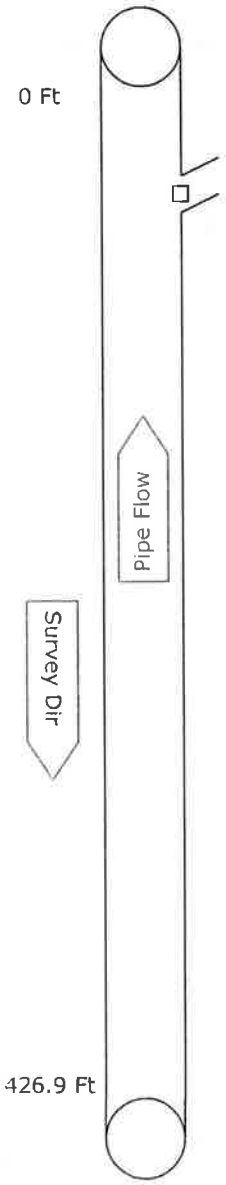


Date: 12/04/2012
Distance: 435.9 Ft
Obs: Survey abandoned

Comments:
CABLE RESISTANCE

Pipe Graphic Report of PLR CO1SD I **for** VEOLIA

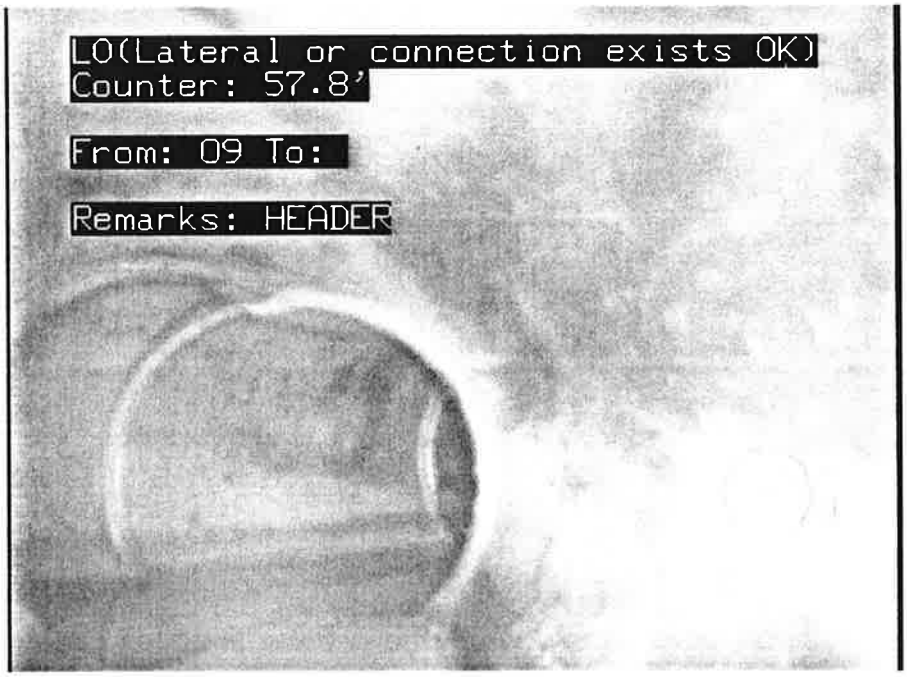
Work Order		**Contract**		**Video** 2	**Setup** 9
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/04/2012
Street Name	NOKOMIS PHASE 2 CELL 2	**City**	NOKOMOS		
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather**	Dry
Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From** CO1ND	**Depth** Ft
Shape	Circular	**Size** 6 **by**	ins	**To** CO1SD	**Depth** Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean**	**Last cleaned**
General note	HDPE LEACHATE DETECTION			Structural Service	Constructional
Location note				Miscellaneous **Hydraulic**	



0.0 Ft	Start of Survey Manhole/Node [CO1ND] Water level 0
57.8 Ft	Lateral or connection exists OK 09 o'clock [HEADER]
426.9 Ft	Survey abandoned [CABLE RESISTANCE]

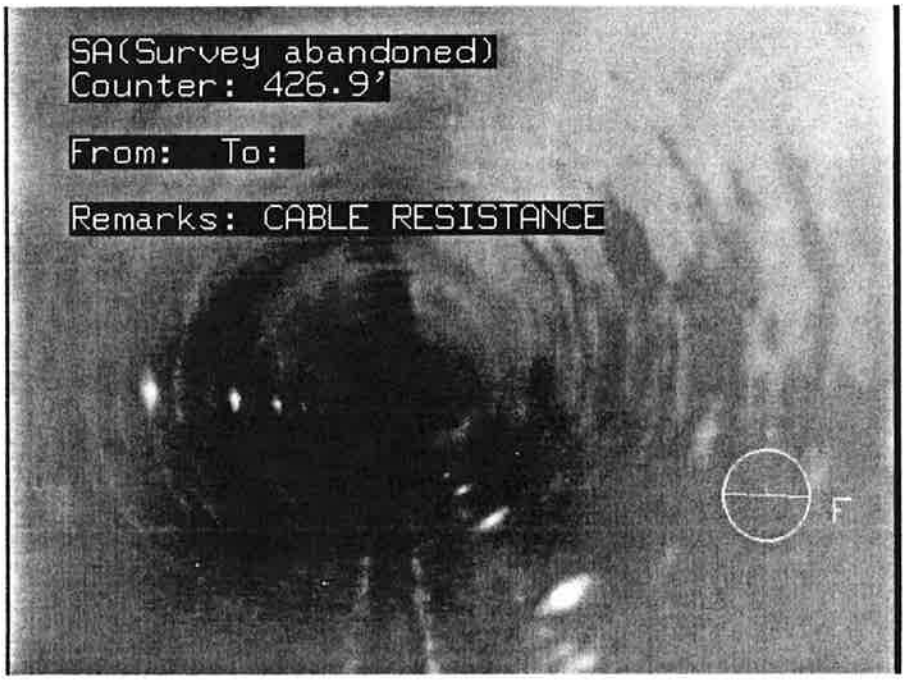
CCTV pictures of CO1SD I **for** VEOLIA

Work Order		**Surveyed On** 12/04/2012	**Setup** 9
Street Name	NOKOMIS PHASE 2 CELL 2		**Video** 2
City Name	NOKOMOS	**Weather** Dry	
Location	Berm		
From Manhole	CO1ND	**To Manhole** CO1SD	**Direction** Upstream



Date: 12/04/2012 **Distance:** 57.8 Ft **Obs:** Lateral or connection exists OK

Comments: HEADER

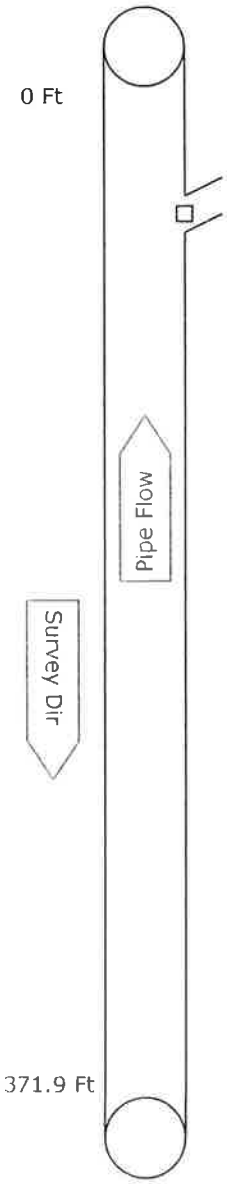


Date: 12/04/2012 **Distance:** 426.9 Ft **Obs:** Survey abandoned

Comments: CABLE RESISTANCE

Pipe Graphic Report of PLR CO1SD K **for** VEOLIA

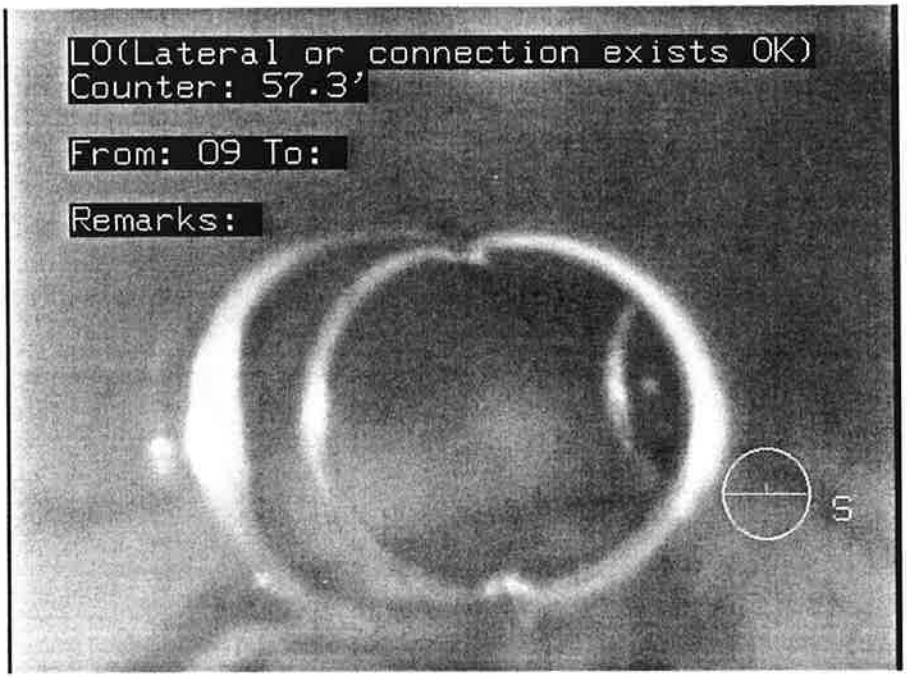
Work Order		**Contract**		**Video** 2	**Setup** 10
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/05/2012
Street Name	NOKOMIS PHASE 2 CELL 1	**City**	NOKOMOS		
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather**	Dry
Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From** CO1ND	**Depth** Ft
Shape	Circular	**Size** 6 **by**	ins	**To** CO1SD	**Depth** Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean**	**Last cleaned**
General note	HDPE LEACHATE DETECTION			Structural Service Constructional	
Location note				Miscellaneous Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [CO1ND] Water level 0
57.3 Ft	Lateral or connection exists OK 09 o'clock
371.9 Ft	Survey abandoned [CABLE RESISTANCE]

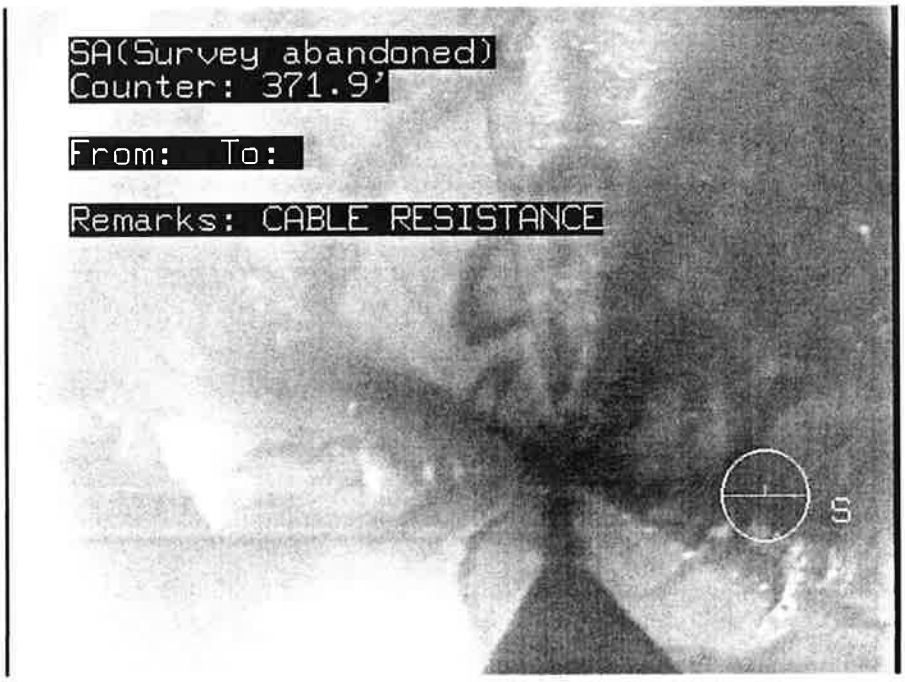
CCTV pictures of CO1SD K **for** VEOLIA

Work Order		**Surveyed On** 12/05/2012	**Setup** 10
Street Name	NOKOMIS PHASE 2 CELL 1		**Video** 2
City Name	NOKOMOS	**Weather** Dry	
Location	Berm		
From Manhole	CO1ND	**To Manhole** CO1SD	**Direction** Upstream



Date: 12/05/2012 **Distance:** 57.3 Ft **Obs:** Lateral or connection exists OK

Comments:

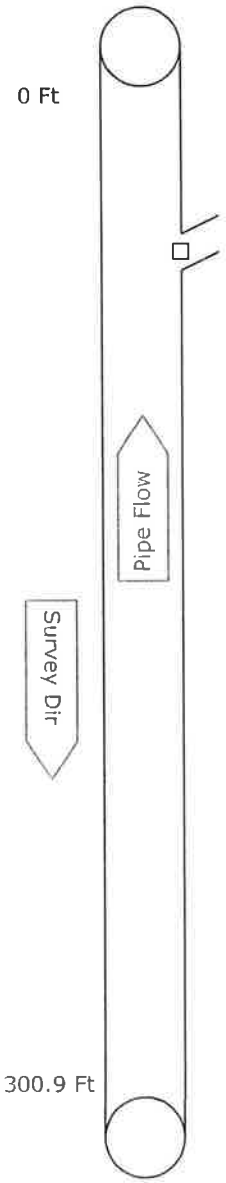


Date: 12/05/2012 **Distance:** 371.9 Ft **Obs:** Survey abandoned

Comments: CABLE RESISTANCE

Pipe Graphic Report of PLR CO1SC L **for** VEOLIA

Work Order		**Contract**		**Video** 2	**Setup** 11
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/05/2012
Street Name	NOKOMIS PHASE 2 CELL 1		**City**	NOKOMOS	
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather**	Dry
Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From** CO1NC	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CO1SC	**Depth** Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean**	**Last cleaned**
General note	HDPE LEACHATE COLLECTION			Structural Service	Constructional
Location note				Miscellaneous Hydraulic	



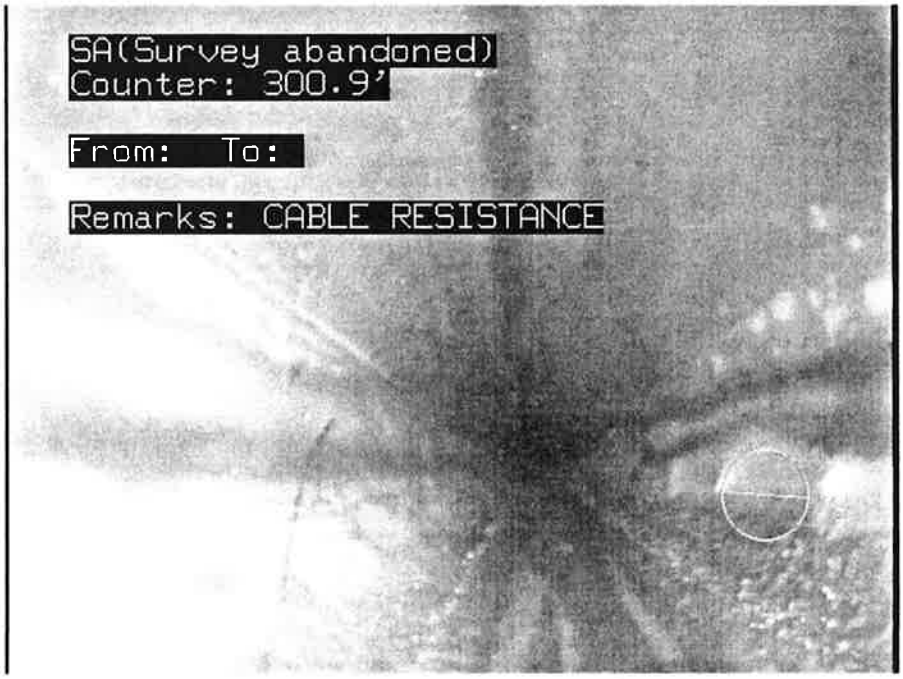
0.0 Ft	Start of Survey Manhole/Node [CO1NC] Water level 0
56.9 Ft	Lateral or connection exists OK 09 o'clock
300.9 Ft	Survey abandoned [CABLE RESISTANCE]

CCTV pictures of CO1SC L **for** VEOLIA

Work Order		**Surveyed On** 12/05/2012	**Setup** 11
Street Name	NOKOMIS PHASE 2 CELL 1		**Video** 2
City Name	NOKOMOS	**Weather** Dry	
Location	Berm		
From Manhole	CO1NC	**To Manhole** CO1SC	**Direction** Upstream

Date: 12/05/2012 **Distance:** 56.9 Ft **Obs:** Lateral or connection exists OK

Comments:

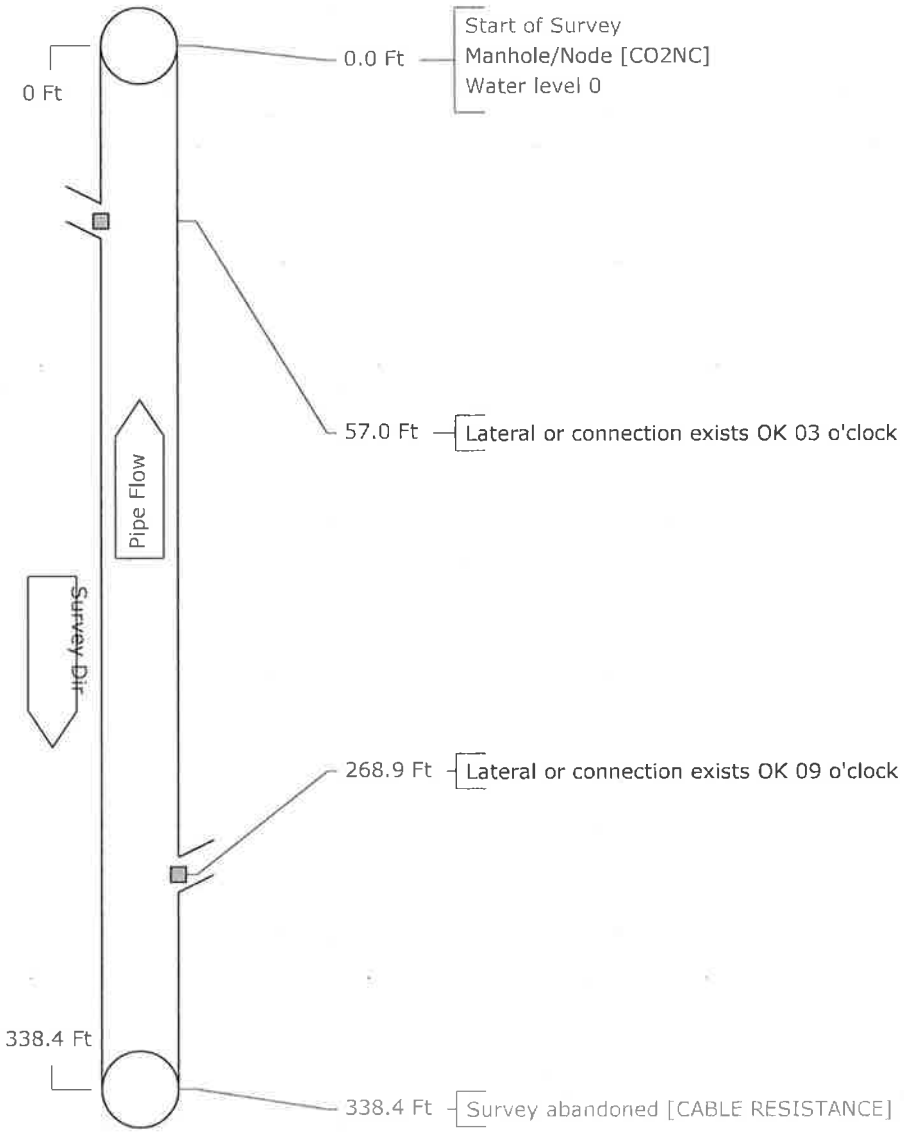


Date: 12/05/2012 **Distance:** 300.9 Ft **Obs:** Survey abandoned

Comments: CABLE RESISTANCE

Pipe Graphic Report of PLR CO2SC **M** **for** VEOLIA

Work Order		**Contract**		**Video** 2	**Setup** 12
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/05/2012
Street Name	NOKOMIS PHASE 2 CELL 1	**City**	NOKOMOS		
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather**	Dry
Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From** CO2NC	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CO2SC	**Depth** Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction**	Upstream
Lining		**Year laid**		**Pre-clean**	**Last cleaned**
General note	HDPE LEACHATE COLLECTION			Structural	Service Constructional
Location note				Miscellaneous	Hydraulic



PIPELOGIX INC

FLORIDA JETCLEAN
Phone: 800-226-8013

CCTV pictures of CO2SC M **for** VEOLIA

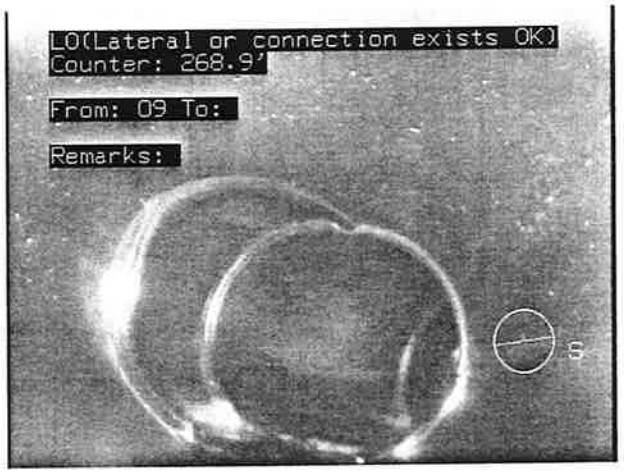
Work Order		**Video** 2	**Surveyed On** 12/05/2012	**Direction** Upstream	**Setup** 12
Street Name NOKOMIS PHASE 2 CELL 1	**City Name** NOKOMOS			**Weather** Dry	
Location Berm			**From Manhole** CO2NC	**To Manhole** CO2SC	

Date: 12/05/2012
Distance: 57.0 Ft
Obs: Lateral or connection exists OK

Comments:

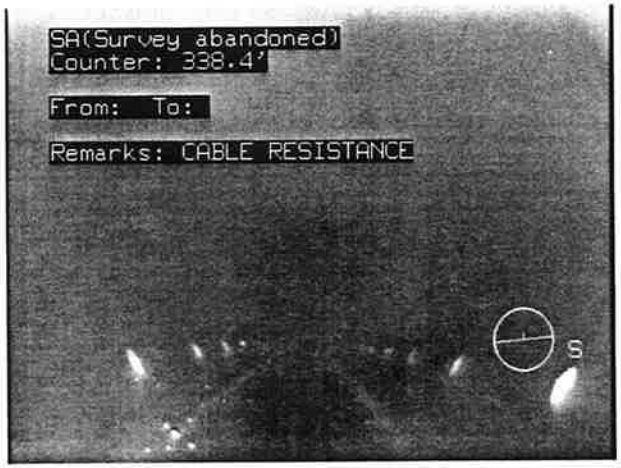
Date: 12/05/2012
Distance: 268.9 Ft
Obs: Lateral or connection exists OK

Comments:



Date: 12/05/2012
Distance: 338.4 Ft
Obs: Survey abandoned

Comments:
CABLE RESISTANCE

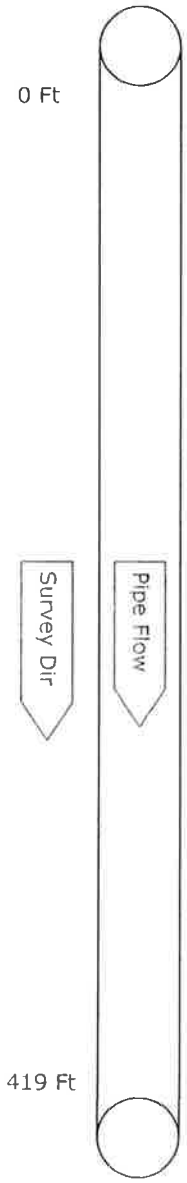


Pipe Graphic Report of PLR CO1SD N **for** VEOLIA

Work Order		**Contract**		**Video** 2	**Setup** 13
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/05/2012
Street Name	NOKOMIS PHASE 2 CELL 1	**City**	NOKOMOS		
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather**	Dry

Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From**	CO1SD	**Depth**	Ft
Shape	Circular	**Size** 6 **by**	ins	**To**	CO1ND	**Depth**	Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction**	Downstream		
Lining		**Year laid**		**Pre-clean**		**Last cleaned**	

General note	HDPE LEACHATE DETECTION	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	



0.0 Ft Start of Survey
Manhole/Node [CO1SD]
Water level 0

419.0 Ft Survey abandoned [CABLE RESISTANCE]

CCTV pictures of CO1SD N **for** VEOLIA

Work Order		**Surveyed On** 12/05/2012	**Setup** 13
Street Name	NOKOMIS PHASE 2 CELL 1		**Video** 2
City Name	NOKOMOS	**Weather** Dry	
Location	Berm		
From Manhole	CO1SD	**To Manhole** CO1ND	**Direction** Downstream

Date: 12/05/2012 **Distance:** 419.0 Ft **Obs:** Survey abandoned

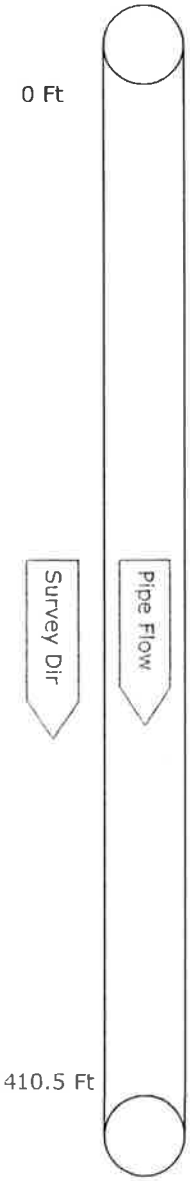
Comments: CABLE RESISTANCE

Pipe Graphic Report of PLR CO1SD O **for** VEOLIA

Work Order		**Contract**		**Video** 2	**Setup** 14
Facility		**Operator** BMN		**Van Ref** 4	**Surveyed On** 12/05/2012
Street Name	NOKOMIS PHASE 2 CELL 2	**City**	NOKOMOS		
Location type	Berm				
Surface					
Survey purpose	Other (state in comments)			**Weather**	Dry

Pipe Use	Other (state in comments)	**Schedule length**	Ft	**From** CO1SD	**Depth** Ft
Shape	Circular	**Size** 6 **by**	ins	**To** CO1ND	**Depth** Ft
Material	Other (state in comments)	**Joint spacing**	Ft	**Direction**	Downstream
Lining		**Year laid**		**Pre-clean**	**Last cleaned**

General note	HDPE LEACHATE DETECTION	Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	

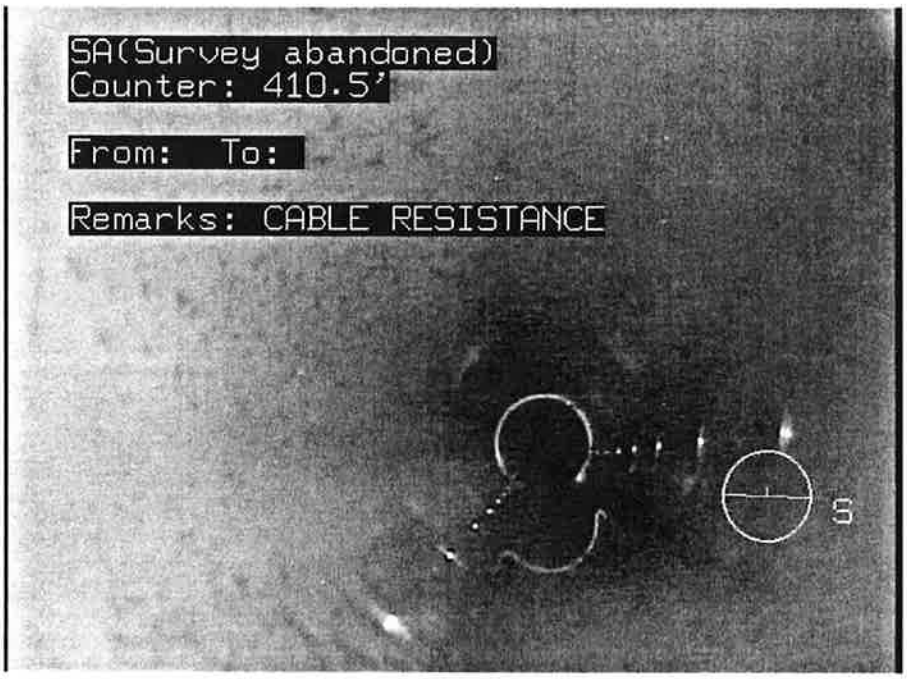


0.0 Ft Start of Survey
Manhole/Node [CO1SD]
Water level 0

410.5 Ft Survey Abandoned [CABLE RESISTANCE]

CCTV pictures of CO1SD O **for** VEOLIA

Work Order		**Surveyed On** 12/05/2012	**Setup** 14
Street Name	NOKOMIS PHASE 2 CELL 2		**Video** 2
City Name	NOKOMOS	**Weather** Dry	
Location	Berm		
From Manhole	CO1SD	**To Manhole** CO1ND	**Direction** Downstream



Date: 12/05/2012 **Distance:** 410.5 Ft **Obs:** Survey abandoned

Comments: CABLE RESISTANCE

FLORIDA JETCLEAN

HIGH PRESSURE WATER JETTING
PIPELINE VIDEO INSPECTION (EX)
VACUUM TRUCK SERVICES
LASER PROFILING / NO DIG REPAIRS

7538 DUNBRIDGE DR., ODESSA, FL 33556
TEL: 800-226-8013 FAX: 813-926-4616
WEB: WWW.FLORIDAJETCLEAN.COM
EMAIL: FLORIDAJETCLEAN@YAHOO.COM

Sarasota County Solid Waste
Nokomis Landfill (CCSWDC)
Annual LCS Maintenance
Phase 1 - Cells 1-5 &
Phase 2 - Cells 1-2 Sump Connector

RECEIVED
APR - 1 2013
SOLID WASTE OPERATION

Work Performed
February 2013 - March 2013

Conducted By:
Florida Jetclean
800-226-8013

FLORIDA JETCLEAN

HIGH PRESSURE WATER JETTING
PIPELINE VIDEO INSPECTION (EX)
VACUUM TRUCK SERVICES
LASER PROFILING / NO DIG REPAIRS

7538 DUNBRIDGE DR., ODESSA, FL 33556
TEL: 800-226-8013 FAX: 813-926-4616
WEB: WWW.FLORIDAJETCLEAN.COM
EMAIL: FLORIDAJETCLEAN@YAHOO.COM

DATE : 3/29/2013
TO : Jason Timmons - Sarasota County Solid Waste Management
FROM : Ralph Calistri (floridajetclean@yahoo.com)
SUBJECT : Sarasota County - CCSWDC – Phase I Cells 1-5 and Phase 2 Cell 1-2 Sump Connection - LCS Maintenance

Florida Jetclean was mobilized to the Sarasota County CCSWDC to carry out high-pressure water-jetting and explosion-proof video-inspection services on the Phase 1 - Cells 1-5 leachate collection piping and the Phase 2 - Cells 1-2 sump connection piping between 1/30/2013 and 3/6/2013. Included with this letter are 3 hard-copy video inspection reports and the DVD's of the inspection footage.

As the jetting log (below) indicates, all pipes were jetcleaned end-to-end. All of the below pipes were blockage free at the time of completion.

Location	Distance Achieved	Result
Phase 1 - Cell 1	1,390'	Pipe cleaned end-to-end
Phase 1 - Cell 2	1,350'	Pipe cleaned end-to-end
Phase 1 - Cell 3	1,326'	Pipe cleaned end-to-end
Phase 1 - Cell 4	1,323'	Pipe cleaned end-to-end
Phase 1 - Cell 5	1,322'	Pipe cleaned end-to-end
Phase 2 - Cell 1-2 Sump Connection	401'	Pipe cleaned end-to-end

The post jetcleaning video-inspection shows that all pipes inspected are clean and blockage free (see attached CCTV survey listing and Pipe Graphic Reports for more detailed information).

The Phase 1 leachate collection system and Phase 2 Cell 1-2 sump connector appears to flow and drain properly, and looks to be in a sound condition to deliver leachate.

Please call us with questions or concerns.

Regards,

Ralph Calistri

Ralph Calistri - Florida Jetclean - 800-226-8013

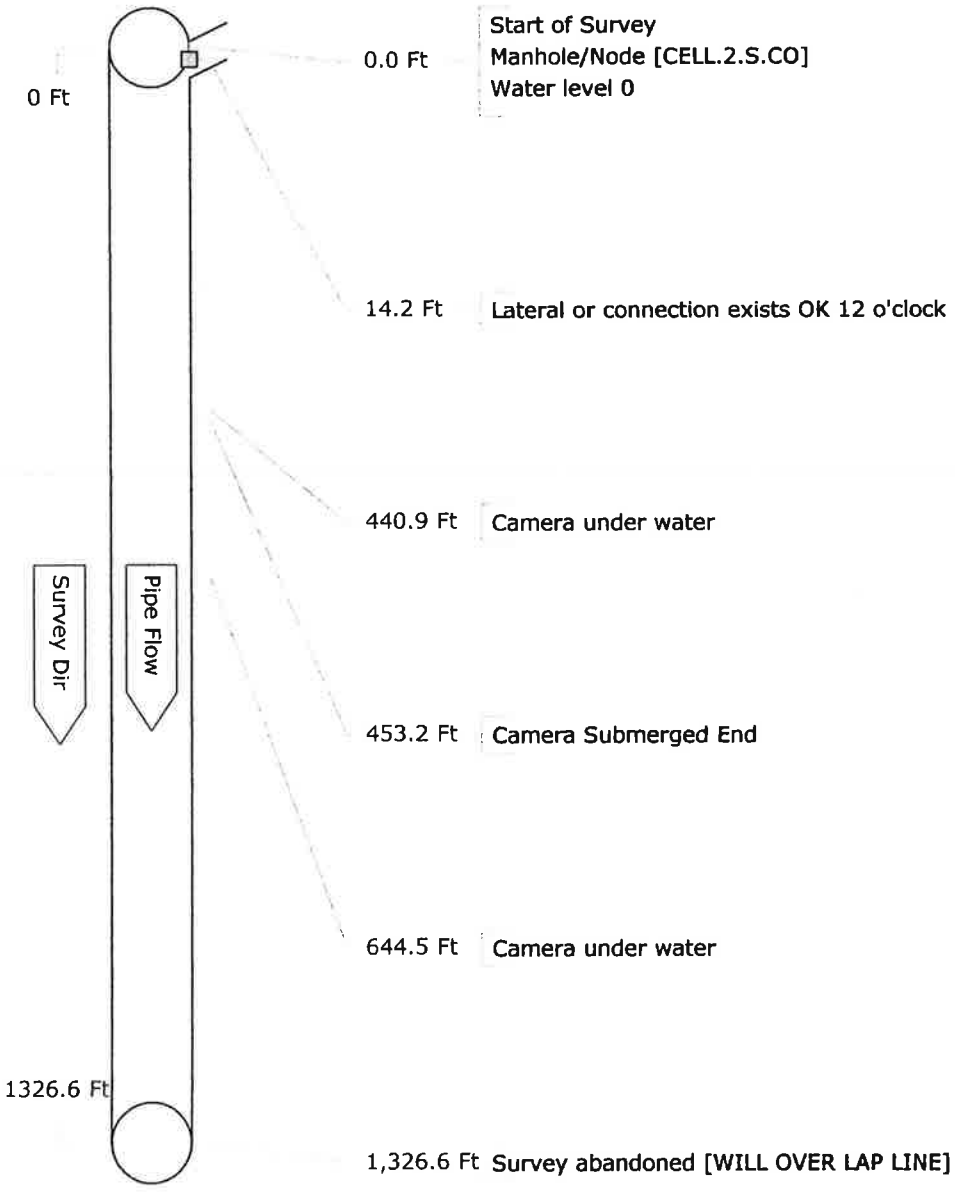
CCTV Surveys List for SARASOTA COUNTY

Number of surveys in this list is 11 **as of** Friday, March 29, 2013 **Unit of measure:** ft

Setup	Date	Street	Start MH	Finish MH	Dir	Size inch	Pre Clean	Vid Cassette	Scheduled Length	Surveyed Length
1		SARASOTA COUNTY	CELL.2.S.CO	CELL.2.N.CO	D	8	Y	DVD1		1326.6
2	1/30/2013	SARASOTA COUNTY	CELL.1.S.CO	CELL.1.N.CO	D	8	Y	DVD2		1326.9
3	1/31/2013	SARASOTA COUNTY	CELL.3.S.CO	CELL.3.N.CO	D	8	Y	DVD3		1280.7
4	1/31/2013	SARASOTA COUNTY	CELL.4.S.CO	CELL.4.N.CO	D	8	Y	DVD4		1294.6
5	2/1/2013	SARASOTA COUNTY	CELL.5.S.CO	CELL.5.N.CO	D	8	Y	DVD5		1011.5
6	2/1/2013	SARASOTA COUNTY	CELL.5.N.CO	CELL.5.S.CO	U	8	Y	DVD5		391.5
7	2/1/2013	SARASOTA COUNTY	CELL.4.N.CO	CELL.4.S.CO	U	8	Y	DVD4		75.9
11	2/1/2013	SARASOTA COUNTY	CELL2.PHA.2SUMP	CELL1.PHA.2SUMP	U	8	Y	DVD6		400.7
12	3/5/2013	SARASOTA COUNTY	CELL1.N.CO	CELL1.S.CO	U	8	Y	DVD3		261.3
13	3/5/2013	SARASOTA COUNTY	CELL2.N.CO	CELL2.S.CO	U	8	Y	DVD3		500.5
14	3/5/2013	SARASOTA COUNTY	CELL3.N.CO	CELL3.S.CO	U	8	Y	DVD3		287.9
								Total Scheduled Length	0.0	
								Total Length Surveyed		8,158.1

Pipe Graphic Report of PLR CELL.2.S.CO X **for** SARASOTA COUNTY

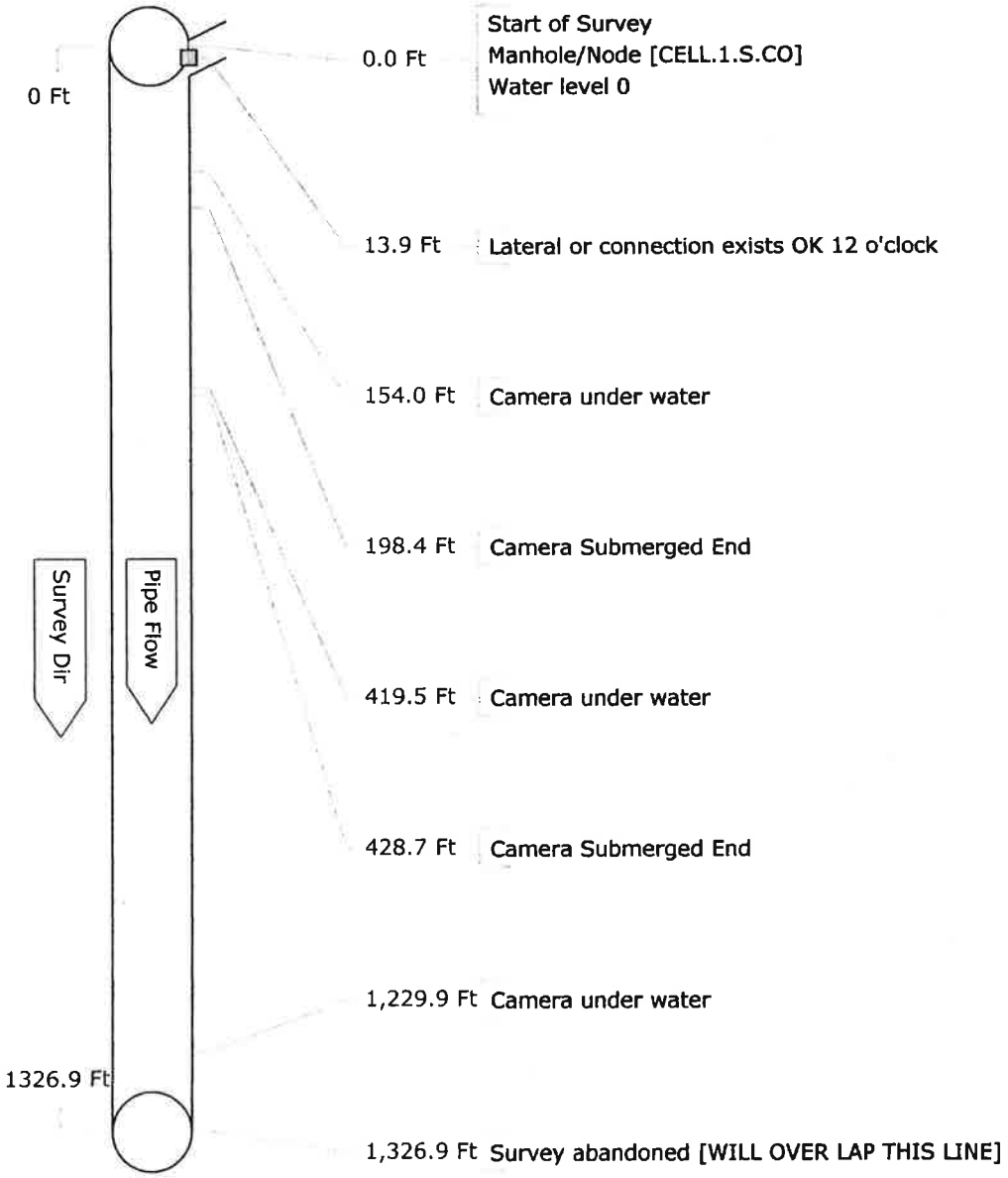
Work Order	CLASS.1 LANDFILL	**Contract**		**Video** DVD1	**Setup** 1
Facility		**Operator** Supervisor		**Van Ref** 3	**Surveyed On**
Street Name	SARASOTA COUNTY		**City**	C.C.S.W.D.C.	
Location type	LANDFILL				
Surface					
Survey purpose	Re-survey for any reason			**Weather** Dry	
Pipe Use	LEACHATE	**Schedule length**	Ft	**From** CELL.2.S.CO	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CELL.2.N.CO	**Depth** Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned**
General note	VIDEO INSPECTION OF PHASE.1 COLLECTION SYSTEM.				
Location note	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX				



0.0 Ft	Start of Survey Manhole/Node [CELL.2.S.CO] Water level 0
14.2 Ft	Lateral or connection exists OK 12 o'clock
440.9 Ft	Camera under water
453.2 Ft	Camera Submerged End
644.5 Ft	Camera under water
1,326.6 Ft	Survey abandoned [WILL OVER LAP LINE]

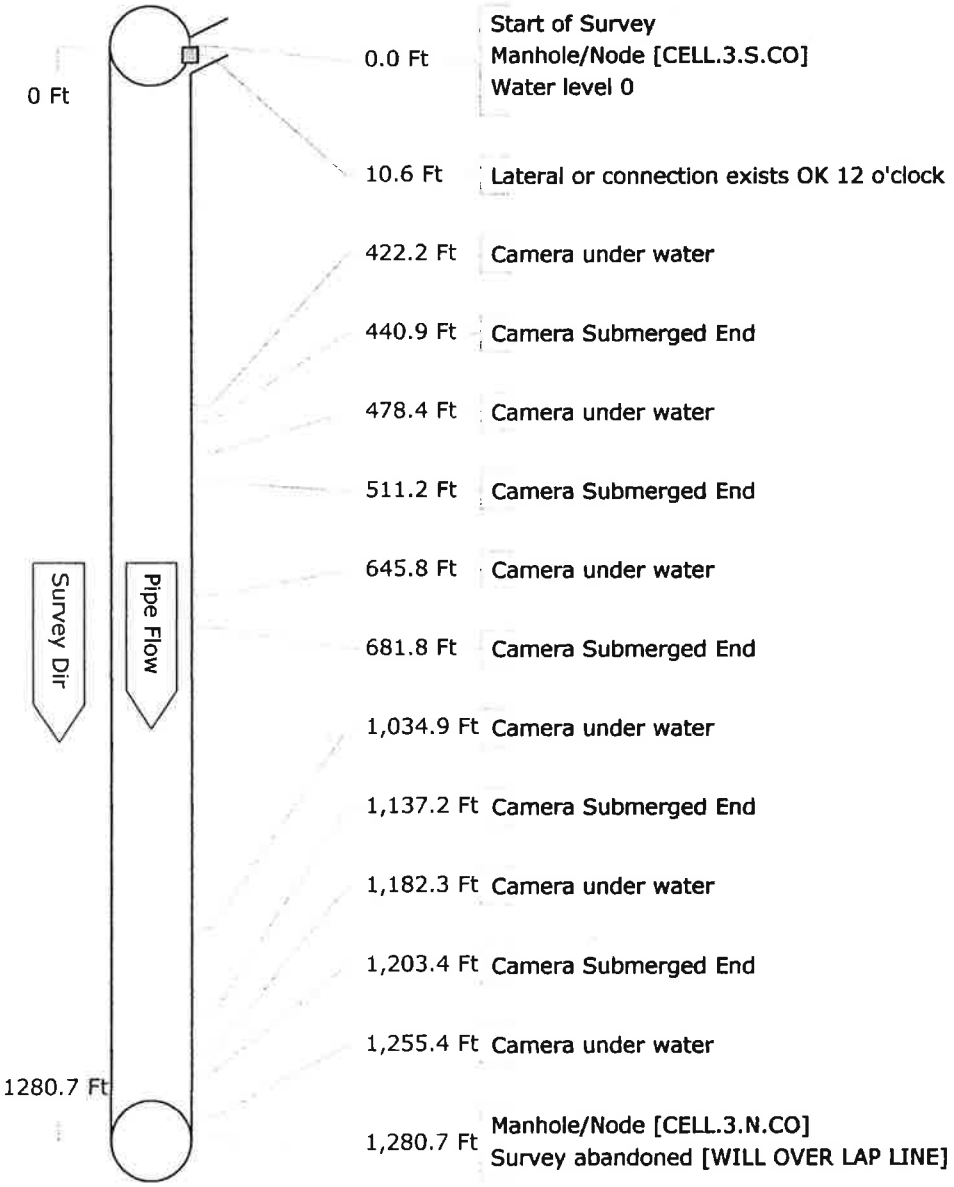
Pipe Graphic Report of PLR CELL.1.S.CO X **for** SARASOTA COUNTY

Work Order	CLASS.1 LANDFILL	**Contract**		**Video** DVD2	**Setup** 2
Facility		**Operator** Supervisor		**Van Ref** 3	**Surveyed On** 01/30/2013
Street Name	SARASOTA COUNTY		**City**	C.C.S.W.D.C.	
Location type	LANDFILL				
Surface					
Survey purpose	Re-survey for any reason			**Weather** Dry	
Pipe Use	LEACHATE	**Schedule length**	Ft	**From** CELL.1.S.CO	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CELL.1.N.CO	**Depth** Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned**
General note	VIDEO INSPECTION OF PHASE.1 COLLECTION SYSTEM.				
Location note	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX				



Pipe Graphic Report of PLR CELL.3.S.CO X **for** SARASOTA COUNTY

Work Order	CLASS.1 LANDFILL	**Contract**		**Video** DVD3	**Setup** 3
Facility		**Operator** Supervisor		**Van Ref** 3	**Surveyed On** 01/31/2013
Street Name	SARASOTA COUNTY		**City**	C.C.S.W.D.C.	
Location type	LANDFILL				
Surface					
Survey purpose	Re-survey for any reason			**Weather** Dry	
Pipe Use	LEACHATE	**Schedule length**	Ft	**From** CELL.3.S.CO	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CELL.3.N.CO	**Depth** Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned**
General note	VIDEO INSPECTION OF PHASE.1 COLLECTION SYSTEM.				
Location note	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX				



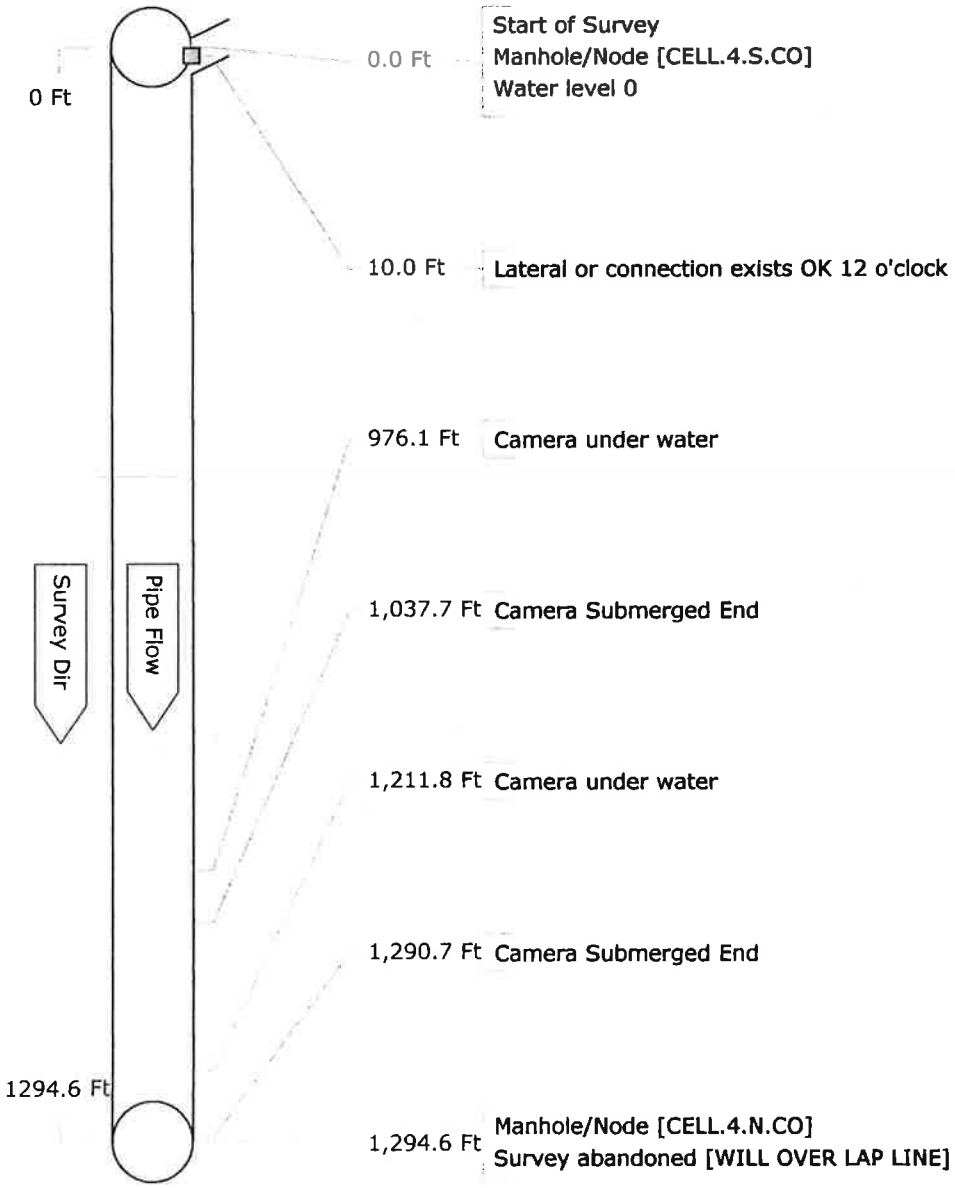
0.0 Ft	Start of Survey Manhole/Node [CELL.3.S.CO] Water level 0
10.6 Ft	Lateral or connection exists OK 12 o'clock
422.2 Ft	Camera under water
440.9 Ft	Camera Submerged End
478.4 Ft	Camera under water
511.2 Ft	Camera Submerged End
645.8 Ft	Camera under water
681.8 Ft	Camera Submerged End
1,034.9 Ft	Camera under water
1,137.2 Ft	Camera Submerged End
1,182.3 Ft	Camera under water
1,203.4 Ft	Camera Submerged End
1,255.4 Ft	Camera under water
1,280.7 Ft	Manhole/Node [CELL.3.N.CO] Survey abandoned [WILL OVER LAP LINE]

Pipe Graphic Report of PLR CELL.4.S.CO X **for** SARASOTA COUNTY

Work Order	CLASS.1 LANDFILL	**Contract**		**Video** DVD4	**Setup** 4
Facility		**Operator** Supervisor		**Van Ref** 3	**Surveyed On** 01/31/2013
Street Name	SARASOTA COUNTY		**City**	C.C.S.W.D.C.	
Location type	LANDFILL				
Surface					
Survey purpose	Re-survey for any reason			**Weather** Dry	

Pipe Use	LEACHATE	**Schedule length**	Ft	**From** CELL.4.S.CO	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CELL.4.N.CO	**Depth** Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned**

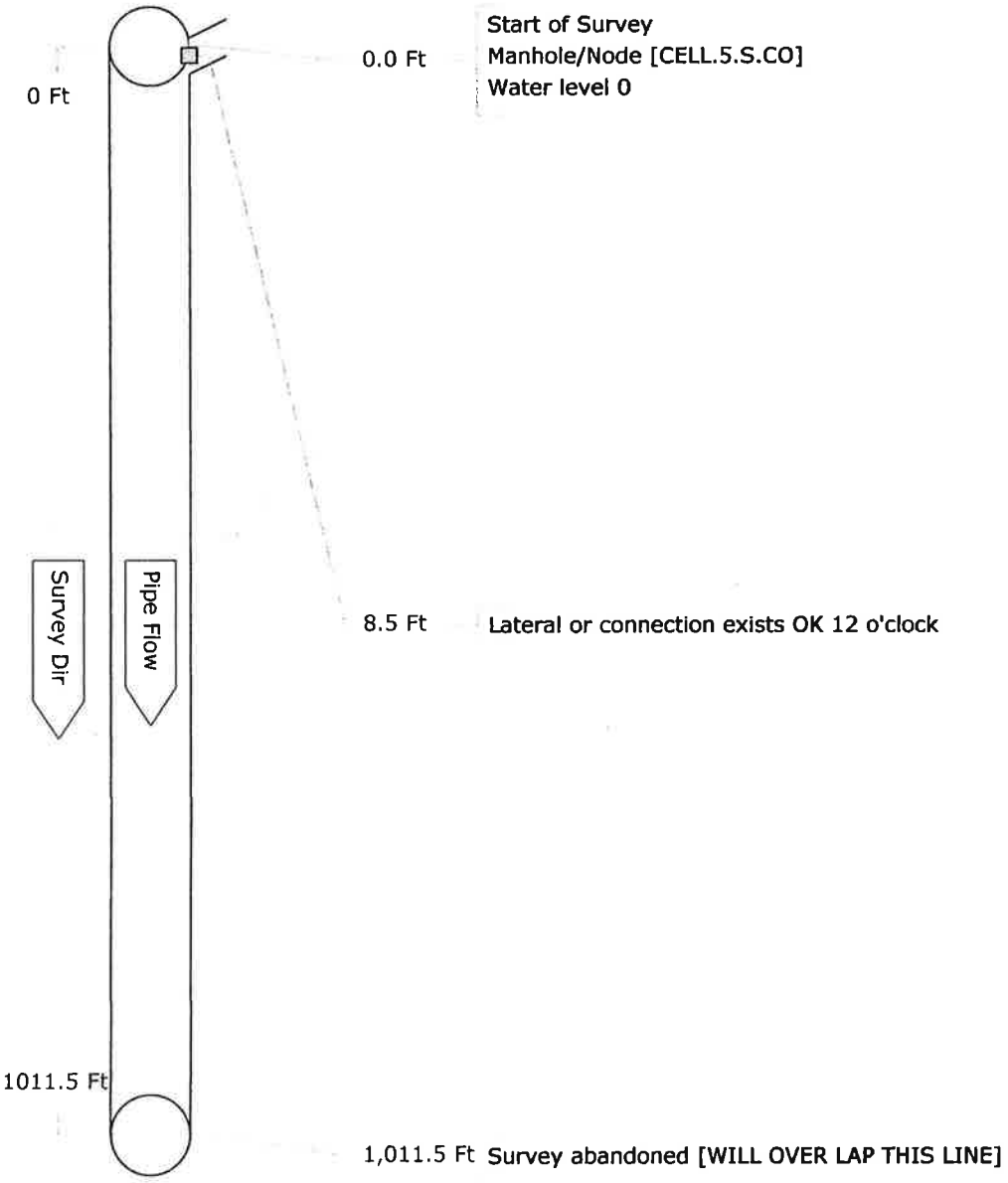
General note VIDEO INSPECTION OF PHASE.1 COLLECTION SYSTEM.
Location note CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX



0.0 Ft	Start of Survey Manhole/Node [CELL.4.S.CO] Water level 0
10.0 Ft	Lateral or connection exists OK 12 o'clock
976.1 Ft	Camera under water
1,037.7 Ft	Camera Submerged End
1,211.8 Ft	Camera under water
1,290.7 Ft	Camera Submerged End
1,294.6 Ft	Manhole/Node [CELL.4.N.CO] Survey abandoned [WILL OVER LAP LINE]

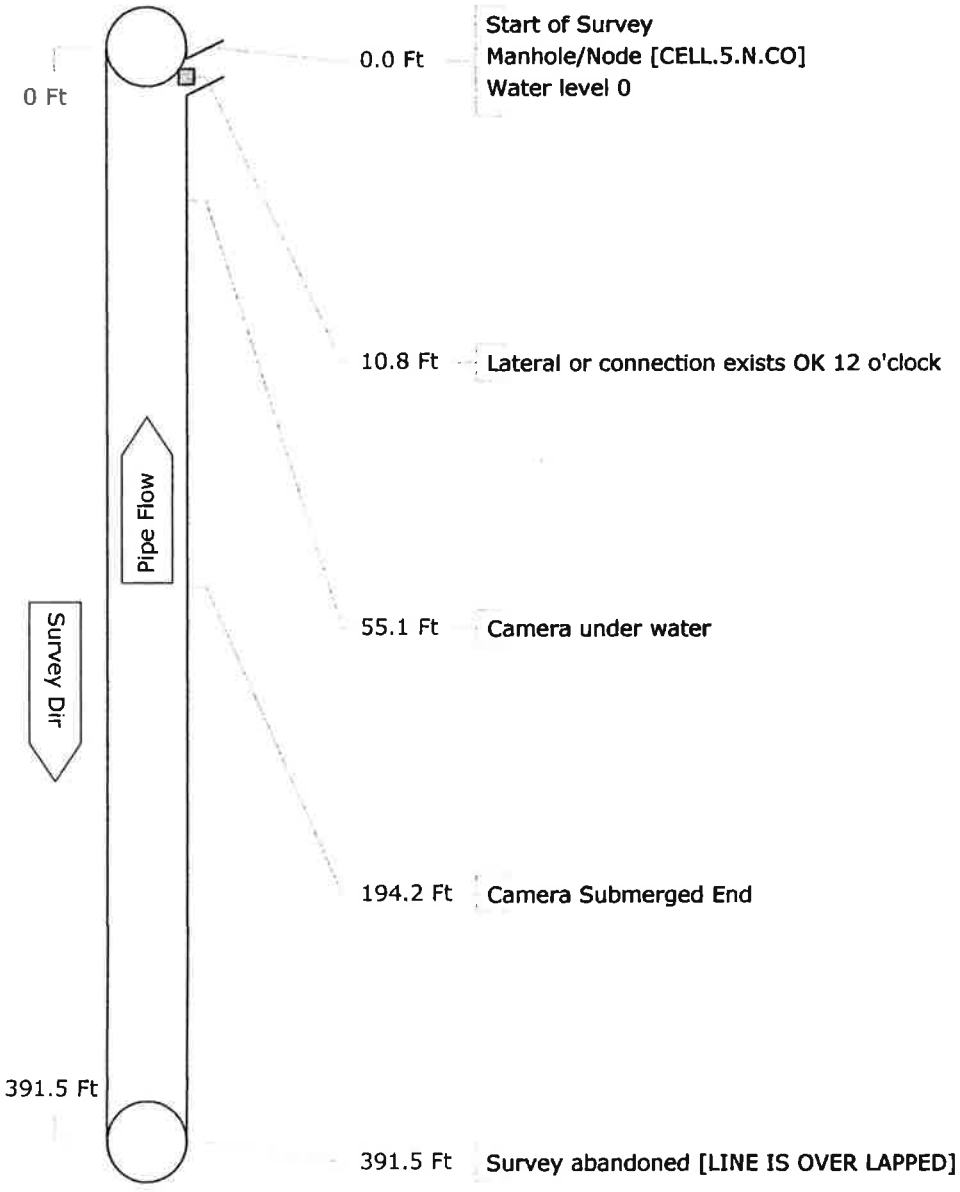
Pipe Graphic Report of PLR CELL.5.S.CO X **for** SARASOTA COUNTY

Work Order	CLASS.1 LANDFILL	**Contract**		**Video**	DVD5	**Setup**	5
Facility		**Operator**	Supervisor	**Van Ref**	3	**Surveyed On**	02/01/2013
Street Name	SARASOTA COUNTY		**City**	C.C.S.W.D.C.			
Location type	LANDFILL						
Surface							
Survey purpose	Re-survey for any reason			**Weather**	Dry		
Pipe Use	LEACHATE	**Schedule length**	Ft	**From**	CELL.5.S.CO	**Depth**	Ft
Shape	Circular	**Size**	8 **by** ins	**To**	CELL.5.N.CO	**Depth**	Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction**	Downstream		
Lining		**Year laid**		**Pre-clean**	Y	**Last cleaned**	
General note	VIDEO INSPECTION OF PHASE.1 COLLECTION SYSTEM.						
Location note	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX						



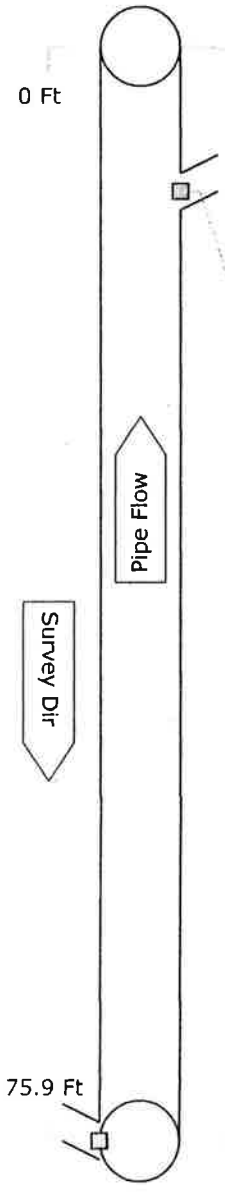
Pipe Graphic Report of PLR CELL.5.S.CO W **for** SARASOTA COUNTY

Work Order	CLASS.1 LANDFILL	**Contract**		**Video** DVD5	**Setup** 6
Facility		**Operator** Supervisor		**Van Ref** 3	**Surveyed On** 02/01/2013
Street Name	SARASOTA COUNTY		**City**	C.C.S.W.D.C.	
Location type	LANDFILL				
Surface					
Survey purpose	Re-survey for any reason			**Weather** Dry	
Pipe Use	LEACHATE	**Schedule length**	Ft	**From** CELL.5.N.CO	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CELL.5.S.CO	**Depth** Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned**
General note	VIDEO INSPECTION OF PHASE.1 COLLECTION SYSTEM.				
Location note	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX				



Pipe Graphic Report of PLR CELL.4.S.CO W **for** SARASOTA COUNTY

Work Order	CLASS.1 LANDFILL	**Contract**		**Video** DVD4	**Setup** 7
Facility		**Operator** Supervisor		**Van Ref** 3	**Surveyed On** 02/01/2013
Street Name	SARASOTA COUNTY		**City** C.C.S.W.D.C.		
Location type	LANDFILL				
Surface					
Survey purpose	Re-survey for any reason			**Weather** Dry	
Pipe Use	LEACHATE	**Schedule length**	Ft	**From** CELL.4.N.CO	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CELL.4.S.CO	**Depth** Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned**
General note	VIDEO INSPECTION OF PHASE.1 COLLECTION SYSTEM.				
Location note	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX				



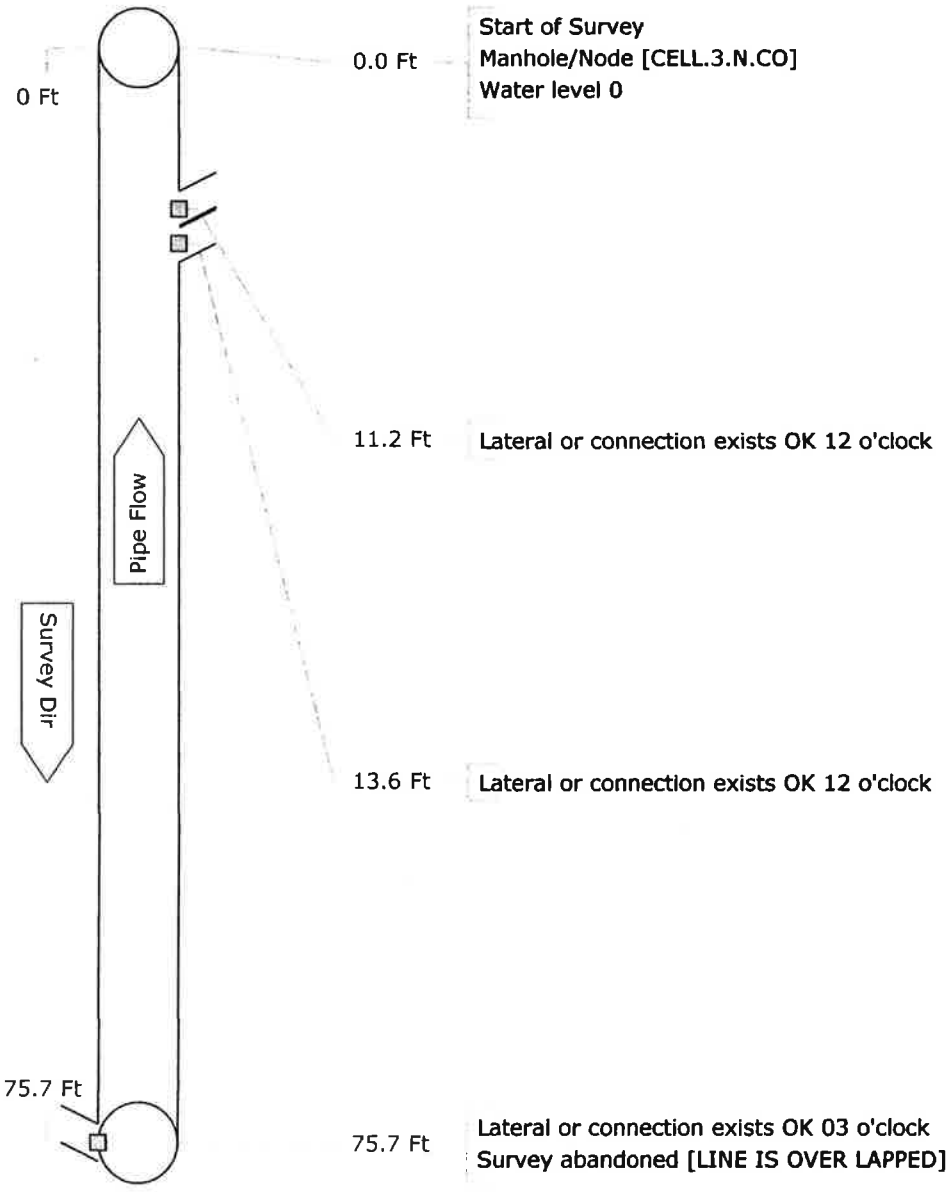
0.0 Ft — Start of Survey
Manhole/Node [CELL.4.N.CO]
Water level 0

10.1 Ft — Lateral or connection exists OK 12 o'clock

75.9 Ft — Lateral or connection exists OK 03 o'clock
Survey abandoned [LINE IS OVER LAPPED]

Pipe Graphic Report of PLR CELL.3.S.CO W **for** SARASOTA COUNTY

Work Order	CLASS.1 LANDFILL **Contract**		**Video** DVD3	**Setup**	8
Facility	**Operator** Supervisor		**Van Ref** 3	**Surveyed On**	02/01/2013
Street Name	SARASOTA COUNTY	**City**	C.C.S.W.D.C.		
Location type	LANDFILL				
Surface					
Survey purpose	Re-survey for any reason		**Weather** Dry		
Pipe Use	LEACHATE	**Schedule length** Ft	**From**	CELL.3.N.CO	**Depth** Ft
Shape	Circular	**Size** 8 **by** ins	**To**	CELL.3.S.CO	**Depth** Ft
Material	Polyethylene - High density	**Joint spacing** Ft	**Direction**	Upstream	
Lining		**Year laid**	**Pre-clean** Y	**Last cleaned**	
General note	VIDEO INSPECTION OF PHASE.1 COLLECTION SYSTEM.				
Location note	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX				



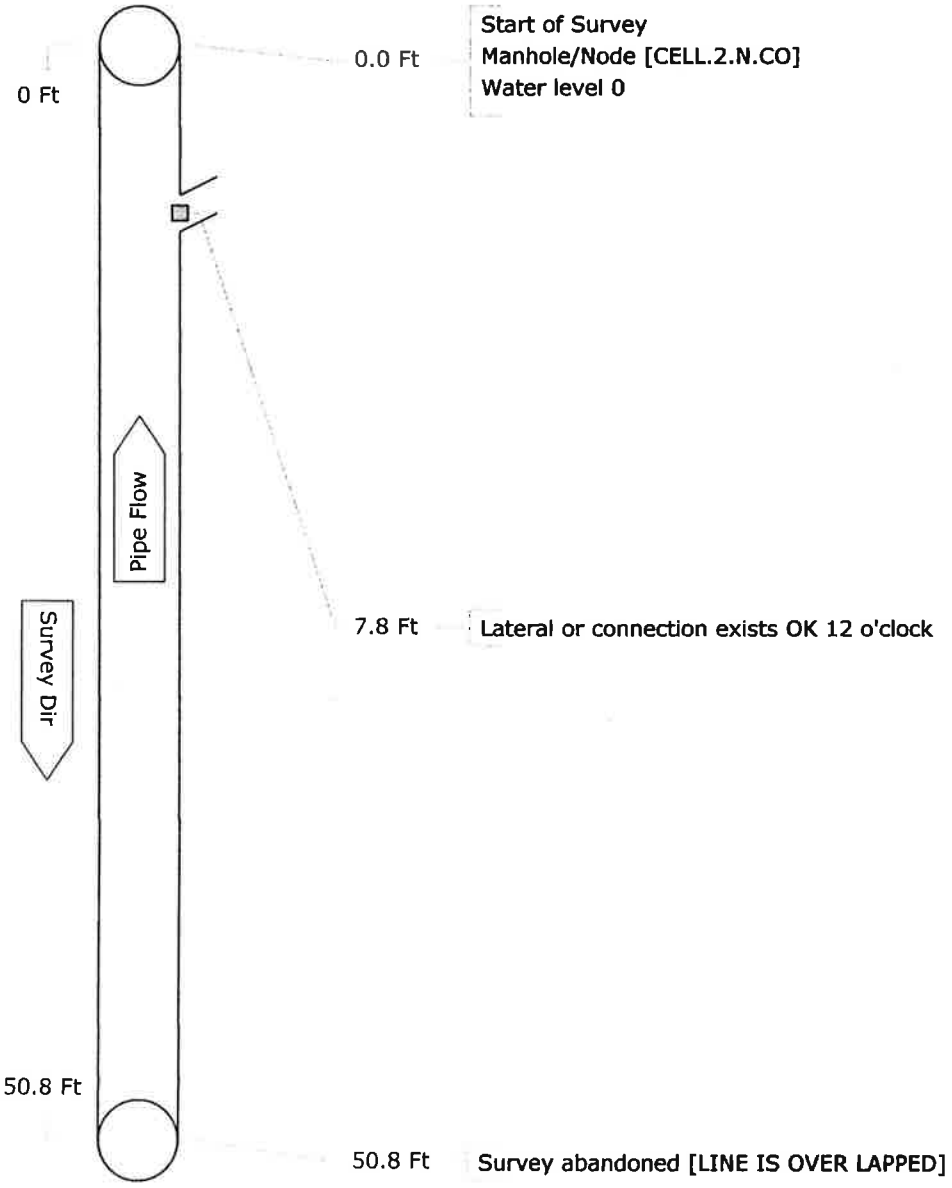
0.0 Ft	Start of Survey Manhole/Node [CELL.3.N.CO] Water level 0
11.2 Ft	Lateral or connection exists OK 12 o'clock
13.6 Ft	Lateral or connection exists OK 12 o'clock
75.7 Ft	Lateral or connection exists OK 03 o'clock Survey abandoned [LINE IS OVER LAPPED]

Pipe Graphic Report of PLR CELL.2.S.CO W **for** SARASOTA COUNTY

Work Order	CLASS.1 LANDFILL	**Contract**		**Video** DVD1	**Setup** 9
Facility		**Operator** Supervisor		**Van Ref** 3	**Surveyed On** 02/01/2013
Street Name	SARASOTA COUNTY		**City**	C.C.S.W.D.C.	
Location type	LANDFILL				
Surface					
Survey purpose	Re-survey for any reason			**Weather** Dry	

Pipe Use	LEACHATE	**Schedule length**	Ft	**From** CELL.2.N.CO	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CELL.2.S.CO	**Depth** Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned**

General note VIDEO INSPECTION OF PHASE.1 COLLECTION SYSTEM.
Location note CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX

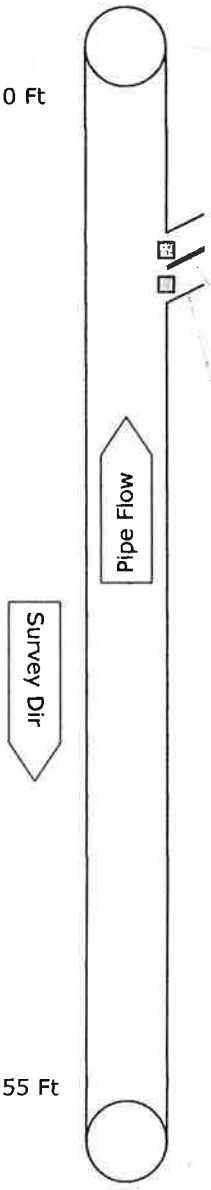


Pipe Graphic Report of PLR CELL.1.S.CO W **for** SARASOTA COUNTY

Work Order	CLASS.1 LANDFILL	**Contract**		**Video** DVD2	**Setup** 10
Facility		**Operator** Supervisor		**Van Ref** 3	**Surveyed On** 02/01/2013
Street Name	SARASOTA COUNTY		**City** C.C.S.W.D.C.		
Location type	LANDFILL				
Surface					
Survey purpose	Re-survey for any reason			**Weather** Dry	

Pipe Use	LEACHATE	**Schedule length**	Ft	**From** CELL.1.N.CO	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CELL.1.S.CO	**Depth** Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned**

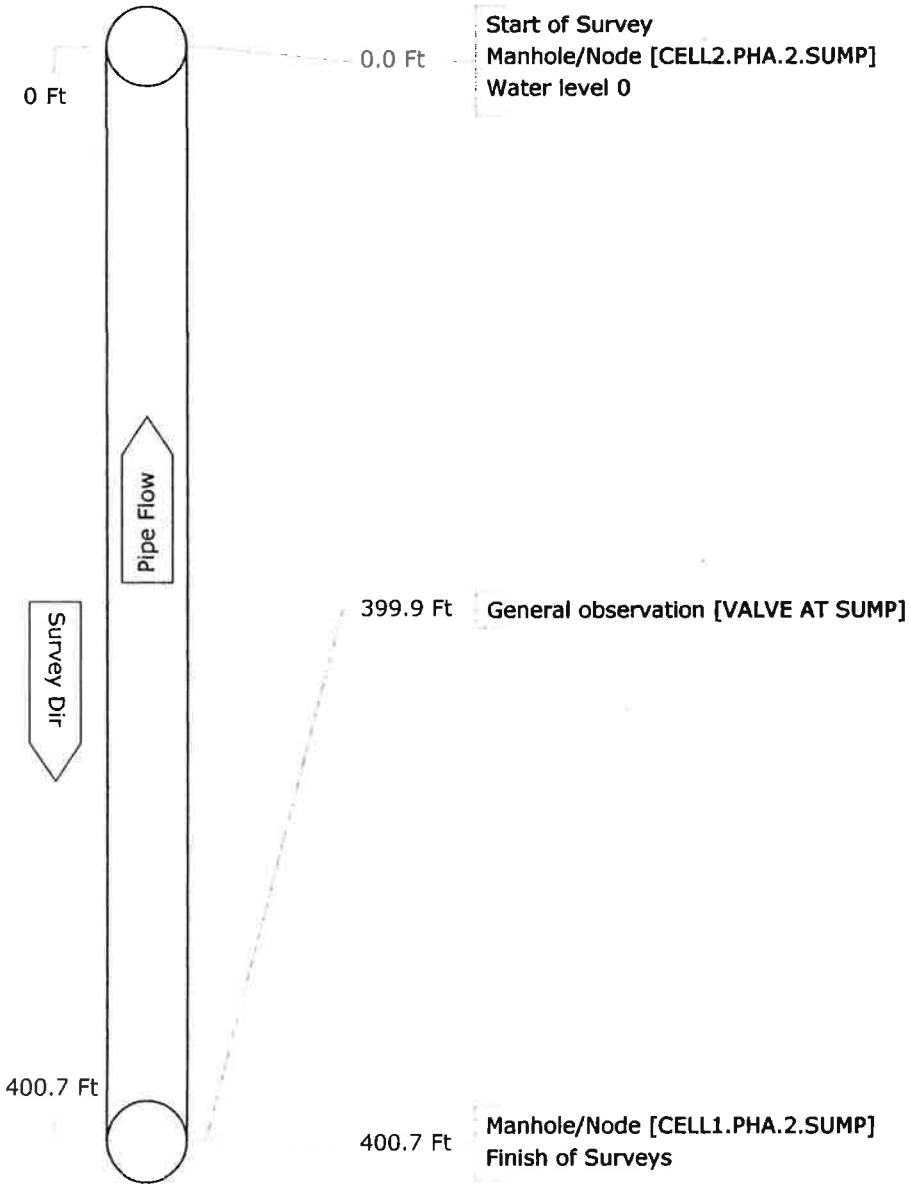
General note VIDEO INSPECTION OF PHASE.1 COLLECTION SYSTEM.
Location note CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX



0.0 Ft	Start of Survey Manhole/Node [CELL.1.N.CO] Water level 0
10.3 Ft	Lateral or connection exists OK 12 o'clock
12.0 Ft	Lateral or connection exists OK 12 o'clock
55.0 Ft	Survey abandoned [LINE IS OVER LAPPED]

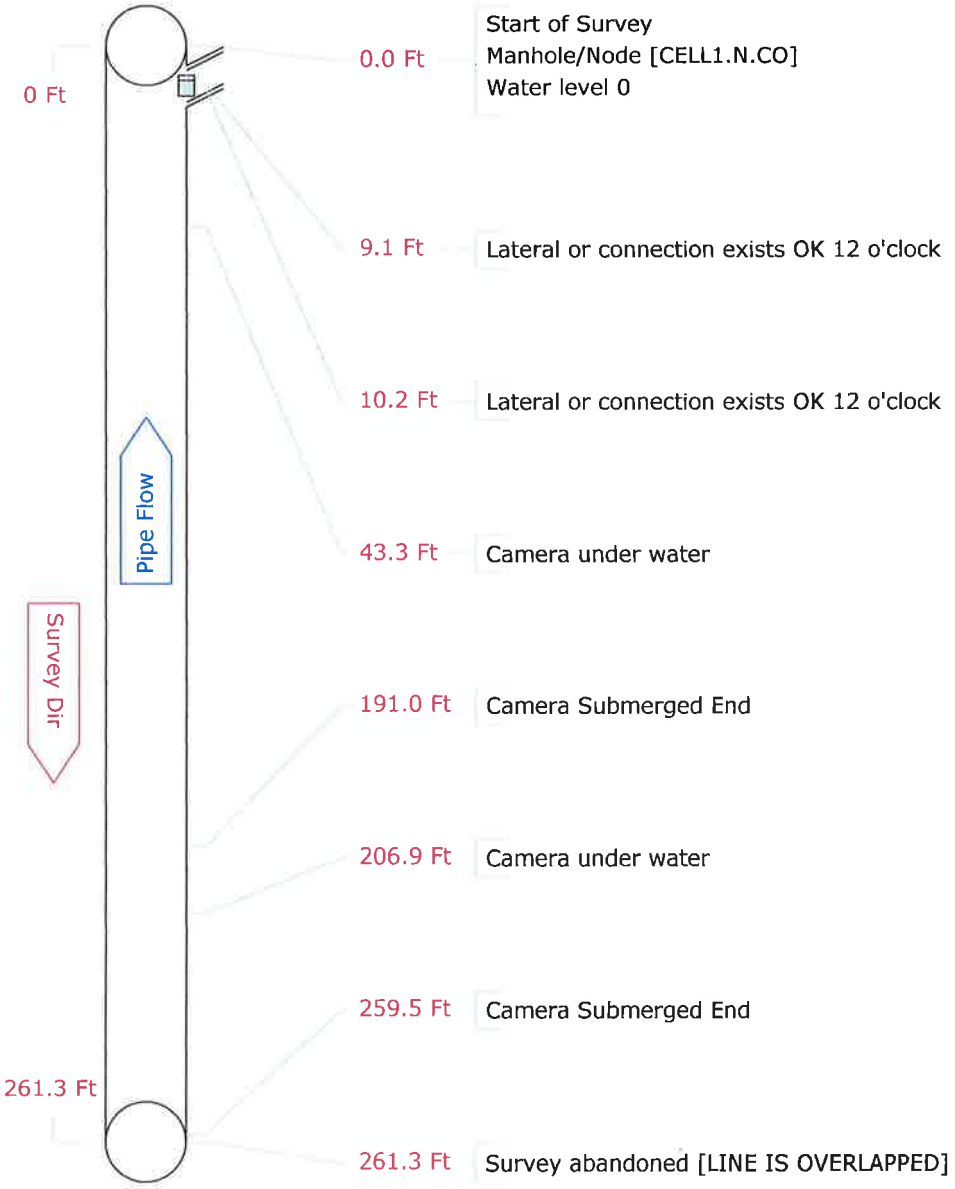
Pipe Graphic Report of PLR CELL1.PHA.2SUMP W **for** SARASOTA COUNTY

Work Order	CLASS.1 LANDFILL	**Contract**		**Video** DVD2	**Setup** 11
Facility		**Operator** Supervisor		**Van Ref** 3	**Surveyed On** 02/01/2013
Street Name	SARASOTA COUNTY		**City** C.C.S.W.D.C.		
Location type	LANDFILL				
Surface					
Survey purpose	Re-survey for any reason			**Weather** Dry	
Pipe Use	LEACHATE	**Schedule length**	Ft	**From** CELL2.PHA.2SUMP **Depth**	Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CELL1.PHA.2SUMP **Depth**	Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** Y **Last cleaned**	
General note	VIDEO INSPECTION OF PHASE.1&2 COLLECTION SUMPS.				
Location note	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX				



Pipe Graphic Report of PLR CELL1.S.CO W **for** SARASOTA COUNTY

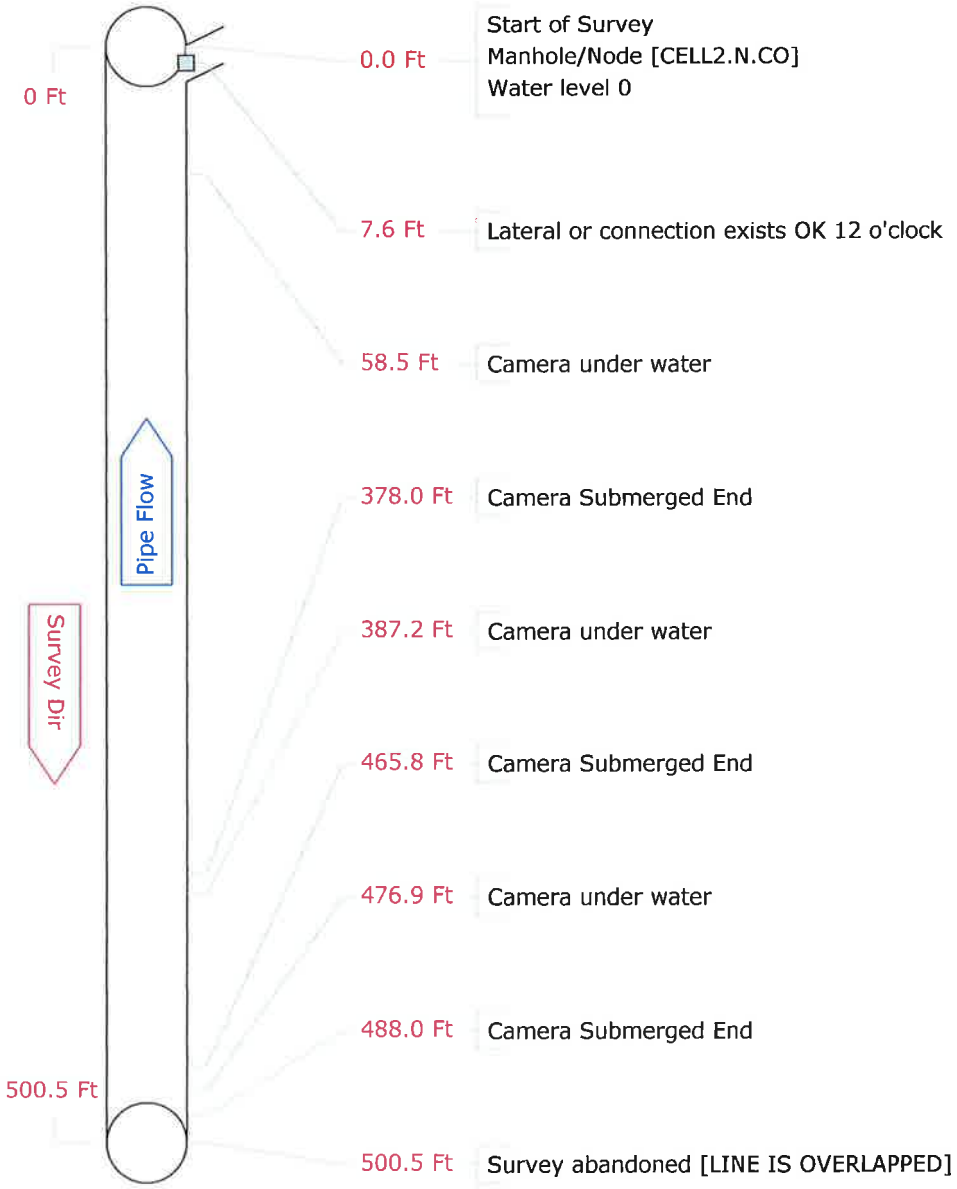
Work Order	CLASS.1 LANDFILL	**Contract**		**Video** DVD3	**Setup** 12
Facility		**Operator** Supervisor		**Van Ref** 3	**Surveyed On** 03/05/2013
Street Name	SARASOTA COUNTY	**City**	C.C.S.W.D.C.		
Location type	LANDFILL				
Surface					
Survey purpose	Re-survey for any reason			**Weather** Dry	
Pipe Use	LEACHATE	**Schedule length**	Ft	**From** CELL1.N.CO	**Depth** Ft
Shape	Circular	**Size** 8	**by** ins	**To** CELL1.S.CO	**Depth** Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned**
General note	VIDEO INSPECTION OF PHASE.1 COLLECTION SYSTEM.				
Location note	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX				



0.0 Ft	Start of Survey Manhole/Node [CELL1.N.CO] Water level 0
9.1 Ft	Lateral or connection exists OK 12 o'clock
10.2 Ft	Lateral or connection exists OK 12 o'clock
43.3 Ft	Camera under water
191.0 Ft	Camera Submerged End
206.9 Ft	Camera under water
259.5 Ft	Camera Submerged End
261.3 Ft	Survey abandoned [LINE IS OVERLAPPED]

Pipe Graphic Report of PLR CELL2.S.CO W **for** SARASOTA COUNTY

Work Order	CLASS.1 LANDFILL	**Contract**		**Video** DVD3	**Setup** 13
Facility		**Operator** Supervisor		**Van Ref** 3	**Surveyed On** 03/05/2013
Street Name	SARASOTA COUNTY		**City** C.C.S.W.D.C.		
Location type	LANDFILL				
Surface					
Survey purpose	Re-survey for any reason			**Weather** Dry	
Pipe Use	LEACHATE	**Schedule length**	Ft	**From** CELL2.N.CO	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CELL2.S.CO	**Depth** Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned**
General note	VIDEO INSPECTION OF PHASE.1 COLLECTION SYSTEM.				
Location note	CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX				



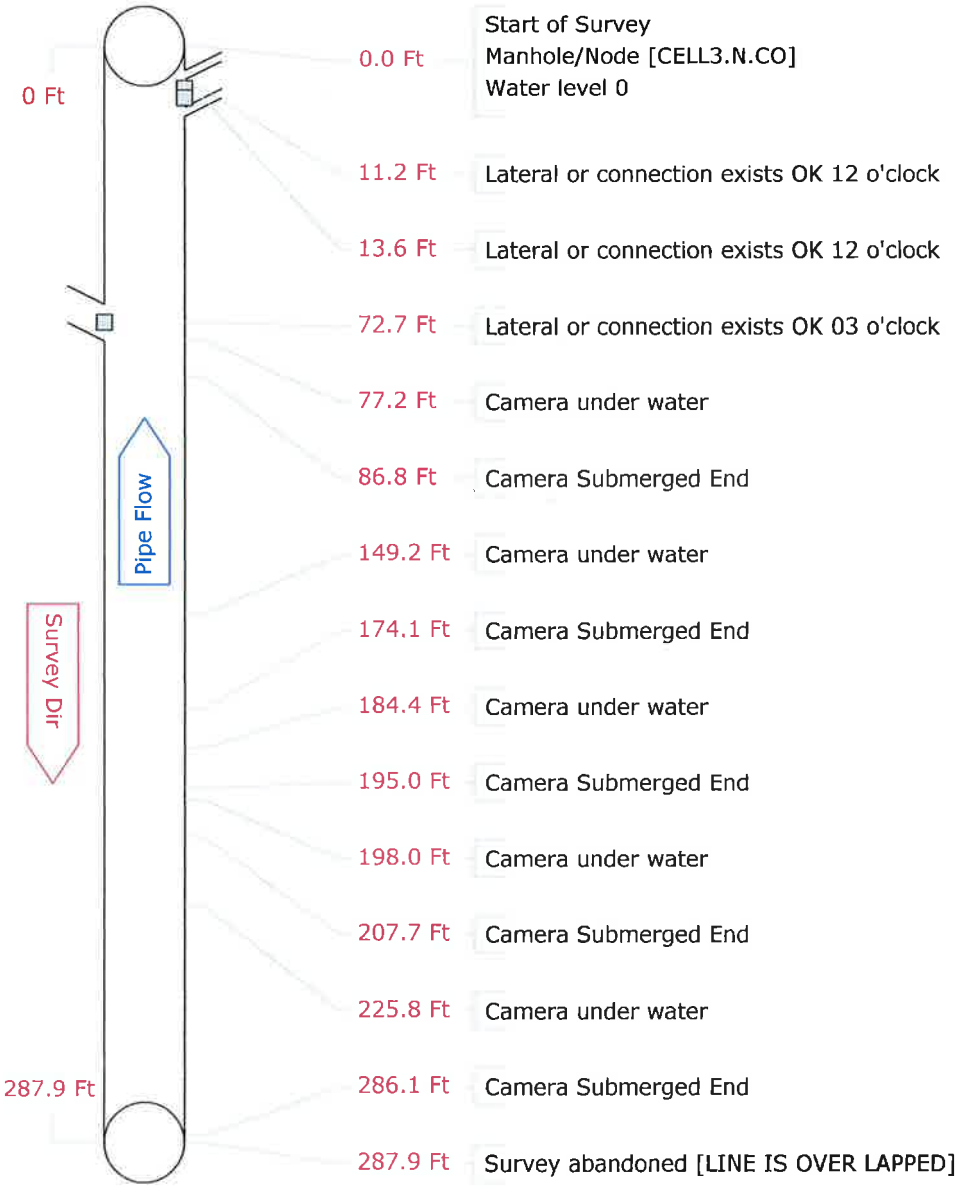
0.0 Ft	Start of Survey Manhole/Node [CELL2.N.CO] Water level 0
7.6 Ft	Lateral or connection exists OK 12 o'clock
58.5 Ft	Camera under water
378.0 Ft	Camera Submerged End
387.2 Ft	Camera under water
465.8 Ft	Camera Submerged End
476.9 Ft	Camera under water
488.0 Ft	Camera Submerged End
500.5 Ft	Survey abandoned [LINE IS OVERLAPPED]

Pipe Graphic Report of PLR CELL3.S.CO W **for** SARASOTA COUNTY

Work Order	CLASS.1 LANDFILL	**Contract**		**Video** DVD3	**Setup** 14
Facility		**Operator** Supervisor		**Van Ref** 3	**Surveyed On** 03/05/2013
Street Name	SARASOTA COUNTY		**City** C.C.S.W.D.C.		
Location type	LANDFILL				
Surface					
Survey purpose	Re-survey for any reason			**Weather** Dry	

Pipe Use	LEACHATE	**Schedule length**	Ft	**From** CELL3.N.CO	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** CELL3.S.CO	**Depth** Ft
Material	Polyethylene - High density	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** Y	**Last cleaned**

General note VIDEO INSPECTION OF PHASE.1 COLLECTION SYSTEM.
Location note CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX



0.0 Ft	Start of Survey Manhole/Node [CELL3.N.CO] Water level 0
11.2 Ft	Lateral or connection exists OK 12 o'clock
13.6 Ft	Lateral or connection exists OK 12 o'clock
72.7 Ft	Lateral or connection exists OK 03 o'clock
77.2 Ft	Camera under water
86.8 Ft	Camera Submerged End
149.2 Ft	Camera under water
174.1 Ft	Camera Submerged End
184.4 Ft	Camera under water
195.0 Ft	Camera Submerged End
198.0 Ft	Camera under water
207.7 Ft	Camera Submerged End
225.8 Ft	Camera under water
286.1 Ft	Camera Submerged End
287.9 Ft	Survey abandoned [LINE IS OVER LAPPED]

ATTACHMENT I

PHASE II TERRACE STORMWATER CALCULATIONS

HDR Computation

Job Number	351384-160606-018	No.	
Project	CCSWDC Phase II	Computed	TMY	Date	2/15/2013
Subject	Phase II Sequencing Revisions	Checked		Date	
Task	Stormwater Bench Evaluation	Sheet		Of	

Objective:

Design permanent stormwater bench on the north and west sideslopes of Phase II.

Assumptions:

1. Phase II closure design essentially same as shown on Permit Drawing C-04, Phase II Closure Plan except for addition of single bench at El. 75 (Att. A)
2. 2% longitudinal slope along bench.
3. Minimum width of bench is 10' and bench configuration as shown below:

References:

1. FDOT Hydrology Handbook, February 2012.
2. FDOT Drainage Manual, January 2013.
3. FHWA HY-22 Urban Drainage Design Program

Calculations:

Use Modified Rational Formula to Calculate maximum 25 year flow in bench Swale (Ref. 1).

$Q = CIAN$ Where:

Q = Peak Flow (cfs)
C = Runoff Coefficient = 0.35 (steep grass, sandy soils, Ref. 1, Att. B)
I = Rainfall Intensity (in/hr) = 8.8 in/hr (25 yr frequency, Ref. 1, Att. C and D)
A = Contributing Area (Ac) = 0.63 Ac (Att. A)
N = Frequency Factor for 25 Yr frequency = 1.1 (Ref. 1, Att. E)

$Q = 0.35*8.8*0.63*1.1 =$ **2.13** cfs

Determine capacity of bench swale using Manning Eqn:

$Q=(1.49/n)AR^{2/3}S^{1/2}$ Where:

Q = Flow Capacity (CFS)
n = Manning roughness coeff. = 0.06 (sodded ditch, good stand of grass 2-6", Ref. 2, Att. F)
S = channel slope (ft/ft) = 2% = 0.02
A = cross sectional area of flow (ft^2)
R = Hydraulic Radius (ft) = A/(wetted perimeter)

Use Ref. 3 to solve Manning eqn. using follwing additional input values:

Bottom Width = 0
Left Sideslope = 10:1
Right Sideslope = 3:1
Depth of flow (flowing full) = 1'

Output Values (see Att. G): Q = **14.19** CFS > 2.13 CFS **OK**
V = velocity = 2.18 ft/s
From Ref. 2 (Att. H), maximum allowable V for ditch lined with sod is 4 ft/s **OK**

Use Ref. 3 to solve for flow depth using 25 year design flow of 2.13 cfs:

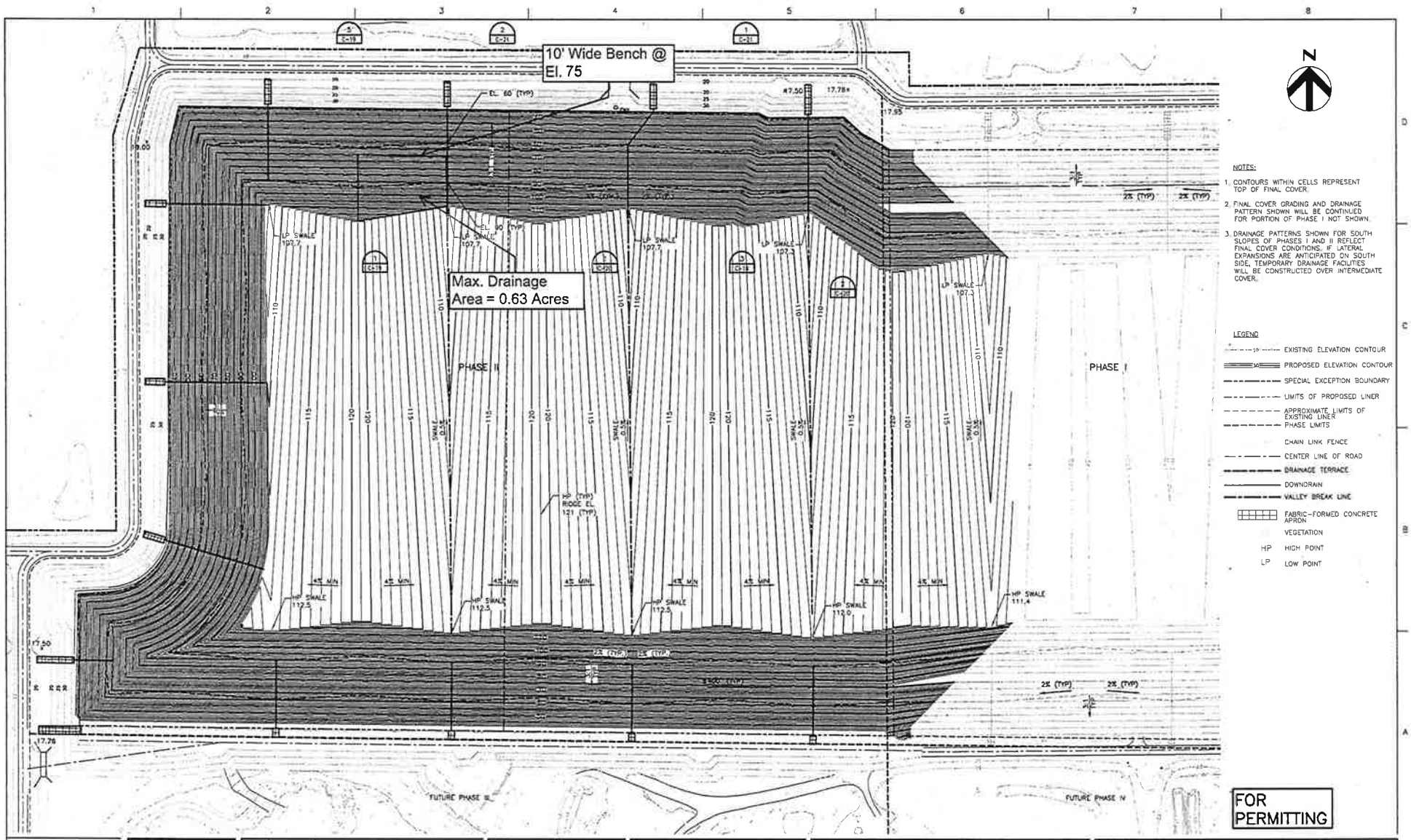
Output Values (see Att.I): D = depth of flow = 0.49'
Freeboard = 1' - 0.49' = 0.51' **OK**
V = 1.36 ft/s < 4 ft/s **OK**

Conclusion:

Proposed 10' wide bench design shown above is adequate to handle the 25 yr design flow and maintain a minimum 0.5' freeboard.

THOMAS M. YANOSCHAK LICENSE No. 44200 STATE OF FLORIDA PROFESSIONAL ENGINEER

CA 4213



HDR

ISSUE	DATE	DESCRIPTION
D	01/2008	REVISED PER RAI #3
C	09/2007	REVISED PER RAI #2
B	06/2007	REVISED PER RAI #1
A	02/2007	ISSUED FOR APPROVAL

PROJECT MANAGER	T.M. YANOSCHAK
REVIEWED BY	J.C. READLING
DRAWN BY	J.E. GAUL
PROJECT NUMBER	000000000043485

Thomas M. Yanoschak, P.E.
Certificate No. 44200

Central County Solid Waste Disposal Complex
PHASE II CLASS I LANDFILL EXPANSION
PERMIT DRAWINGS
SARASOTA COUNTY FLORIDA

PHASE II CLOSURE PLAN

0 1" 2"

FILENAME	00C-04.dwg
SCALE	1"=100'

SHEET C-04

C:\pwworking\jpa\dms3665800C-04.dwg, Plot, 2/2/2013 7:44:44 PM, tyanosch

Table T-4
Runoff Coefficients for a Design Storm Return Period of 10 Years or Less[a]

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
	Bare Earth	0.30	0.50	0.50	0.60
	Rooftops and pavement	0.95	0.95	0.95	0.95
	Pervious pavements [c]	0.75	0.95	0.90	0.95
	SFR: 1/2-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
	Bare Earth	0.40	0.60	0.60	0.70
	Rooftops and pavement	0.95	0.95	0.95	0.95
	Pervious pavements [c]	0.80	0.95	0.90	0.95
	SFR: 1/2-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	0.50	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
	Bare Earth	0.50	0.70	0.70	0.80
	Rooftops and pavement	0.95	0.95	0.95	0.95
	Pervious pavements [c]	0.85	0.95	0.90	0.95
	SFR: 1/2-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

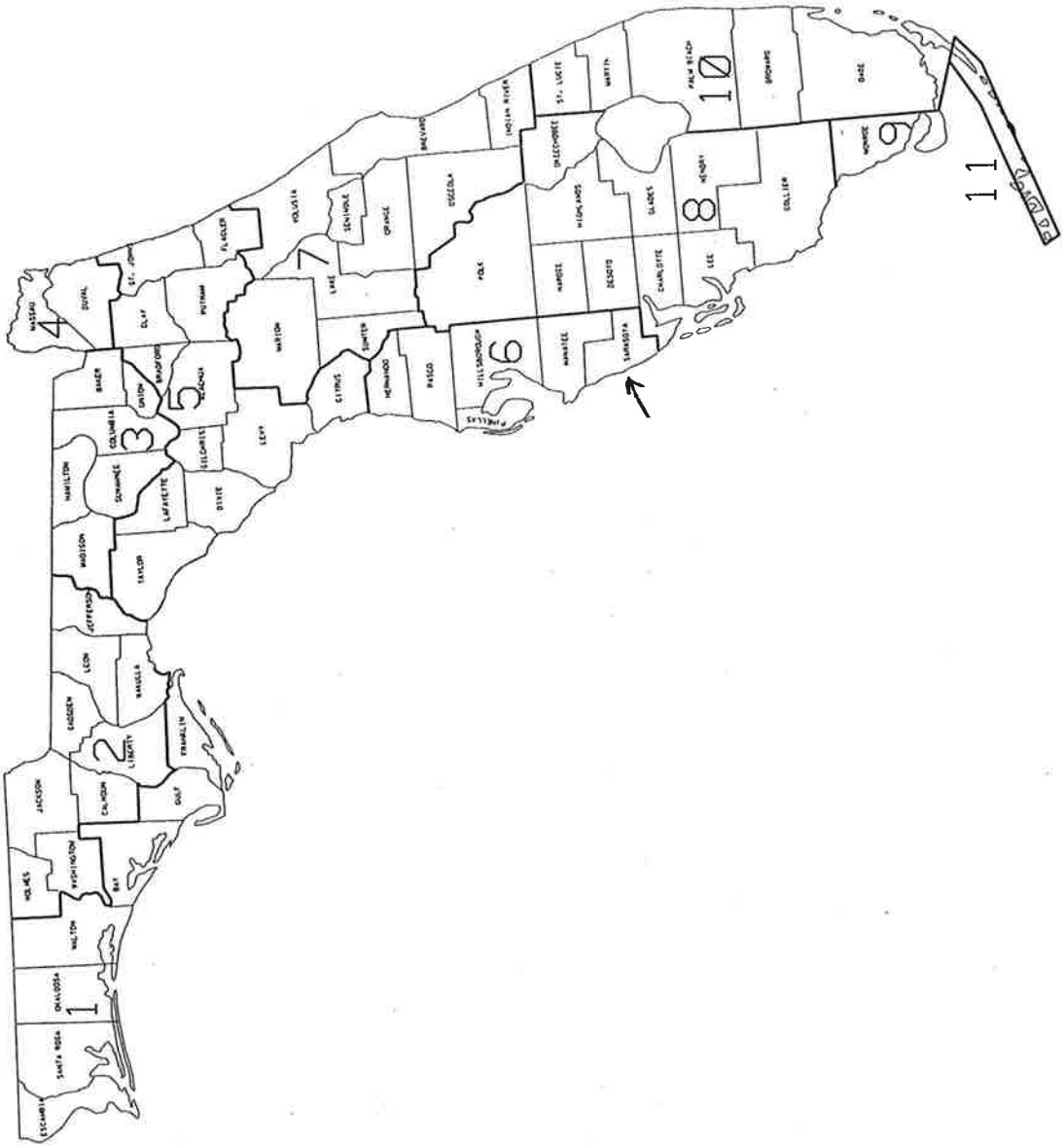
[a] Weighted coefficient based on percentage of impervious surfaces and green areas must be selected for each site.

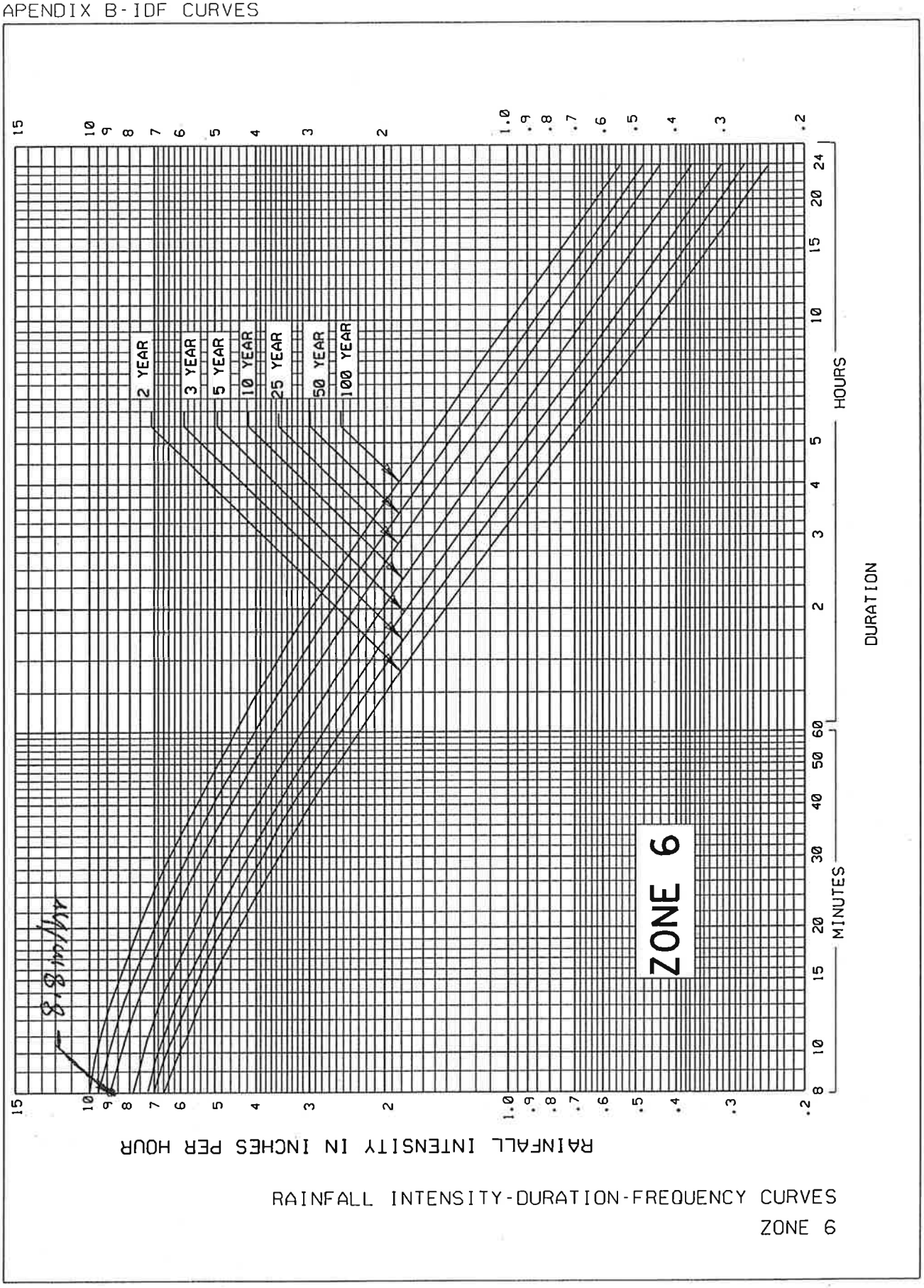
[b] Coefficients assume good ground cover and conservation treatment.

[c] Depends on depth and degree of permeability of underlying strata.

Note: SFR = Single Family Residential
MFR = Multi-Family Residential

ZONES FOR PRECIPITATION IDF CURVES DEVELOPED BY THE DEPARTMENT





RAINFALL INTENSITY-DURATION-FREQUENCY CURVES
ZONE 6

Table T-5
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 IS NOT APPROPRIATE FOR FLOOD ROUTING COMPUTATIONS.

hazard exists.

2.6.2 Roadside Safety

The design and location of open channels shall comply with roadside safety and clear zone requirements. See the ***Plans Preparation Manual*** for clear zone requirements, including special clearance criteria for canals.

2.7 Documentation

Design documentation for open channels shall include the hydrologic analysis and the hydraulic analysis, including analysis of channel lining requirements. For roadside ditches, the standard format for documentation is provided in ***Figure 2-1***.

Table 2.1

Recommended Manning's n Values for Artificial Channels
with Bare Soil and Vegetative Linings

Channel Lining	Description	Design n Value
Bare Earth, Fairly Uniform	Clean, recently completed	0.022
Bare Earth, Fairly Uniform	Short grass and some weeds	0.028
Dragline Excavated	No Vegetation	0.030
Dragline Excavated	Light Brush	0.040
Channels not Maintained	Dense weeds to flow depth	0.10
Channels not Maintained	Clear bottom, brush sides	0.08
Maintained Grass or Sodded Ditches	Good stand, well maintained 2 - 6"	0.06*
Maintained Grass or Sodded Ditches	Fair stand, length 12" - 24"	0.20*

* Decrease 30 per cent for flows > 0.7' depth (max flow depth 1.5')

FHWA Urban Drainage Design Program, HY-22
HYDRAULIC PARAMETERS OF OPEN CHANNELS

Trapezoidal, Rectangular, or Triangular X-Section
Date: 02/15/2013

Project No. :
Project Name.:
Computed by :

INPUT PARAMETERS

1.	Channel Slope (ft/ft)	0.0200
2.	Channel Bottom Width (ft)	0.00
3.	Left Side Slope (Horizontal to 1)	10.00
4.	Right Side Slope (Horizontal to 1)	3.00
5.	Manning's Coefficient	0.060
6.	Discharge (cfs)	14.19
7.	Depth of Flow (ft)	1.00

OUTPUT RESULTS

Cross Section Area (Sqft)	6.50
Average Velocity (ft/sec)	2.18
Top Width (ft)	13.00
Hydraulic Radius (ft)	0.49
Froude Number	0.54

Table 2.4

Maximum Velocities for Various Lining Types

Lining Type	Maximum Velocity (fps)
Grass with Mulch	Bare Soil (***Table 2.3***)
Sod	4
Staked Sod	5
Lapped Sod	5.5
Erosion Control Blanket (Biodegradable, ***Spec Section 104-6***)	6.5
Plastic Erosion Mat (Permanent, ***Index 199, Spec Section 571***)	
- Type 1	10
- Type 2	14
- Type 3	18
Riprap (Rubble)(Ditch Lining)	6
Other flexible	***FHWA HEC-15***
Geotextile Grid	4 - 8*
Rigid	10**

* Varies with grid
** Higher velocities acceptable with provisions for energy dissipation

FHWA Urban Drainage Design Program, HY-22
HYDRAULIC PARAMETERS OF OPEN CHANNELS

Trapezoidal, Rectangular, or Triangular X-Section
Date: 02/15/2013

Project No. :
Project Name.:
Computed by :

INPUT PARAMETERS

1.	Channel Slope (ft/ft)	0.0200
2.	Channel Bottom Width (ft)	0.00
3.	Left Side Slope (Horizontal to 1)	10.00
4.	Right Side Slope (Horizontal to 1)	3.00
5.	Manning's Coefficient	0.060
6.	Discharge (cfs)	2.13
7.	Depth of Flow (ft)	0.49

OUTPUT RESULTS

Cross Section Area (Sqft)	1.56
Average Velocity (ft/sec)	1.36
Top Width (ft)	6.37
Hydraulic Radius (ft)	0.24
Froude Number	0.49

ATTACHMENT J

FINANCIAL ASSURANCE COST ESTIMATES

Print Form | Reset Form

Florida Department of Environmental Protection

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

DEP Form # 62-701.900(28), F.A.C.
Form Title: Closure Cost Estimating Form For Solid Waste Facilities
Effective Date: January 6, 2010
Incorporated in Rule 62-701.630(3), F.A.C.

CLOSURE COST ESTIMATING FORM FOR SOLID WASTE FACILITIES

Date of DEP Approval: _____

I. GENERAL INFORMATION:

Facility Name: Central County Solid Waste Disposal Complex WACS ID: SWD/58/51614
Permit Application or Consent Order No.: 130542-007-SO/01 Expiration Date: 11/18/2013
Facility Address: 4000 Knights Trail Road, Nokomis, FL 34275
Permittee or Owner/Operator: Sarasota County Solid Waste Operations
Mailing Address: 4000 Knights Trail Road, Nokomis, FL 34275

Latitude: 27 ° 12 ' 9.84 " Longitude: 82 ° 23 ' 24.75 "
Coordinate Method: Web Based Mapping Datum: WGS 84
Collected by: Sarasota County Company/Affiliation: Owner

Solid Waste Disposal Units Included in Estimate:

Phase / Cell	Acres	Date Unit Began Accepting Waste	Active Life of Unit From Date of Initial Receipt of Waste	If active: Remaining life of unit	If closed: Date last waste received	If closed: Official date of closing
Phase I	55	6/15/1998	13.2 years	0 years	August 2011	TBD
Phase II	63	8/16/2010	15 years	12 years	N/A	N/A

Total disposal unit acreage included in this estimate: Closure: 63 Long-Term Care: 118

Facility type: (Check all that apply)
☒ Class I ☐ Class III ☐ C&D Debris Disposal
☒ Other: Waste Tire Processing Facility, C&D MRF, Yard Waste Site

II. TYPE OF FINANCIAL ASSURANCE DOCUMENT (Check type)

☐ Letter of Credit* ☐ Insurance Certificate ☐ Escrow Account
☐ Performance Bond* ☒ Financial Test ☐ Form 29 (FA Deferral)
☐ Guarantee Bond* ☐ Trust Fund Agreement

* - Indicates mechanisms that require the use of a Standby Trust Fund Agreement

III. ESTIMATE ADJUSTMENT

40 CFR Part 264 Subpart H as adopted by reference in Rule 62-701.630, Florida Administrative Code, (F.A.C.) sets forth the method of annual cost estimate adjustment. Cost estimates may be adjusted by using an inflation factor or by recalculating the maximum costs of closure in current dollars. Select one of the methods of cost estimate ajustment below.

☐ **(a) Inflation Factor Adjustment** ☒ **(b) Recalculated or New Cost Estimates**

Inflation adjustment using an inflation factor may only be made when a Department approved closure cost estimate exists and no changes have occurred in the facility operation which would necessitate modification to the closure plan. The inflation factor is derived from the most recent Implicit Price Deflator for Gross National Product published by the U.S. Department of Commerce in its survey of Current Business. The inflation factor is the result of dividing the latest published annual Deflatory by the Deflator for the previous year. The inflation factor may also be obtained from the Solid Waste website www.dep.state.fl.us/waste/categories/swfr or call the Financial Coordinator at (850) 245-8706.

This adjustment is based on the Department approved closing cost estimate dated: _____

Latest Department Approved **Closing Cost** Estimate:		Current Year Inflation Factor, ***e.g. 1.02***		Inflation Adjusted Closing Cost Estimate:
_____	×	_____	=	_____

This adjustment is based on the Department approved long-term care cost estimate dated: _____

Latest Department Approved Annual **Long-Term Care** Cost Estimate:		Current Year Inflation Factor, ***e.g. 1.02***		Inflation Adjusted Annual Long-Term Care Cost Estimate:
_____	×	_____	=	_____

Number of Years of Long Term Care Remaining: × _____

Inflation Adjusted Long-Term Care Cost Estimate: = _____

Signature by: ☒ **Owner/Operator** ☐ **Engineer** (check what applies)

_____ Signature

_____ Address

_____ Name & Title

_____ City, State, Zip Code

_____ Date

_____ E-Mail Address

_____ Telephone Number

IV. ESTIMATED CLOSING COST (check what applies)

☒ **Recalculated Cost Estimate** ☐ **New Facility Cost Estimate**

Notes: 1. Cost estimates for the time period when the extent and manner of landfill operation makes closing most exp
2. Cost estimate must be certified by a professional engineer.
3. Cost estimates based on third party suppliers of material, equipment and labor at fair market value.
4. In some cases, a price quote in support of individual item estimates may be required.

Description	Unit	Number of Units	Cost / Unit	Total Cost
1. Proposed Monitoring Wells	**(Do not include wells already in existence.)**			
	EA			
			Subtotal Proposed Monitoring Wells:	
2. Slope and Fill (bedding layer between waste and barrier layer):				
Excavation	CY			
Placement and Spreading	CY	106,803	$2.18	$232,830.54
Compaction	CY	106,803	$0.50	$53,401.50
Off-Site Material	CY	106,803	$12.25	$1,308,336.75
Delivery	CY			
			Subtotal Slope and Fill:	$1,594,568.79
3. Cover Material (Barrier Layer):				
Off-Site Clay	CY			
Synthetics - 40 mil	SY	368,470	$4.32	$1,591,790.40
Synthetics - GCL	SY			
Synthetics - Geonet	SY	368,470	$5.22	$1,923,413.40
Synthetics - Other (explain)				
			Subtotal Cover Material:	$3,515,203.80
4. Top Soil Cover:				
Off-Site Material	CY	213,605	$12.25	$2,616,661.25
Delivery	CY			
Spread	CY	213,605	$2.18	$465,658.90
			Subtotal Top Soil Cover:	$3,082,320.15
5. Vegetative Layer				
Sodding	SY	368,470	$2.21	$814,318.70
Hydroseeding	AC			
Fertilizer	AC			
Mulch	AC			
Other (explain)				
			Subtotal Vegetative Layer:	$814,318.70
6. Stormwater Control System:				
Earthwork	CY			
Grading	SY			
Piping	LF	2,725	$73.91	$201,404.75
Ditches	LF			
Berms	LF			
Control Structures	EA			
Other (explain) Filter Point Mat		1	$113,578.00	$113,578.00
			Subtotal Stormwater Control System:	$314,982.75

Description	Unit	Number of Units	Cost / Unit	Total Cost
7. Passive Gas Control:				
Wells	EA	70	$7,909.20	$553,644.00
Pipe and Fittings	LF			
Monitoring Probes	EA			
NSPS/Title V requirements	LS	1	$10,000.00	$10,000.00
			Subtotal Passive Gas Control:	$563,644.00
8. Active Gas Extraction Control:				
Traps	EA			
Sumps	EA			
Flare Assembly	EA			
Flame Arrestor	EA			
Mist Eliminator	EA			
Flow Meter	EA			
Blowers	EA			
Collection System	LF			
Other (explain) See Cost Est. for system in explanation document.	LS	1	$2,220,000.00	$2,220,000.00
			Subtotal Active Gas Extraction Control:	$2,220,000.00
9. Security System:				
Fencing	LF			
Gate(s)	EA			
Sign(s)	EA			
			Subtotal Security System:	
10. Engineering:				
Closure Plan Report	LS	1	$1,210,503.82	$1,210,503.82
Certified Engineering Drawings	LS	1		
NSPS/Title V Air Permit	LS	1		
Final Survey	LS	1	$121,069.21	$121,069.21
Certification of Closure	LS	1	$121,050.38	$121,050.38
Other (explain)				
			Subtotal Engineering:	$1,452,623.41

Description	Hours	Cost / Hour	Hours	Cost / Hour	Total Cost
11. Professional Services					
	Contract Management		Quality Assurance		
P.E. Supervisor	320	$179.0(	640	$179.0(	$171,840.00
On-Site Engineer	320	$128.0(	1,280	$128.0(	$204,800.00
Office Engineer	800	$141.0(	800	$141.0(	$225,600.00
On-Site Technician	0	$89.00	2,800	$89.00	$249,200.00
Other (explain) Administration	1,200	$74.00	800	$74.00	$148,000.00

Description	Unit	Number of Units	Cost / Unit	Total Cost
Quality Assurance Testing	LS	1	$500,000.00	$500,000.00
			Subtotal Professional Services:	$1,499,440.00

		Subtotal of 1-11 Above:	$15,057,101.60
12. Contingency	10 % of Subtotal of 1-11 Above		$1,505,710.16
		Subtotal Contingency:	$1,505,710.16
		Estimated Closing Cost Subtotal:	$16,562,811.76

Description	**Total Cost**
13. Site Specific Costs	
Mobilization	$1,210,503.82
Waste Tire Facility	$119,279.82
Materials Recovery Facility	$1,770,670.35
Special Wastes	$148,273.16
Leachate Management System Modification	
Other (explain) _____	
_____ Subtotal Site Specific Costs:	$3,248,727.15

TOTAL ESTIMATED CLOSING COSTS ($): $19,811,538.91

V. ANNUAL COST FOR LONG-TERM CARE

See 62-701.600(1)a.1., 62-701.620(1), 62-701.630(3)a. and 62-701.730(11)b. F.A.C. for required term length. For landfills certified closed and Department accepted, enter the remaining long-term care length as "Other" and provide years remaining.

(Check Term Length) ☐ 5 Years ☐ 20 Years ☒ 30 Years ☐ Other, ___ Years

Notes: 1. Cost estimates must be certified by a professional engineer.

2. Cost estimates based on third party suppliers of material, equipment and labor at fair market value.

3. In some cases, a price quote in support of individual item estimates may be required.

All items must be addressed. Attach a detailed explanation for all entries left blank.

Description	Sampling Frequency (Events / Year)	Number of Wells	(Cost / Well) / Event	Annual Cost
1. Groundwater Monitoring [62-701.510(6), and (8)(a)]				
Monthly	12			
Quarterly	4			
Semi-Annually	2	10	$945.20	$18,904.00
Annually	1			
			Subtotal Groundwater Monitoring:	$18,904.00
2. Surface Water Monitoring [62-701.510(4), and (8)(b)]				
Monthly	12			
Quarterly	4			
Semi-Annually	2	2	$872.45	$3,489.80
Annually	1			
			Subtotal Surface Water Monitoring:	$3,489.80
3. Gas Monitoring [62-701.400(10)]				
Monthly	12			
Quarterly	4	10	$48.45	$1,938.00
Semi-Annually	2			
Annually	1			
			Subtotal Gas Monitoring:	$1,938.00
4. Leachate Monitoring [62-701.510(5), (6)(b) and 62-701.510(8)c]				
Monthly	12			
Quarterly	4			
Semi-Annually	2			
Annually	1			
Other (explain) _____	_____			
_____			Subtotal Leachate Monitoring:	

Description	Unit	Number of Units / Year	Cost / Unit	Annual Cost
5. Leachate Collection/Treatment Systems Maintenance				
Maintenance				
Collection Pipes	LF	15,000	$0.39	$5,850.00
Sumps, Traps	EA	5	$1,000.00	$5,000.00
Lift Stations	EA	7	$1,000.00	$7,000.00
Cleaning	LS	1		
Tanks	EA	1	$10,000.00	$10,000.00

Description	Unit	Number of Units / Year	Cost / Unit	Annual Cost
5. (continued)				
Impoundments				
Liner Repair	SY			
Sludge Removal	CY			
Aeration Systems				
Floating Aerators	EA			
Spray Aerators	EA			
Disposal				
Off-site (Includes transportation and disposal)	1000 gallon	14,119	$7.00	$98,833.00
			Subtotal Leachate Collection / Treatment Systems Maintenance:	$126,683.00
6. Groundwater Monitoring Well Maintenance				
Monitoring Wells	LF	40	$100.00	$4,000.00
Replacement	EA	1	$1,000.00	$1,000.00
Abandonment	EA	1	$1,000.00	$1,000.00
			Subtotal Groundwater Monitoring Well Maintenance:	$6,000.00
7. Gas System Maintenance				
Piping, Vents	LF	1,000	$37.16	$37,160.00
Blowers	EA	2	$5,000.00	$10,000.00
Flaring Units	EA	1	$10,000.00	$10,000.00
Meters, Valves	EA	1	$5,000.00	$5,000.00
Compressors	EA	1	$8,000.00	$8,000.00
Flame Arrestors	EA	1	$4,000.00	$4,000.00
Operation	LS	1	$92,560.00	$92,560.00
			Subtotal Gas System Maintenance:	$166,720.00
8. Landscape Maintenance				
Mowing	AC	944	$25.00	$23,600.00
Fertilizer	AC	118	$171.63	$20,252.34
			Subtotal Landscape Maintenance:	$43,852.34
9. Erosion Control and Cover Maintenance				
Sodding	SY	19,040	$2.21	$42,078.40
Regrading	AC	118	$288.60	$34,054.80
Liner Repair	SY	100	$34.32	$3,432.00
Clay	CY			
			Subtotal Erosion Control and Cover Maintenance:	$79,565.20
10. Storm Water Management System Maintenance				
Conveyance Maintenance	LS	1	$15,030.00	$15,030.00
			Subtotal Storm Water Management System Maintenance:	$15,030.00
11. Security System Maintenance				
Fences	LS	1	$2,659.00	$2,659.00
Gate(s)	EA	1	$1,329.46	$1,329.46
Sign(s)	EA	1	$858.60	$858.60
			Subtotal Security System Maintenance:	$4,847.06

Description	Unit	Number of Units / Year	Cost / Unit	Annual Cost
12. Utilities	LS	1	$50,000.00	$50,000.00
			Subtotal Utilities:	$50,000.00
13. Leachate Collection/Treatment Systems Operation				
Operation				
P.E. Supervisor	HR	40	$179.00	$7,160.00
On-Site Engineer	HR	80	$128.00	$10,240.00
Office Engineer	HR	60	$141.00	$8,460.00
OnSite Technician	HR	120	$89.00	$10,680.00
Materials	LS	1	$20,000.00	$20,000.00
		Subtotal Leachate Collection/Treatment Systems Operation:		$56,540.00
14. Administrative				
P.E. Supervisor	HR	40	$179.00	$7,160.00
On-Site Engineer	HR	80	$128.00	$10,240.00
Office Engineer	HR	60	$141.00	$8,460.00
OnSite Technician	HR		$89.00	
Other Administrative Asst.	HR	60	$74.00	$4,440.00
			Subtotal Administrative:	$30,300.00
			Subtotal of 1-14 Above:	$603,869.40
15. Contingency	10	% of Subtotal of 1-14 Above		$60,386.94
			Subtotal Contingency:	$60,386.94

Description	Unit	Number of Units / Year	Cost / Unit	Annual Cost
16. Site Specific Costs				
			Subtotal Site Specific Costs:	
			ANNUAL LONG-TERM CARE COST ($ / YEAR):	$664,256.34
			Number of Years of Long-Term Care:	30
			TOTAL LONG-TERM CARE COST ($):	$19,927,690.20

VI. CERTIFICATION BY ENGINEER

This is to certify that the Cost Estimates pertaining to the engineering features of this solid waste management facility have been examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgment, the Cost Estimates are a true, correct and complete representation of the financial liabilities for closing and/or long-term care of the facility and comply with the requirements of Rule 62-701.630 F.A.C. and all other Department of Environmental Protection rules, and statutes of the State of Florida. It is understood that the Cost Estimates shall be submitted to the Department annually, revised or adjusted as required by Rule 62-701.630(4), F.A.C.

FL PE 9/16/13 #65869

JASON E. TIMMONS LICENSE No. 65869 STATE OF FLORIDA PROFESSIONAL ENGINEER

Signature

Date

Jason Timmons, PE, Tech Spec. III
Name and Title (please type)

65869
Florida Registration Number
(please affix seal)

4000 Knights Trail Road
Mailing Address

Nokomis, FL 34275
City, State, Zip Code

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

941-861-1572
Telephone Number

Jason Timmons, PE FL No. 65869 9/16/13
Technical Specialist III

VII. SIGNATURE BY OWNER/OPERATOR

Signature of Applicant

Lois Rose, SW Operations Mgr.
Name and Title (please type)

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

4000 Knights Trail Road
Mailing Address

Nokomis, FL 34275
City, State, Zip Code

941-861-1589
Telephone Number

Sarasota County
Central County Solid Waste Disposal Complex
Class I Landfill Phase I and Phase II

Closure and Long-term Care Cost Estimates
Supporting Information

Unit Cost Estimations and Calculations:
All unit costs, quantities and other pertinent details are explained in the following sections for each item. Assumptions and explanations for the quantities are provided below. All quotes and references for the unit costs are provided in the references attached with this support document. Please note that the references are noted with "C" for Closure Estimates and "LTC" for Long-Term Care Estimate References and the Item number within the respective cost estimate.

The RS Means 2013 Heavy Construction Online Cost Data for the second quarter of 2013 using the Sarasota location factor was used to estimate certain unit costs. A report from the online workspace of the RS Means Cost Estimating tool is provided when applicable.

Abbreviations used in the cost estimate include the following:

CY – Cubic Yards	LS – Lump Sum
SF – Square Feet	EA – Each
CF – Cubic Feet	

The following is a summary of the surface areas and quantities used in the cost estimate for soil and materials.

Phase II Class I Landfill:
Quantity Summary

2D (Plane View) Surface Area:	63.1	acres
	2,748,636	SF
	305,404	SY
3D Surface Area*:	66.2	acres
	2,883,672	SF
	320,408	SY

Cover Depths (ft)	Volumes (CF)	Volume (CY)
0.5	1,441,836	53,401
1	2,883,672	106,803
1.5	4,325,508	160,204
2	5,767,344	213,605

*Assume 3D Surface Area is 5% greater than 2D Surface Area.

Landfill Closure Cost Estimate Explanation of Quantities and Costs:

Item 1: Proposed Monitoring Wells

It is assumed that there will be no new monitoring wells proposed for the CCSWDC at closure and all wells will have been previously installed as part of the construction of the Class I Landfill phases.

Item 2: Slope and Fill – Bedding layer between waste and geomembrane liner.

Quantity of Soil = 106,803 CY
Quantity based on 1 foot of soil cover as shown in the quantity table for the 3D surface area volumes.

Excavation
Excavation of the fill material is included in the Off-site Material and delivery cost below.

Placement and Spreading Cost = $2.18 / CY
Cost to place and spread material $2.18 CY (RS Means 2013 312323170020 Spread and Fill by dozer.

Compaction Cost = $0.50 / CY
Cost to compact material $0.50 CY (RS Means 2013 312323235100 Compact roller 12" lifts four passes.

Off-Site Material and Delivery Cost = $12.25 / CY
Cost for off-site clean fill dirt is $7.56/ton (Masterrock Contract), assuming a typical compacted soil density of 120 lb/CY wet weight based on soil testing performed as part of the Phase I Closure project, the cost per CY for soil is estimated to be the following:

120 lb/CF = 3,240 lb/CY; therefore,
3,240 lb/CY x 1 ton/2000 lb x $7.56/ton = $12.25 / CY

Item 3: Cover Material (Barrier Layer):

Synthetics – 40 mil Cost = $4.32 / SY
Quantity of Synthetics – 40 mil = 368,470 SY
The cost for 40 mil LLDPE textured (both sides) material and installation is $0.48/SF or $4.32/SY. Budgetary unit costs provided by Agru America.

Quantity of liner material is based on 3D surface area of closure 2,883,672 SF / 9 SF/SY = 320,408 SY + 15% for anchor trenches, testing, overlap and waste for a total of 368,470 SY.

Geocomposite (Geonet) Drainage Layer Cost = $5.22 / SY
Quantity of Geocomposite (Geonet) = 368,470 SY
The cost for 330-mil geocomposite, double-sided geotextile (8-oz) material and installation is $0.58 / SF or $5.22 SY. Budgetary unit costs provided by Agru America.

Quantity of liner material is based on 3D surface area of closure 2,883,672 SF / 9 SF/SY = 320,408 SY + 15% for anchor trenches, testing, overlap and waste for a total of 368,470 SY.

Item 4: Top Soil Cover

Top Soil Cover Quantity = 213,605 CY
Quantity based on 2 feet of soil cover.

Off-Site Material and Delivery Cost = $12.25 / CY
Cost for off-site clean fill dirt is $7.56/ton (Masterrock Contract), assuming a typical compacted soil density of 105 lb/CF (~90% of maximum dry density of 115 lb/CF) or 2,835 lb/CY; this results in a cost of $12.25/CY.

Placement and Spreading Cost = $2.18 / CY
Cost to place and spread material $2.18 CY (RS Means 2013 312323170020 Spread and Fill by dozer.

Item 5: Vegetative Layer

Vegetative Layer (Sod) Quantity = 368,470 SY
Quantity of sod is based on 3D surface area of closure of 320,408 SY + 15% for material needed for waste for a total of 368,470 SY.

Vegetative Layer (Sod) Cost = $2.21 / SY
A cost of $0.245/SF which is equivalent to $2.21/SY as provided in the current contract with Dieter's Sod with Sarasota County. Fertilizer, if required, is included in the above pricing.

Item 6: Stormwater Control System

The perimeter ditches located around the Phase II area have been constructed as part of the bottom liner construction and therefore have not been included in this cost estimate. The conceptual final cover design includes stormwater controls along the side slopes of the landfill. The benches provided on the side slopes will be constructed to route stormwater collected in the side slope swale to an inlet structure and routed via CHDPE pipe to outlet structures at the toe of the landfill. Filter point mat concrete is provided at the bottom of the landfill into the ditch to provide erosion protection. Construction costs including material and installation have been estimated in this section.

The following is a summary of downdrain pipes as shown on the conceptual final cover drawings:

South side = 4 x 150 feet
Southeast Corner = 1 x 150 feet + 1 x 175 feet
West side = 4 x 150 feet
North side = 4 x 300 feet
Total = 2,725 feet

Quantity measured from conceptual final cover drawing.

Piping and Installation Cost = $73.91 / LF
36" CHDPE pipe cost for material and install from recent Phase I Closure competitive bid pricing and increased for inflation.

Other (Filter Point Mat) Cost = $5.21 / SF
Quantity of Filter Point Mat = 21,800 SF
Lump Sum Total = $5.21 x 21,800 = $113,578
Filter point mat concrete will be installed at the bench inlet points and the bottom of the landfill where the letdown piping exits at the mitered end section into the perimeter stormwater ditch. Cost for material and install from recent Phase I Closure competitive bid pricing and increased for inflation. The filter point mat provides protection from erosion. The quantity is estimated assuming two areas of filter point mat for each down drain system of 400 SF per bench inlet and 800 SF per ditch outlet (18 x 400 SF + 12 x 800 SF = 16,800 SF). Add an additional 5,000 SF for miscellaneous concrete for stormwater conveyances.

Item 7: Gas Control: Passive

Quantity = 70 Wells (Phase II Only)
Well Cost = $7,909.20 / Well
Shaw Environmental, Inc quote dated 12/01/2006. Quantity based on 70 wells at an average depth of 65 feet for a total of 4,550 LF of gas collection wells. Based on the recent cost paid by Sarasota County as part of the Phase I Closure completed in 2012/2013, the bid price for vertical wells was $80.00/LF for a completed well and $2,400/Well for the well heads and connections; therefore the completed well completion cost per LF is $117.00/LF of well or $7,605/Well. Adjusting using the FDEP inflation factor of 1.041 to convert from 2011 to 2013 costs, the cost is estimated to be $121.68/LF of well or $7,909.20 per well.

Item 8: Gas Control: Active

The following table summarizes the general components of the Phase II landfill gas collection system based on costs received as part of the competitive bid pricing for the Phase I Closure:

1.	20,000 LF x $10.00/LF = $200,000	2-inch Air Line
2.	20,000 LF x $12.00/LF = $240,000	4-inch Condensate/Leachate Line
3.	7,000 LF x $18.00/LF = $126,000	6-inch Gas Collection Laterals
4.	7,000 LF x $40.00/LF = $280,000	8-inch Gas Collection Laterals
5.	7,000 LF x $58.00/LF = $406,000	18-inch Main Gas Collection Header
6.	1,600 LF x $19.00/LF = $30,400	6-inch Leachate Cleanout Piping
7.	4 Each x $28,000/EA = $112,000	Shut-off Valve Box
8.	10 Each x $28,000/EA = $280,000	Condensate Collection Sump
9.	10 Each x $8,300/EA = $83,000	Condensate Collection Pumps
10.	6 Each x $3,000/EA = $18,000	Header Access Point

Total = $1,775,400 x 1.041 x 1.2 Miscellaneous Items (20% of total)

Note: Multiply total by 1.041 to account for increasing all unit costs listed above for inflation from 2011 to 2013 prices.

Grand Total = $2,217,830 = $2,220,000

The flare and vacuum system were installed as part of the Phase I Closure project and are sized to provide vacuum to Phase II.

Item 9: Security System

The security fencing, gates, and signs have been installed for the entire site. Additional security devices are not anticipated at the time of this cost estimate.

Item 10: Engineering

Closure Plan Report Cost = 10% of construction costs = $1,210,503.82
The cost for this item is estimated at 10% of the total construction cost which would be provided by the construction contractor and does not include engineering services (i.e. Items 1 – 9 and Item 13 only). **This cost also includes the preparation of certified engineering drawings.** The subtotal of construction costs is $12,105,038.19.

NSPS/Title V Air Permit
The CCSWDC is currently covered under a Title V Operations permit. The flare system is sized to include the Phase II landfill area, therefore minimal permitting is anticipated for the Title V Program.

Final Survey = $121,069.21
From RS Means the minimum cost for topographic survey is $466.98 per acre and the maximum is $3,190.70 per acre for an average of $1,828.84 per acre. The total cost, assuming the average cost per acre for conventional topographic surveying would be $1,828.84 x 66.2 acres = $121,069.21

Certification of Closure = $121,050.38:
The cost for this item is estimated at 1% of the total construction cost which would be provided by the construction contractor and does not include engineering services (i.e. Items 1 – 9 and Item 13 only). The subtotal of construction costs is $12,105,038.19.

Other:
Permit Fee = $7,500:
The permit fee for closure of a Class I landfill in accordance with 62-701.

Item 11: Professional Services

These are typical costs and hours that would be provided by a third party engineering consulting firm to perform these tasks. Hours are based on an approximate 10 month (40 week) construction schedule for the closure of Phase II. Hourly rates are based on current standard rates for the listed positions as provided by HDR Engineering.

Contract Management	**Hours**
P.E. Supervisor	8 hours per week (40 weeks) = 320 hours
On-Site Engineer	8 hours per week (40 weeks) = 320 hours
Office Engineer	20 hours per week (40 weeks) = 800 hours
On-Site Technician	0 hours per week
Other (Admin Asst.)	30 hours per week (40 weeks) = 1,200 hours

Quality Assurance	**Hours**
P.E. Supervisor	16 hours per week (40 weeks) = 640 hours
On-Site Engineer	32 hours per week (40 weeks) = 1,280 hours
Office Engineer	20 hours per week (40 weeks) = 800 hours
On-Site Technician	40 (REG) hours per week (40 weeks) = 1,600 hours
On-Site Technician	20 (OT) hours per week (40 weeks) x 1.5 (overtime rate adjustment) = 1,200 hours Total On-Site Technician = 1,600 + 1,200= 2,800 hours
Other (Admin Asst.)	20 hours per week (40 weeks) = 800 hours

Standard Labor Rates used in Cost Estimate:

P.E. Supervisor	$179 per hour
On-Site Engineer	$128 per hour
Office Engineer	$141 per hour
On-Site Technician	$89 per hour
Other (Admin Asst.)	$74 per hour

Quality Assurance Testing Cost = $500,000
A lump sum cost of $500,000 has been included in this cost estimate for quality assurance testing of soil and synthetic components of the final cover construction.

Item 12: Contingency

A contingency amount of 10% of the subtotaled cost (Items 1 through 11 only) was used in the cost estimate. This value is consistent with actual contingency values used in bidding landfill construction projects.

Item 13: Site Specific Costs

Mobilization was estimated by using 10% of the total construction cost. (Items 1 through 9 only). The subtotal of Items 1 through 9 is $12,105,038.19.

The financial assurance cost estimate for the Waste Tire Facility was updated in July 2012 in an amount of $116,941 x 1.02 inflation factor for 2012 to 2013 per FDEP, the amount provided is $119,279.82.

The financial assurance cost estimate for the Construction and Demolition Material Recovery Facility was updated in June 2009 in an amount of $1,652,022 x 1.02 x 1.01 x 1.02 x 1.02 inflation factors for 2009 to 2013 per FDEP, the amount provided is $1,770,670.35.

Special Wastes:

- Asbestos – Assume all asbestos is disposed of in the landfill before closure.
- Contaminated Soils – Assume all contaminated soil is disposed of in the landfill before closure.
- White Goods – White good are accepted by metals recyclers for free or will pay the generator for the materials. Therefore no cost is included in the estimate.
- Lead Acid Batteries – Batteries are accepted by recyclers for free or are purchased on a per unit basis. Therefore, there are no disposal or removal costs associated with lead acid batteries.

- Yard Waste – Assume current disposal cost of yard waste at CCSWDC and yard waste mulched and used or given away. Assume 3,000 tons of yard waste at the disposal cost of $41.37/ton = $124,110

- Electronics – Assuming storage and cost to remove of the following:
  - 75 Pallets of electronics at 1,000 lb per pallet x $0.18 / lb for pickup, transport and disposal = $13,500.
  - 3 roll-offs of electronics at 14,000 lb per roll off x $0.18 / lb for pickup, transport and disposal = $7,560
  - 10 pallets of broken electronics boxes at 650 lb per pallet x $0.30 / lb for pickup, transport and disposal = $1,950

- Household Hazardous Wastes – Assume 1 truck load (2 tons) of HHW must be removed at a cost of $576.58 per ton (RS Means). Total = $1,153.16.

- Used Oil – Used oil and fuels are picked up by recyclers at no charge and in some cases will pay the generator for the waste fuel or oil. Therefore, no cost is included in the estimate.

Total for management of Special Waste = $148,273.16

Landfill Long-term Care Cost Estimate Explanation of Quantities and Costs:

Item 1: Groundwater Monitoring

Groundwater Monitoring Costs = $945.20 / well / event

Based on the current bid contracts with Sarasota County for laboratory analysis, the analytical costs are $572.50 per well. Plus the blank costs which are 2 equipment blanks at $572.50 per blank divided by 10 wells which is $114.50 per well and 5 trip blanks at $60 per blank divided by 10 wells which is $30 per well. Therefore, the total analytical laboratory costs for each well per event is $717.

The sampling costs are based on current bid contracts with Sarasota County for $45.64 per hour for sampling. Assuming a well can be sampled, worst case scenario, in approximately 4 hours, add 1 hour setup and 1 hour breakdown each day, therefore 10 hours per day. The cost per day of sampling is $456.40 and sampling at CCSWDC at 2 wells per day would be 5 days for a total of $2,282 divided by 10 wells = $228.20 per well per event.

The total sampling and analytical cost per well per event is $945.20.

Item 2: Surface Water Monitoring

Surface Water Monitoring Costs = $872.45 / location / event

Based on the current bid contracts with Sarasota County for laboratory analysis, the analytical costs are $389.50 per sample. Plus the blank cost which is 1 equipment blank at $389.50 divided by 2 samples which is $194.75 per sample and 2 trip blanks at $60 per blank divided by 2 samples which is $60 per sample. Therefore, the total analytical laboratory costs for each surface water sample per event is $644.25.

The sampling costs are based on current bid contracts with Sarasota County for $45.64 per hour for sampling. Assuming a surface water sample can be collected, worst case scenario, in approximately 4 hours, add 1 hour setup and 1 hour breakdown each day, therefore 10 hours per day. The cost per day of sampling is $456.40 and sampling at CCSWDC at 2 surface water samples per day would be 1 day for a total of $456.40 divided by 2 samples = $228.20 per well per event.

The total sampling and analytical cost per well per event is $872.45.

Item 3: Gas Monitoring

Gas Monitoring Costs = $48.45 / location / event

The gas monitoring wells are sampled using a handheld device, such as the LandTec GEM meter, which can be rented for $165 per day as shown in cost references attached. Conservatively, a gas monitoring well can be sampled in less

than 10 minutes, therefore assume a time of 30 minutes for worst case per well. At a sampling cost of $45.64 per hour and adding 1 hour for mobilization/equipment calibration and 1 hour for demobilization/cleanup, sampling the 10 wells at the CCSWDC would be approximately 7 hours at a cost of $319.48 plus $165 for a total of $484.48 divided by 10 wells. The total cost per well per event is $48.45.

Item 4: Leachate Monitoring

Class I Landfill leachate monitoring is not required.

Item 5: Leachate Collection/Treatment Systems Maintenance

Collection Pipe Maintenance Costs = $0.39 / LF / year
Quantity = 15,000 feet (measured from drawings)
Video inspection and cleaning of leachate pipes at a cost of $1.95/LF for water jet cleaning and video inspection every 5 years resulting in a cost of $1.95/5 years = $0.39/LF per year. The unit cost for this item was provided by Florida Jet Clean recent bid contract.

Sump/Trap Maintenance Costs = $1,000 per sump/trap
Assume each sump/tramp will be cleaned by vacuum or pump truck once per year and each location will require approximately 4 hours to clean at the bid contract rate of $250 per hour for the pumper/vacuum truck. Therefore, the cost per sump/trap is $1,000.

Lift Station Maintenance Cost = $1,000 per lift station
Assume each lift station will be cleaned by vacuum or pump truck once per year and each lift station will require approximately 4 hours to clean at the bid contract rate of $250 per hour for the pumper/vacuum truck. Therefore, the cost per sump is $1,000.

Cleaning
Included in the respective costs for the systems.

Tanks = $10,000 per year
The leachate storage tank is required to be emptied cleaned and inspected once every 3 years. Assuming a disposal of sediment cost of $20,000 (assuming pumper truck needed for 80 hours at $250 per hour) and $10,000 (based on bid contract for Sarasota County) for inspection, the total cost for cleaning and inspection is estimated to be $30,000 every 3 years or $10,000 per year during long-term care.

Leachate Disposal = $0.007 / gallon or $7.00 / 1,000 gallons
Quantity = 20,938,000 gallons
Based on the permit application for Phase II, the first year of post-closure is equivalent to estimated leachate generation rate during closure 10,468,708 gallons per year for Phase II. Since closure of the Phase I Landfill, the leachate collection

rate from Phase I has significantly decreased to an average of approximately 2,000 gallons per day per pump station. There are 5 pump stations in Phase I, therefore Phase I is producing approximately 10,000 gallons per day or 3,650,000 gallons per year. Therefore, the total LTC generation is expected to be approximately 10,468,708 gallons (Phase II) + 3,650,000 gallons (Phase I) = 14,118,708 gallons per year.

The cost for leachate disposal is based on the current disposal rate for disposal to the City of Venice East Side WWTP of $7.00/1,000 gallons. The estimate assumes the leachate can be pumped via the existing leachate forcemain to the WWTP.

Item 6: Maintenance of Groundwater Monitoring Wells

Maintenance Costs = $100 / LF of well head
Replacement Costs = $1,000 per well
Abandonment Costs = $1,000 per well
Assuming one monitoring well per year is damaged to the extent that it must be abandoned and replaced with a new well. Unit costs $100/LF for 40 LF of well + $1,000/well for abandoning + $1,000/well for construction based on recent cost received by third-party contractors for Sarasota County.

Item 7: Gas System Maintenance

Piping and Vents
Maintenance of gas vents and piping assumes repair/replacement of aboveground piping and well head assembly every 10 years for each well. Based on recent bid contracts for well installation, the estimate assumes the following quantities and costs:

1. Total Number of Wells = 140 (Phase I and Phase II)
2. Total length of pipe above grade = 700 feet (5 feet x 140 wells) @ $30.00/LF = $21,000
3. Total number of well heads = 140 replaced @ $2,400 each = $336,000

Total cost every 10 years = $357,000 x 1.041 / 10 = $37,163.70 / year
Use 1,000 LF at $37.16 for the cost estimate form.

Blowers
Assume normal maintenance of blower motors. Cost of $5,000 per year.

Flaring Units
Flare unit maintenance is assumed to be $10,000 per year based on experience with current equipment.

Meters and Valves
Maintenance of meters and valves assumed to be $5,000 per year based on experience with current equipment.

Compressors
Maintenance of air compressor based on current annual preventative maintenance contract of $8,000 per year.

Flame Arrestors
Maintenance of flame arrestors assumed to be $4,000 per year based on experience with current equipment.

Operation
Assume the LFGCCS operation requires one technician approximately 20 hours per week at the current onsite technician rate of $89.00 per hours for a total of $92,560 per year.

Item 8: Landscape

Mowing Cost = $25.00 per acre (AC)
Quantity = 118 acres 8 times per year
Assumes mowing of 118 acres of closure 8 times per year. Rate is based on current rough cut mowing bid contract for Sarasota County.

Fertilizer Cost = $3.94 per 1,000 SF or $171.63 per acre (AC)
Quantity = 118 acres once per year
Assumes fertilizer applied once per year on 118 acres of closure. Rate is based on current rough cut mowing bid contract for Sarasota County.

Item 9: Erosion Control and Cover Maintenance

Sod Replacement Cost = $2.21 / SY
Please see Item 5 of closure cost estimate for sod quote for unit cost. Quantity estimate is based on replacement of all sod (118 acres) once over the 30-year long-term care period. 118 acre = 571,120 SY / 30yrs = 19,040 SY / yr.

Regrading Cost = $12.25 (material) + $2.18 (placement)/CY = $14.43/CY
From the Universal Soil Loss Calculation attached, the total estimated soil replacement per year is 2,360 CY per year. The total cost for this line item is $14.43/CY x 2,360 CY = $34,054.80. Convert to per AC cost = $34,054.80 / 118 AC = $288.60 / AC.

Liner Repair Cost = $34.32 / SY
This cost assumes 100 SY of liner repair will be required per year at a cost of $4.32 / SY (as quote by Agru) and an additional $3,000 for mobilization which equals $34.32 / SY for the repairs.

Item 10: Stormwater Management System Maintenance

Stormwater Maintenance = $15,030 / year
Assume removal of 12-inches of sediment from perimeter ditches. Perimeter ditches are approximately 10,000 LF around Phase I and II. The ditches are approximately 15 feet wide, equal to removal of ~6,000 CY of material every 2 years or 3,000 CY per year. The removal cost is $1.84/CY to excavate the material and $3.17/CY to haul to a soil stockpile area for use as cover material after drying. This equals 3,000 CY x $5.01/CY = $15,030 / year.

Item 11: Security System Maintenance

Fence Repair Costs = $26.59 / LF
Assume replacement of 100 LF of fence per year x $26.59 = $2,659 / year.

Gate Repair Costs = $1,329.46
Assume replacement of one gate per year x $1,329.46 = $1,329.46 / year.

Sign Repair Costs = $858.60
Assume replacement of one sign per year greater than 20 SF = $858.60 / year.

Item 12: Utilities

A lump sum of $50,000 per year has been provided for the cost of utilities.

Item 13: Leachate Collection System Operations

These services include the maintenance and operation of the leachate collection system during the long-term care period of the CCSWDC:

Operational Services	**Hours**
P.E. Supervisor	40 hours per year (review and management)
On-Site Engineer	80 hours per year (engineering services)
Office Engineer	60 hours per year (reporting, permit services)
On-Site Technician	120 hours per year (inspection and maintenance)
Other (Admin Asst.)	60 hours per year (administrative services)
Materials	Assume $20,000 for misc. materials.

Standard Labor Rates used in Cost Estimate:

P.E. Supervisor	$179 per hour
On-Site Engineer	$128 per hour
Office Engineer	$141 per hour
On-Site Technician	$89 per hour
Other (Admin Asst.)	$74 per hour

Item 14: Administrative

These services include annual reporting for compliance with the facility permit, inspections, and maintenance. The hours are based on the Engineer's experience with similar facilities.

Administrative Services	**Hours**
P.E. Supervisor	40 hours per year (review and management)
On-Site Engineer	80 hours per year (engineering services)
Office Engineer	60 hours per year (reporting, permit services)
On-Site Technician	0 hours per year
Other (Admin Asst.)	60 hours per year (administrative services)

Standard Labor Rates used in Cost Estimate:	
P.E. Supervisor	$179 per hour
On-Site Engineer	$128 per hour
Office Engineer	$141 per hour
On-Site Technician	$89 per hour
Other (Admin Asst.)	$74 per hour

Item 15: Contingency

A contingency cost of 10% of the long term care costs has been provided in this estimate

Item 16: Site Specific Costs

There are no additional site specific costs.

FINANCIAL ASSURANCE
UNIT COST REFERENCES

Table 24C. Historical Chained Consumer Price Index for All Urban Consumers (C-CPI-U): U. S. city average, all items

(December 1999=100, unless otherwise noted)

Year	Jan	Feb.	Mar.	Apr	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual avg.	Percent change from previous	
														Dec.	Annual avg.
1999	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-
2000	100.3	100.9	101.6	101.6	101.7	102.1	102.3	102.3	102.8	102.9	102.8	102.6	102.0	2.6	-
2001	103.3	103.7	103.9	104.2	104.6	104.8	104.5	104.6	104.9	104.7	104.4	103.9	104.3	1.3	2.3
2002	104.2	104.5	105.1	105.6	105.6	105.6	105.7	106.0	106.3	106.4	106.3	106.0	105.6	2.0	1.2
2003	106.5	107.3	107.9	107.7	107.5	107.6	107.7	108.2	108.5	108.4	108.0	107.8	107.8	1.7	2.1
2004	108.5	109.1	109.7	110.0	110.6	110.8	110.7	110.7	111.0	111.6	111.6	111.2	110.5	3.2	2.5
2005	111.3	111.9	112.6	113.4	113.3	113.2	113.7	114.3	115.6	115.7	114.9	114.4	113.7	2.9	2.9
2006	115.2	115.4	116.0	116.9	117.5	117.7	118.1	118.3	117.8	117.1	116.9	117.0	117.0	2.3	2.9
2007	117.330	117.877	118.913	119.666	120.292	120.439	120.377	120.288	120.638	120.885	121.481	121.295	119.957	3.7	2.5
2008	121.867	122.250	123.323	124.116	125.171	126.307	126.918	126.594	126.551	125.500	123.044	121.557	124.433	.2	3.7
2009	122.095	122.598	122.803	123.053	123.427	124.485	124.293	124.620	124.706	124.791	124.788	124.544	123.850	2.5	-.5
2010	124.987	124.972	125.442	125.620	125.678	125.521	125.536	125.756	125.830	125.969	125.920	126.143	125.615	1.3	1.4
2011	126.778	127.363	128.585	129.483	129.999	129.846	129.983	130.351	130.635	130.373	130.196	129.844	129.453	2.9	3.1
2012	130.363	130.829	131.649	131.993	131.902	131.819	131.614	132.203	132.702	132.699	132.212	131.896	131.823	1.6	1.8
2013	132.272	133.188	133.506	133.430	133.652	133.925	-	-	-	-	-	-	-	-	-

- Data not available.

Indexes for 2013 are initial estimates. Indexes for 2012 are interim adjustments. Indexes for 2011 and earlier are final.

NOTE: Index applies to a month as a whole, not to any specific date.

August 2011 Bids ⟶ 2013 Costs

$$\text{Factor} = \frac{2013\ \text{CPI}}{8/11\ \text{CPI}} = \frac{133.925}{130.351} = 1.028 = 1.03$$

-DEP FA Inflation Factors

2011 → 2012 1.020

2012 → 2013 1.020

2011 → 2013 = 1.041

Programs
Waste Home
Permitting and Compliance Assistance
Petroleum Cleanup
Waste Cleanup

Information
Division & Bureau Contacts
Data Reports
DEP Public Notices
Division Public Notices
Forms
News
Publications and Reports
Rules

Navigation
Agency Site Map
Division Site Map

Annual Adjustment of Cost Estimates

Owners or operators of facilities regulated by the Solid Waste Financial Assurance office shall annually adjust their facility closure cost estimates for inflation and submit updated information to the Department. Outlined below are Rule 62-701.630(4), Florida Administrative Code (F.A.C.), requirements for submission of closure cost estimates.

Form 62-701.900(28) is used to prepare and submit closure cost estimates. Contact your permitting office for assistance with this form.
Annual cost estimate adjustments may be made either by recalculating the maximum cost of closure in current dollars or by using the current year inflation factor.
For owners or operators using an escrow account to demonstrate financial assurance, cost estimates must be submitted between July 1 and September 1 of each year.
For owners or operators using an alternate financial mechanism to demonstrate financial assurance, cost estimates must be submitted between January 1 and March 1 of each year.
Please submit Form 62-701.900(28) to the appropriate permitting office with a copy to the Solid Waste Financial Coordinator:

By e-mail: Solid.Waste.Financial.Coordinator@dep.state.fl.us

or by mail: Solid Waste Financial Coordinator
Department of Environmental Protection
2600 Blair Stone Road MS 4565
Tallahassee, Florida 32399-2400

or by fax: (850) 245-8811

Calculation of the Inflation Factor

The annual inflation factor is derived from the most recent Implicit Price Deflator for Gross National Product published by the U.S. Department of Commerce in its Survey of Current Business, pursuant to Rule 62-701.630 (4)(a)(2), F.A.C.
To calculate the current inflation factor, divide the latest published annual Deflator by the Deflator for the previous year.
Implicit Price Deflator data is published by the U.S. Department of Commerce, Bureau of Economic Analysis on their website, http://www.bea.gov .
The data necessary to calculate the inflation factor is released by the U.S. Department of Commerce in April. Therefore, it is appropriate to use the previous year's factor when inflation adjusting cost estimates due between January 1 and March 1.

Current Year Inflation Factors:

1.020	for estimates due between January 1 and March 1, 2013
1.017	for estimates due between July 1 and September 1, 2013

Recent Inflation Factors:

Last Approved Cost Estimate (Year)		Select Appropriate Inflation Factor: Estimate due 1/1 - 3/1	Select Appropriate Inflation Factor: Estimate due 7/1 - 9/1		New Cost Estimate (Year)
2005	x	1.020	1.030	=	2006
2006	x	1.030	1.030	=	2007
2007	x	1.030	1.025	=	2008
2008	x	1.025	1.020	=	2009

Highlights
SWFA Main Page
Cost Estimates
Facility Lists:
Solid Waste Management Facilities
Used Oil Processing Facilities
Forms
Provider Companies
Rules & Related Laws
Workshop

2009	x	1.020	1.010	=	2010
2010	x	1.010	1.010	=	2011
2011	x	1.010	1.020	=	2012
2012	x	1.020	1.017	=	2013

Last updated: April 15, 2013

Bureau of Solid & Hazardous Waste #850-245-8707 MS #4550

Division of Waste Management #850-245-8705 MS #4500
2600 Blair Stone Road, Tallahassee, Florida 32399-2400

Questions & Comments Form

Sarasota County
4000 Knights Trail
Nokomis, FL, 34275
Date: 13-Sep-13

ntral County Solid Waste Disposal Compl
Year 2013 Quarter 2
Unit Detail Report

Prepared E
Lois Rose
Sarasota County

LineNumber	Description	Quantity	Unit	Total Incl. O&P	Ext. Total Incl. O&P
Division 02 Existing Conditions					
022113090020 C Item #10	Topographical survey, conventional, minimum	1.00	Acre	$466.98 C #10	$466.98
022113090100 C Item #10	Topographical survey, conventional, maximum	1.00	Acre	$3,190.70 C #10	$3,190.70
028120101120 C Item #13	Hazardous waste cleanup/pickup/disposal, solid pickup, bulk material, minimum NOT USED SHOWS LOWER LIMIT	1.00	Ton	$172.52 C #13	$172.52
028120101130 C Item #13	Hazardous waste cleanup/pickup/disposal, solid pickup, bulk material, maximum UPPER LIMIT USED	1.00	Ton	$576.58 C #13	$576.58
Division 02 Existing Conditions Subtotal					**$4,406.78**
Division 10 Specialties					
101453202000 LTC Item #11	Signs, highway road signs, aluminum, high intensity, over 20 S. F., excludes posts	20.00	S.F.	$42.93 LTC #11	$858.60
Division 10 Specialties Subtotal					**$858.60**
Division 31 Earthwork					
312316420260 LTC Item #10	Excavating, bulk bank measure, 2 C.Y. capacity = 165 C.Y./hr., backhoe, hydraulic, crawler mounted, excluding truck loading	1.00	B.C.Y.	$1.84 LTC #10	$1.84
312323170020 C Item #2	Fill, dumped material, spread, by dozer, excludes compaction	1.00	L.C.Y.	$2.18 C #2 C #4	$2.18
312323200016 C Item #4 LTC Item #10	Cycle hauling(wait, load,travel, unload or dump & return) time per cycle, excavated or borrow, loose cubic yards, 10 min wait/load/unload, 8 C.Y. truck, cycle 1 mile, 15 MPH, excludes loading equipment	1.00	L.C.Y.	$3.17 LTC #10	$3.17
312323235100 C Item #2	Compaction, riding, vibrating roller, 4 passes, 12" lifts	1.00	E.C.Y.	$0.50 C #2	$0.50
Division 31 Earthwork Subtotal					**$7.69**
Division 32 Exterior Improvements					
320190130140 LTC Item #8	Fertilizing, dry granular, 4lb./M.S.F., truck whirlwind spreader	1.00	M.S.F.	$3.94 LTC #8	$3.94
323113200200 LTC Item #11	Fence, chain link industrial, galvanized steel, 3 strands barb wire, 2" posts @ 10' OC, 9 ga. wire, 6' high, schedule 40, includes excavation, & concrete	1.00	L.F.	$26.59 LTC #11	$26.59
323113205070 LTC Item #11	Fence, chain link industrial, double swing gates, 6' high, 20' opening, includes excavation, posts & hardware in concrete	1.00	Opng.	$1,329.46 LTC #11	$1,329.46
vision 32 Exterior Improvements Subtotal					**$1,359.5**

C Item #2
C Item #4
TC Item #9

CONTRACT NO. 2013-292
BCC APPROVED 3/19/13

TERM CONTRACT FOR IFB 132338JS AGGREGATES

THIS TERM CONTRACT is made and entered into as of the date of execution by both parties, by and between SARASOTA COUNTY, a political subdivision of the State of Florida, herein after referred to as the "County" and MASTERROCK, LLC, a limited liability corporation licensed in the State of Florida, hereinafter referred to as "Contractor".

WITNESSETH

WHEREAS, the County requires the services of a Contractor to provide Aggregates; and,

WHEREAS, the County issued Invitation for Bids (IFB) #132338JS ("IFB") on January 8, 2013; and,

WHEREAS, the County evaluated the bids received and found the Contractor qualified to perform the necessary services; and,

WHEREAS, the County issued a Notice of Recommended Award on February 7, 2013; and,

WHEREAS, the nature of the services being provided is such that the quantity and extent of services may be subject to periodic adjustment through future amendments to this Term Contract; and,

WHEREAS, the Contractor has reviewed the services required pursuant to the Term Contract and is qualified, willing and able to provide and perform all such services in accordance with its terms;

NOW, THEREFORE, the County and the Contractor, in consideration of the mutual covenants contained herein, do agree as follows:

BOARD RECORDS
FILED FOR THE RECORD
KAREN E. RUSHING
CLERK OF THE CIRCUIT COURT
SARASOTA COUNTY, FL
2013 MAR 19 PM 3:40

I. CONTRACTOR'S SERVICES

A. The Contractor agrees to diligently provide all materials, services and labor for the performance of providing aggregates for Category #1 (Product and Delivery), in accordance with the technical specifications made part of this Term Contract as Exhibit A, attached hereto and incorporated herein.

II. TERM

A. This Term Contract shall commence immediately upon execution by both the County and the Contractor and shall continue for a period of one year. At the conclusion of one year, the Term Contract shall automatically renew for two (2) additional successive one (1) year terms, unless a notice of termination is provided by either party no less than ninety (90) days in advance of the annual renewal date each year.

B. The right of termination set forth above is in addition to and not in lieu of those rights of termination described in Section XI below.

C. Notwithstanding the preceding, Contractor shall perform no work under this Term Contract until receipt of a Purchase Order from the County. Contractor acknowledges and agrees that no minimum amount of work is guaranteed under this Term Contract and County may elect to issue no purchase orders.

III. COMPENSATION AND PAYMENT OF CONTRACTOR'S SERVICE

A. The County shall pay the Contractor for the services rendered hereunder and completed in accordance with the terms and conditions of this Term Contract an amount not to exceed that authorized by each Purchase Order, inclusive of costs necessary to provide all services as outlined in this Term Contract.

B. The County's performance and obligation to pay under this Term Contract is contingent upon an appropriation by the Board of County Commissioners. The County shall promptly notify the Contractor if the necessary appropriation is not made.

IV. ADDITIONAL SERVICES

A. No changes to this Term Contract or the performance contemplated hereunder shall be made unless the same are in writing and signed by both the Contractor and the County's authorized agent as set forth below.

B. The Board of County Commissioners authorizes the Procurement Official to approve and execute amendments to this Term Contract, subject to applicable County policies and procedures.

C. If the County's Administrative Agent requires the Contractor to perform additional services and if such services are not required as a result of error, omission or negligence of Contractor, then in such event the Contractor shall be entitled to additional compensation. The additional compensation shall be agreed upon before commencement of any additional services or changes and shall be incorporated into this Term Contract by written amendment. Any additional service or work performed before a written Amendment to this Term Contract shall not be compensated by the County.

IFB 132338JS AGGREGATES
EXHIBIT B – FEE SCHEDULE

ITEM	DESCRIPTION	UNIT OF MEASURE	UNIT PRICE
1	SHELL MATERIAL (SMALL 1/2" - 1" WASHED)	PER TON	$47.80
2	SHELL MATERIAL (MEDIUM 1" – 2" WASHED)	PER TON	$41.40
3	SHELL MATERIAL (AVERAGE 3" WASHED)	PER TON	$33.65
4	RE-CYCLED CRUSHED CONCRETE	PER TON	$17.40
5	FDOT AGGREGATE (SIZE #57)	PER TON	$25.80
6	RIP-RAP, 12"- 24"	PER TON	$31.80
7	RIP-RAP, 24"-36"	PER TON	$35.10
8	RIP-RAP, 36" AND UP	PER TON	$35.10
9	CLEAN FILL DIRT	PER TON	$7.56
10	BANK RUN SHELL MATERIAL	PER TON	$15.10
11	BANK RUN, CLAY BASE, SHELL MATERIAL	PER TON	$15.10
12	BEACH SAND	PER TON	$10.15
13	GOLF COURSE SAND	PER TON	$11.35
14	SILICA (MASON) SAND	PER TON	$17.50
15	LANDFILL DRAINAGE SAND	PER TON	$18.75

C Item #3
C Item #4
LTC Item #9

IFB 132338JS AGGREGATES
EXHIBIT C – INSURANCE REQUIREMENTS

A. INSURANCE

Before performing any contract work, CONTRACTOR shall procure and maintain, during the life of the contract, unless otherwise specified, insurance listed below. The policies of insurance shall be primary and written on forms acceptable to the COUNTY and placed with insurance carriers approved and licensed by the Insurance Department in the State of Florida and meet a minimum financial AM Best Company rating of no less than "A- Excellent: FSC VII." No changes are to be made to these specifications without prior written specific approval by COUNTY Risk Management. Those requirements which are not applicable to this purchase or solicitation have been struck through.

1. **WORKERS' COMPENSATION:** CONTRACTOR will provide Workers' Compensation insurance on behalf of all employees who are to provide a service under this contract, as required by the laws of the state where the Contractor is domiciled. FLORIDA CONTRACTORS must provide evidence of Workers' Compensation insurance which meets the requirements of Florida Statutes, Chapter 440, **AND** Employer's Liability with limits of not less than $100,000 per employee per accident, $500,000 disease aggregate, and $100,000 per employee per disease. If applicable, coverage for the Jones Act and Longshore Harbor Workers Exposures must also be included. **NOTE** Contractors who are exempt from Florida's Workers' Compensation law must provide proof of such exemption issued by the Florida Department of Financial Services, Bureau of Workers' Compensation and qualify for the County waiver per the **Classification Matrix**.

   In the event the CONTRACTOR has "leased" employees, the CONTRACTOR or the employee leasing company must provide evidence of a Workers' Compensation policy for all personnel on the worksite. All documentation must be provided to Sarasota County Risk Management, 1660 Ringling Blvd., 3rd Floor, Sarasota, FL 34236.

2. **COMMERCIAL GENERAL LIABILITY:** Including but not limited to bodily injury, property damage, contractual, products and completed operations, watercraft, if under twenty-six (26) feet and Ocean Marine if over, and personal injury with limits of not less than **$1,000,000** each occurrence, covering all work performed under this contract.

3. **BUSINESS AUTOMOBILE LIABILITY:** CONTRACTOR agrees to maintain Business Automobile Liability at a limit of liability not less than **$1,000,000** each accident covering all work performed under this contract.

   CONTRACTOR further agrees coverage shall include liability for Owned, Non-Owned & Hired automobiles. In the event CONTRACTOR does not own automobiles, CONTRACTOR agrees to maintain coverage for Hired & Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy. If private passenger automobiles are used in the business, they must be commercially insured.

   If the CONTRACTOR is shipping a product via common carrier, the Contractor shall be responsible for any loss or damage sustained in delivery/transit.

4. ~~**UMBRELLA LIABILITY:** With limits of not less than (see **Classification Matrix**) each occurrence covering all work performed under this contract.~~

5. **HAZARDOUS MATERIALS INSURANCE:** For the purpose of this section, the term "hazardous materials" includes all materials and substances that are now designated or defined as hazardous by Florida or Federal law or by the rules or regulations of Florida or any Federal Agency. If work being performed involves hazardous materials, the need to procure and maintain any or all of the following coverage will be specifically addressed upon review of exposure. However, if hazardous materials are identified while carrying out this contract, no further work is to be performed in the area of the hazardous material until COUNTY Risk Management has been consulted as

Citem #3

Jason Timmons

From: Gary Ezell [GEzell@AgruAmerica.com]
Sent: Monday, August 12, 2013 03:24 PM
To: Jason Timmons
Subject: RE: Closure Geosynthetic Budgetary Cost Estimates

Jason:

40 mil LLDPE delivered to the site with install for full truck load quantities: $ 0.48 cents/sf

330 mil DS 8 oz delivered with install for truck load quantities: $ 0.57 1/2 cents/sf = $0.58/sf

Gary Ezell
Energy Business Development Manager

Office Phone: (727) 202-6985
Cell Phone: (727) 871-8446
gezell@agruamerica.com
www.agruamerica.com

From: Jason Timmons [mailto:jtimmons@scgov.net]
Sent: Monday, August 12, 2013 2:00 PM
To: Gary Ezell
Subject: Closure Geosynthetic Budgetary Cost Estimates

Gary:

It was good talking with you last week and seeing you at SWANA. As I mentioned last week, I am preparing an updated closure and long-term care financial assurance cost estimate for the Central County Landfill. I was hoping you could provide current budgetary pricing in $ per square foot for LLDPE 40 mil textured (both sides) and 330 mil double-sided geocomposite (8-oz geotextiles). Please include material, delivery, and installation in the budget pricing if possible.

Thank you for your help.

Jason

Jason Timmons, PE
Sarasota County Public Utilities | Solid Waste Engineer
4000 Knights Trail Road, Nokomis, FL 34275
Office: 941-861-1572
Cell: 941-400-2370
email: jtimmons@scgov.net

All mail sent to and from Sarasota County Government is subject to the public records law of Florida

CItem #5
LTC Item #9

Sarasota County

December 4, 2012

Dieter's Sod Service, Inc.
Attention: Carol Zoelner
2315 Zipper Road
Bradenton, FL 34212

RE: BID #111375TM
AMENDMENT of Annual Agreement for Sod Installation and Seeding Services

Dear Ms. Zoelner:

The purpose of this letter is to propose an amendment to the above award in accordance with the attached Annual Agreement Amendment. If this Amendment is acceptable, please acknowledge by signing and returning the attached Annual Agreement Amendment to:

Sarasota County Procurement
Attention: James Scheidel
1660 Ringling Blvd. 3rd Floor
Sarasota, FL 34236
Fax: 941-861-5171

Failure to return an executed copy of the Annual Agreement Amendment by December 18, 2012 may result in the termination of the award. If you have any questions, please contact me at (941) 525-8121 or jscheide@scgov.net.

Sincerely,

James Scheidel, Procurement Analyst

cc: Greg Young

Amendment 2
EXHIBIT A - FEE SCHEDULE
IFB 111375 - SOD INSTALLATION AND SEEDING SERVICES
Dieter's Sod Service, Inc.

GROUP A: SOD INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**UNIT PRICE**
A.1	FLORITAM, DELIVERED AND INSTALLED **(Amendment 2)**	SQUARE FOOT	~~$0.31~~ $0.34
A.2	FLORITAM, DELIVERED AND INSTALLED (USING STAKES OR STAPLES) **(Amendment 2)**	SQUARE FOOT	~~$0.37~~ $0.40
A.3	ARGENTINE BAHIA, DELIVERED AND INSTALLED **(Amendment 2)**	SQUARE FOOT	~~$0.165~~ 0.185
A.4	ARGENTINE BAHIA, DELIVERED AND INSTALLED (USING STAKES OR STAPLES) **(Amendment 2)**	SQUARE FOOT	~~$0.225~~ $0.245
A.5	PENSACOLA BAHIA, DELIVERED AND INSTALLED **(Amendment 2)**	SQUARE FOOT	~~$0.165~~ $0.185
A.6	PENSACOLA BAHIA, DELIVERED AND INSTALLED (USING STAKES OR STAPLES) **(Amendment 2)**	SQUARE FOOT	~~$0.225~~ $0.245
A.7	ZOYSIA, DELIVERED AND INSTALLED **(Amendment 2)**	SQUARE FOOT	~~$0.44~~ $0.48
A.8	ZOYSIA, DELIVERED AND INSTALLED (USING STAKES AND STAPLES **(Amendment 2)**	SQUARE FOOT	~~$0.50~~ $0.54

CI Item #5
LTC Item #9

BID FORM

Central County Solid Waste Disposal Complex - Phase I Class I Landfill Closure and Landfill Gas Collection System
BID #111383CS

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
45	8-inch Diameter Polyetheyline Toe Drain Pipe	3,400	LF	20.00	68,000.00
46	18-inch Diameter Polyetheyline Downdrain Pipe	800	LF	36.00	28,800.00
47	24-inch Diameter Polyetheyline Downdrain Pipe	3,000	LF	40.00	120,000.00
48	36-inch Diameter Polyetheyline Downdrain Pipe	250	LF	71.00 x1.041 = $73.91	17,750.00
49	Filter Point Fabric-Formed Concrete Lining	16,000	SF	5.00 x1.041 = $5.21	80,000.00
50	Leachate Cleanout Pump Station Modifications	1	LS	78,000.00	78,000.00
51	Concrete for Stormwater Conveyance Systems	9	EA	2,800.00	25,200.00
52	Sodding	285,000	SY	1.75	498,750.00
53	Asbestos Removal and Disposal	10	TONS	250.00	2,500.00
54	Spare Parts	1	LS	1,800.00	1,800.00
55	South Side Stormwater Swale Soil Fill	15,000	CY	3.60	54,000.00

CItem #6

CItem #1

CItem #1

Item #7

Thalle

SECTION 2

BID FORM

Central County Solid Waste Disposal Complex - Phase I Class I Landfill Closure and Landfill Gas Collection System BID #111383CS

Board of County Commissioners, Sarasota County, Sarasota Florida, submitted: 8/3/11 (Date)

Commissioners: The undersigned, as Bidder, hereby declares that the only person or persons interested in this Bid as principal or principals is or are named herein and that no person other than herein mentioned has any interest in this Bid or in the Contract to be entered into, that this Bid is made without connection with any other person, company or Parties making a Bid, and that this Bid is in all respects fair and made in good faith without collusion or fraud.

The Bidder further declares that they have examined the site(s) of the work, understands all conditions pertaining to the place where the work is to be done, has examined the plans for the work and other Contract documents relative thereto and has read all of the addenda furnished prior to the opening of Bids, as acknowledged below, and that they have satisfied themselves relative to the work to be performed.

The Bidder agrees, if this Bid is accepted, to contract with the Board of County Commissioners, Sarasota County to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation, and labor necessary to construct the work covered by the Bid and other Contract documents.

The Bidder agrees to accept the prices listed in the bid form as full compensation. The Bidder understands that the quantities shown on the Bid Form are approximate only and subject to increase or decrease. Should they be increased or decreased, he will perform the work at the unit price Bid herein. Actual quantities will be determined upon completion of the work.

The Bidder agrees to commence work as set forth in the General Conditions attached hereto and to complete the work to Substantial Completion within **270 calendar days**, and an additional 30 calendar days to Final Acceptance, from the date on which contract time commences. If the Contractor fails to complete the work to Substantial Completion within the specified time, the Contractor agrees to pay the Owner **THREE THOUSAND THREE HUNDRED DOLLARS ($3,300.00) per day** as liquidated damages as stipulated in the General Conditions attached hereto. If the Contractor fails to complete the work to Final Acceptance within the specified time, the Contractor agrees to pay the Owner **EIGHT HUNDRED TWENTY FIVE DOLLARS ($825.00) per day** as liquidated damages as stipulated in the General Conditions attached hereto.

CItem #7
CItem #8

BID FORM

Central County Solid Waste Disposal Complex - Phase I Class I Landfill Closure and Landfill Gas Collection System
BID #111383CS

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
23	Ditch Lining Rubble (Rip Rap)	200	TONS	60.00	12,000.00
24	Weed Barrier	50,000	SF	0.30	15,000.00
25	20-mil Rain Cover	150,000	SF	0.48	72,000.00
26	Landtec Wellheads with Flange Fitting	44	EA	2,400.00 x1.041 = $2,498.40	105,600.00
27	Drilling and Completion of 36-inch Bore Vertical Active Well	2,500	LF	80.00 x1.041 = $83.28	200,000.00
28	Well Abandonment	200	LF	30.00	6,000.00
29	2-inch Diameter HDPE, SDR 9 Airline (same trench)	9,100	LF	10.00 x1.041 = $10.41	91,000.00
30	4-inch Diameter HDPE, SDR 9 Forcemain (same trench)	9,100	LF	12.00 x1.041 = $12.49	109,200.00
31	4-inch Diameter HDPE, SDR 11 Lateral Pipe	5,000	LF	20.00	100,000.00
32	6-inch Diameter HDPE, SDR 11 Leachate Clean Out Pipe Connections	200	LF	18.00 x1.041 = $18.74	3,600.00
33	6-inch Diameter HDPE, SDR 11 Lateral Pipe	2,500	LF	19.00 x1.041 = $19.78	47,500.00

CItem #7
CItem #7
CItem #5
11
11
11

CItem #8

BID FORM

Central County Solid Waste Disposal Complex - Phase I Class I Landfill Closure and Landfill Gas Collection System
BID #111383CS

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
34	8-inch Diameter HDPE, SDR 11 Lateral Pipe	920	LF	40.00 x1.041 =	36,800.00
35	18-inch Diameter HDPE, SDR 17 Header Pipe	570	LF	58.00 x1.041	33,060.00
36	Header/Airline/Condensate Access Point	1	EA	2,600.00 * x1.041	2,600.00 used $3,000 in est. note
37	36-inch Diameter HDPE, SDR 17 Sump	1	EA	28,000.00 x1.041	28,000.00
38	Landtec Remote Wellheads for Leachate Cleanout	2	EA	3,000.00	6,000.00
39	48-inch Diameter Header Isolation Valve Box Installation	1	EA	17,000.00	17,000.00
40	36-inch Diameter Airline Valve Box Installation	1	EA	5,600.00	5,600.00
41	48-inch Diameter Condensate Forcemain Valve Box Installation	1	EA	6,500.00	6,500.00
42	Miscellaneous Fittings, Tees, Elbows, etc.	1	LS	30,000.00	30,000.00
43	Extension of Existing Wellheads and Other Gas System Apprutenances	1	LS	40,000.00	40,000.00
44	Access Road Stabilized Base	5,500	SY	17.00	93,500.00

CItem #8

SECTION 2

I Landfill

AL COST
4,500.00
1,380.00
13,000.00
5,000.00
3,000.00
7,200.00
14,000.00
9,400.00
4,600.00
17,500.00
650,000.00

BID FORM

Central County Solid Waste Disposal Complex - Phase I Class I Landfill Closure and Landfill Gas Collection System
BID #111383CS

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
67	Pneumatic Pumps	10	EA	8,300.00 x1.041	83,000.00

9

SUMMARY OF PHASE I CLOSURE AND LANDFILL GAS COLLECTION SYSTEM		
SUBTOTAL BID PRICE, Phase I Closure and Landfill Gas Collection System (Total of Items 1 through 67)		9855,290.00
Plus	Authorized Contract Amendments (Contingency) - (5% of Subtotal Bid Price)	~~518,699.47~~ $ 492,764.50
TOTAL BID PRICE Phase I Closure and Landfill Gas Collection System		~~10,373,989.47~~ $10,348,054.50

TOTAL BID PRICE written in words:
TEN MILLION THREE HUNDRED SEVENTY THREE THOUSAND NINE HUNDRED EIGHTY NINE DOLLARS AND FORTY SEVEN CENTS

Note: Quantities provided are estimated and are not guaranteed. The quantities are used solely for the purpose of comparison of Bids and determination of initial Contract Price.

ESTIMATED FINANCIAL ASSURANCE RATES - FY 2014
THIRD PARTY ENGINEERING (NON-COUNTY STAFF)
SARASOTA COUNTY- SOLID WASTE OPERATIONS

CLASSIFICATION	2008 RATE	2014 RATE
P.E. Supervisor	$159	$179
On-Site Engineer	$114	$128
Office Engineer	$125	$141
On-Site Technician	$79	$89
Other (Admin Asst.)	$66	$74

CItem # 11
LTC Item # 13
LTC Item # 14

CItem #11

Jason Timmons

LTC Item #3
LTC Item #1

From: Siemering, Richard [Richard.Siemering@hdrinc.com]
Sent: Monday, August 12, 2013 10:44 AM
o: Jason Timmons
Subject: RE: Standard Professional Services Labor Rates (Budgetary)
Attachments: FINANCIAL ASSURANCE RATES FOR FY 2014 08 12 2013.pdf

Jason-

Attached is a table for bringing the engineering rates up to FY 2014 for use in the financial assurance calculations. The current rates were simply calculated by increasing the 2008 rates by 2% annually for six years (2008-2014). Hope this helps.

Please call if you have any questions or require additional information. Thank you.

RICHARD SIEMERING

HDR Engineering, Inc.
Senior Project Manager | Solid Waste Section Manager | Professional Associate

5426 Bay Center Drive, Suite 400 | Tampa, FL 33609-3444
813.262.2776 | cell 813.528.1846
Richard.Siemering@hdrinc.com | hdrinc.com

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From: Jason Timmons [mailto:jtimmons@scgov.net]
Sent: Saturday, August 10, 2013 12:53 PM
To: Siemering, Richard
Subject: Standard Professional Services Labor Rates (Budgetary)

Rich:

Listed below are standard professional services rates that we have currently in our Phase I/II Financial Assurance cost estimate prepared by HDR in 2008. Could you please review the rates below and, for financial assurance closure and long-term care budgetary purposes only, provide updated rates that would be currently typical for the position types listed below? Thank you for the help.

Jason

Standard Labor Rates used in Cost Estimate:

P.E. Supervisor	$159 per hour
On-Site Engineer	$114 per hour
Office Engineer	$125 per hour
On-Site Technician	$70 per hour
Other (Admin Asst.)	$66 per hour

Jason Timmons, PE
Sarasota County Public Utilities | Solid Waste Engineer
4000 Knights Trail Road, Nokomis, FL 34275
Office: 941-861-1572
Cell: 941-400-2370
email: jtimmons@scgov.net

All mail sent to and from Sarasota County Government is subject to the public records law of Florida.

Citem # 13
Waste Tire Facility
WTPF

ATTACHMENT D

FINANCIAL ASSURANCE

The cost estimate for Sarasota County WTPF is calculated using the quantity of tires permitted on the site. The maximum quantity of tires would be expected to be removed, and disposed of to close the facility. Third party cost estimates were obtained for the tipping fees (Attachment 1, Charlotte County) and hauling rate (Attachment 2, Roots of Sarasota) to calculate the estimated closure cost of one hundred sixteen thousand, nine hundred and forty-one ~~eleven thousand, five hundred eight four~~ dollars ~~($111,584)~~ ($116,941). Attachment D-1 is the detailed cost estimate for the closure of the Sarasota County WTPF.

Item #13
WTPF

SCS ENGINEERS

SHEET 1 OF 3

CLIENT	PROJECT	JOB NO.
Sarasota County	Waste Tire Processing Facility	09211007.03
SUBJECT	BY / DATE	
Closure Cost Estimate	OJH 5/29/12	
	CHECKED / DATE	
	7/6-11/12	

Maximum Storage Capacity
conformance with 62-711.540

Based on the design a storage pile which measures 180ft x 50ft is available on site

Area of the pile = 9,000 ft^2 < 10,000 .OK

Volume of each pile (for maximum storage) stacking tires

Volume = 180ft * 50ft x 15ft = 135,000 CF = 5000cy

A weight of 200 lbs per CY is used.

At 200lbs/CY, 5000CY of Storage can accommodate approximately 500 tons of whole waste tires

Closure cost will include

- Removal of 500 tons of whole tires
- 40 CY of waste tires from containers
- 80 CY of processed tires
- 20 CY of tire rims
- Removal of Equipment
- Clean-up of Facility

Citem #13
WTPF

SCS ENGINEERS

SHEET 2R OF 3

CLIENT	PROJECT	JOB NO	
SUBJECT Revised Closure Cost Estimate		BY OJH	DATE 7/24/12
only pages 2 and 3 revised		CHECKED BJS	DATE 7/24/12

Cost of Removal of 500 tons of whole tire

From Quote provided by Roots of Sarasota (see Attachment 2)
to haul from Sarasota Central County Landfill
to Zemel Road Landfill costs $250.00/40YD container

Based on Assumptions from DEP Form # 62-701.900(22) FAC
Waste tire = 100 tires per ton or 10 tire per cubic yard

40 YD container = 400 tires = 4 tons/40YD container

500 tons/4 tons per container = 125 containers

125 containers × $250.00 = $31,250

500 tons × $130.00 tipping fee (see Attachment 1)

= $65,000 $96,250

Cost of Removal of 40CY waste tires from containers
to Zemel Road Landfill
2 containers × $250.00 = $500.00

2 containers × 4 tons × $130.00/ton tipping fee

= $1,040.00 $1,540

Cost of Removal of 2-40 CY of processed tires
to Zemel Road Landfill
Density of processed tires = 1000 lbs/CY

80CY × 0.5 tons/CY = 40 tons

80CY = 2-40YD containers

cont...

C Item #13 WTPF

SCS ENGINEERS

SHEET 3A OF 3

CLIENT Sarasota County	PROJECT	JOB NO.	
SUBJECT Revised Closure Cost Estimate		BY OJH	DATE 7/24/12
only pages 2 and 3 revised		CHECKED [illegible]	DATE 7/24/12

2 container × $250.00 = $500.00

40 tons × $130.00/ton tipping fee

= $5,200.00 **$5,700.00**

Cost for Removal of 20 CY of tire rims to the Zemel Road Landfill (minimum $250.00)

1 container × $250.00 = $250.00

Assume tire Rims weigh 500 lb/CY

20 CY × 500 lb/CY = 10,000 lbs = 5 tons

5 tons × $130.00/ton tipping fee = $650.00

$700.00

Cost for Removal of Equipment and Clean-up of Facility

Removal of Equipment and Clean-up of the Facility will be completed by two workers working for two days

Assume the Hourly rate per worker is $60.00

2 workers × 8 hr/day × 2 day/worker = 32 hours

$60.00/hr × 32 hrs = **$1920**

Total Closure Cost:

Tire Removal =	$96,250
Tire Container Removal =	$1,540
Processed Tire Removal =	$5,700
Tire Rim Removal =	$900
Removal of Equipment and Clean-up =	$1,920
sub-total =	$106,310
Total with 10% Contingency =	$116,941

Citem #13

Attachment 1

Charlotte County Government

Home | PublicWorks | Solidwaste |

Solid Waste

Tipping Fees and Other Information

- What happens at the landfill
- Tipping Fees - Other Information

- **COUNTY RESIDENTS**: $36.00 PER TON Minimum charge: $5.00
- **OUT OF COUNTY**: $72.00 PER TON Minimum charge: $17.00
- **TIRES**: In-County $115.00 PER TON Out-of-County: $130.00 PER TON
- **ASBESTOS**: $100.00 PER TON
- **SPECIAL HANDLING**: $50.00 PER EVENT
- **ACCOUNT APPLICATION**: Call 941-764-4360

FOR COMMERCIAL HAULERS OF CONSTRUCTION DEMOLITION DEBRIS

In an effort to monitor out-of-county waste, the Landfill will now be requiring that haulers disposing of construction and demolition debris have a **building permit number or address of the location** that they are hauling the above material from.

The Scalehouse Attendants will use the Charlotte County's Building Department permitting software to look up the permit to verify that the waste is from Charlotte County.

If the hauler does not have this information then they will be charged the out of county waste rate of $72.00 per ton.

PROHIBITED WASTES

Federal and State Regulations have specified the following types of wastes that CANNOT be buried at the Zemel Road Landfill and they cannot be mixed in with your garbage.

Used Motor Oil & Filters: We accept small quantities from businesses at our Used Oil Storage Tank Area. Households can recycle their used motor oil and filters through our curbside program.

Lead-Acid Batteries: We will accept Lead-Acid Batteries from businesses at our Battery Storage Area. Households can recycle these batteries through our curbside program.

Rechargeable Batteries [Nickel Cadmium and Small Sealed Lead-Acid Batteries]: We accept small quantities from businesses at our Scale Building. Households can recycle these batteries at our Household Hazardous Waste Collection sites.

Item #13
WTF
Attachment a

ROOTS OF SARASOTA, INC
2105 HIBISCUS STREET
SARASOTA, FL 34239

(941)957-HAUL
bobbyphinney@gmail.com
www RootsSrq.com

ROOTS

Estimate

Date	Estimate #
05/29/2012	1003
	Exp. Date
	06/29/2012

Address
Orion Holtey SCS Engineers 4041 Park Oaks Blvd Tampa, Florida 33610

Date	Service	Activity	Quantity	Rate	Amount
05/29/2012	4	40 YD CONTAINER PLUS DUMP FEES (ADDITIONAL FEES ADDED WHEN WEIGHED)	1	250.00	250.00
				Total	$250.00

Thank you for your time and consideration, ROOTS looks forward to working with you!

Accepted By:

Accepted Date:

CI Item #13

MRF

3.7.0 Closure Plan and Closure Cost Estimate

Sarasota County will notify the Department in writing prior to ceasing operations, and will specify a closing date. No waste will be received by the MRF after the closing date. Within 30 days after receiving the final solid waste shipment, the owner will remove or otherwise dispose of all solid waste. Putrescible wastes will be removed within 48 hours. Closure will be completed within 180 days after receiving the final solid waste shipment. Closure will include removal of all recovered materials from the site for recycling or for disposal. When closure is completed, Sarasota County will certify in writing to the Department that closure is complete. The Department will be allowed to make an inspection within 30 days to verify the closure, and advise Sarasota County of the closure status.

To close this MRF, all waste and recyclable materials will be removed. Financial Assurance for this MRF is included in the Financial Assurance for the Sarasota County Central County Solid Waste Disposal Complex. The closure cost estimate for the MRF is calculated below. It was assumed that the waste and recyclable materials would be at the maximum stockpile permitted capacity, and would be disposed of in the on-site Class I Landfill at the current tip fee for Class I solid waste of $57.56 per ton (See rate sheet in Appendix I). The floors will be cleaned/washed when the facility is closed. [1]Leachate will be pumped to the Class I Landfill storage tanks.

CLOSURE COST ESTIMATE FOR THE MRF

Description	Amount	Unit Cost	Total Cost
Disposal of the permitted stockpile At the on-site Class I Landfill	18,925 tons ~~17,746~~	$57.56/ton	$1,089,323 ~~$1,021,460~~
Loading Trucks	~~17,746 tons~~	~~$2/ ton~~	~~$35,492~~
Loading and Hauling waste one mile round trip from MRF to on-site Class I Landfill, $7 per yard. ~~@ 20 tons per truck, four trips per hour and truck costs at $60 per hour this equals $15 per trip~~	58,957 CY ~~888 Truck trips~~	[2]$7/CY ~~$15/trip~~	$412,699 ~~$13,320~~
Cleaning/Pressure Washing	67,100 SF	[3]$0.20/SF	$13,420
Miscellaneous @ 5% +/-	1	$75,000 ~~$50,000~~	$75,000 ~~$50,000~~
Profit and overhead @ 5% +/-	1	$75,000 ~~$50,000~~	$75,000 ~~$50,000~~
TOTAL CLOSURE COST ESTIMATE			$1,652,022

Since all waste will be removed from the area upon closure, no long-term care is anticipated.

1) 90 tons or 105 CY of Leachate that is to be pumped is not included in Closure Estimate
2) $7.00/CY provided by Haul-Away of the Suncoast Inc. mileage included ~~(3/14/09)~~ (6/17/09)
3) $0.20/SF provided by Affordable Pressure Cleaning & Painting, Inc. (6/23/09)
See Appendix X for Third Party Estimates

ORION J. HOLTEY LICENSE No. 68373 STATE OF FLORIDA PROFESSIONAL ENGINEER
Date: 6/25/2009
Orion J. Holtey, P.E.
License No. 68373

3.8.0 Record Keeping

Recordkeeping shall comply with 62-701.710(9) Recordkeeping.

Operational records are maintained to include a daily log of the quantity of solid waste received, processed, stored, and removed from the site for recycling or disposal and the county of origin of the waste, if known. These records include each type of solid waste, recovered materials, residuals, and unacceptable waste, which is processed, recycled, and disposed. Such records shall be compiled on a monthly basis and shall be available for inspection by the Department. Records are retained at the MRF for three years.

Sarasota County will submit an annual report to the Department on Form 62-701.900(7). The report will include a summary of the amounts and types of wastes disposed of or recycled. Sarasota County will state that they recycle their materials. Sarasota County will include a statement giving the county of origin of materials recycled. The report will be submitted no later than April 1 of each year and covers the preceding calendar year.

Quantity Calculations

	Width (ft)		Length (ft)		Height (ft)		Cubic Feet		Cubic Yd
Mix C&D Debris in Unloading Area	50	X	80	X	15	=	60,000	=	2,222
Under Roof Separation Area #1	50	X	75	X	15	=	56,250	=	2,083
Under Roof Separation Area #2	50	X	75	X	15	=	56,250	=	2,083
Raw Storage Area	42	X	225	X	15	=	141,750	=	5,250
Finished Storage Loading Area	48	X	225	X	15	=	162,000	=	6,000
Clean Cardboard	30	X	40	X	15	=	18,000	=	667
Clean Processed Steel Roll-off Container	100	X	100	X	15	=	150,000	=	5,556
Carpet Padding Area	35	X	50	X	15	=	26,250	=	972
Tipping Area for Clean Wood	100	X	300	X	15	=	450,000	=	16,667
Mulch Pile	(Diameter) 80ft				15	=	75,360	=	2,791
Tipping Area for Clean Concrete	50	X	160	X	15	=	120,000	=	4,444
Stockpile for Clean and Large Concrete	50	X	160	X	15	=	120,000	=	4,444
Stockpile for Clean Dirt & Concrete for Screening	(Diameter) 50ft				15	=	29,438	=	1,090
Stockpile for Crushed Concrete	(Diameter) 80ft				15	=	75,360	=	2,791
Bins for Mulch, Crushed Concrete	25	X	80	X	15	=	30,000	=	1,111
Recycled materials Storage and Staging Area	40	X	30	X	10	=	12,000	=	444

03/16/09
Revised 8/24/09

Orion J. Holley, P.E.
License No. 68373
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Item #13

Electronics

CItem #13
Electronics

AMENDMENT NO. 1
TO ANNUAL AGREEMENT NO. 111405JW

This Amendment made and entered into this 4th day of OCTOBER, 20 12, by and between Sarasota County, a political subdivision of the State of Florida, hereinafter referred to as the "County," and Creative Recycling Systems, LLC f/k/a Creative Recycling Systems, Inc., hereinafter referred to as "Contractor."

WITNESSETH

WHEREAS, the County issued solicitation #111405JW on July 23, 2011, and;

WHEREAS, the County and Contractor entered into an Agreement for Electronic Recycling Services ("Agreement"), effective October 5, 2011

WHEREAS, on March 6, 2012 Creative Recycling Systems, Inc. has changed their name, and;

WHEREAS, the County and Contractor now wish to renew the original Agreement;

NOW THEREFORE, the County and Contractor in consideration of the mutual covenants contained herein, do agree to amend the Agreement as follows:

1. The above recitals are true and correct and are incorporated herein.
2. Renew the term of the Annual Agreement for a period of one (1) year, through October 5, 2013.
3. Change contractor name from Creative Recycling Systems, Inc to Creative Recycling Systems, LLC.
4. Fees will be paid in accordance with Exhibit A, Fee Schedule.
5. Except as modified herein, all other terms, covenants, and conditions of the original Agreement shall remain in full force and effect.

IN WITNESS WHEREOF, Contractor and County have executed this Annual Agreement Amendment.

COUNTY

Name: Edward F. Coyman, Jr.

Signature

Title: Procurement Official

Date: 10-4-2012

CONTRACTOR

Name: *James Kristof*

Signature

Title: *VP, Procurement*

Date: *10/4/2012*

Template: Renewal of Annual Agreement Adopted 07/24/12

CItem #13
Electronics

Sarasota County

September 12, 2012

Creative Recycling Systems, Inc
Attention: Jim Kristof
8108 Krauss Blvd
Tampa, FL 33619

RE: BID #111405JW
Renewal of Annual Agreement for Electronic Recycling Services

Dear Mr. Kristof:

The purpose of this letter is to propose a renewal of the above award, under the same terms and conditions as previously agreed. Fees for products and/or services provided will be in accordance with Exhibit A, Fee Schedule. If this renewal is acceptable, please acknowledge by signing and returning a copy of the attached Annual Agreement Amendment, with a current copy of your certificate of insurance to:

Sarasota County Procurement
Attention: Donald Raney
1660 Ringling Blvd. 3rd Floor
Sarasota, FL 34236
Fax 941-861-5171

Failure to return an executed copy of the amendment and a certificate of insurance meeting the County's requirements before September 26, 2012 will result in the termination of the Agreement. If you have any questions, please contact me at (941) 223-9712 or draney@scgov.net.

Sincerely,

Donald Raney, Procurement Analyst

cc: Brian Usher

Amendment 1
EXHIBIT A – FEE SCHEDULE
Bid 111405JW – Electronic Recycling services
Creative Recycling Systems Inc

CItem #13
Electronics

ITEM	DESCRIPTION	UNIT OF MEASURE	UNIT PRICE	
Category 1				
1	Televisions – Pallets	LB	$.18	1,000 lb/p
2	Televisions – Freestanding	LB	$.18	
3	Televisions – Roll – Off	LB	$.18	14,000 lb
4	Monitors – Pallets	LB	$.18	
5	Monitors – Roll Off	LB	$.18	
6	CPU's – Pallets	LB	($0.15)	
Category 4				
7	Peripherals – Gaylords	LB	($0.03)	
Category 5				
8	Copiers – Pallets	LB	$.05	
9	Copiers – Freestanding	LB	$.05	
Category 6				
10	Mixed CRT Glass – Drum	LB	$.30	
11	Mixed CRT Glass – Gaylord	LB	$.30	650 lb/oc
Category 7				
12	Comingled Electronics – Roll – Off	LB	$.25	
Category 8				
13	Labor Per Hour	HR	$25.00	
Category 9				
14	Mobilization Fee Per Event	LS	$500.00	

Electronic Recycling Services

To indicate items that will be accepted by the contractor at no cost to the county, use a price of $0.00. For items that will be purchased by the contractor from the County, place the price in parenthesis ($0.00) indicating that a credit will be given to the county for these items.

LTC Item #1

Item #1

CONTRACT NO. 2013-437

BCC APPROVED 7/9/13

BOARD OF COUNTY
FILED FOR THE RE
2013 JUL 11 PM 12:29
KAREN E. RUSHING
CLERK OF THE CIRCUIT COURT
SARASOTA COUNTY, FL

TERM CONTRACT FOR *121803RC LABORATORY SERVICES*

THIS TERM CONTRACT is made and entered into as of the date of execution by both parties, by and between SARASOTA COUNTY, a political subdivision of the State of Florida, herein after referred to as the "County" and Benchmark EnviroAnalytical, Inc., a corporation licensed in the State of Florida, hereinafter referred to as "Contractor".

WITNESSETH

WHEREAS, the County requires the services of a Contractor to perform laboratory services; and,

WHEREAS, the County issued a solicitation, Invitation for Bids (IFB) #121803RC on April 19, 2012; and,

WHEREAS, the County evaluated the responses received and found the Contractor qualified to perform the necessary services for Category 1; and,

WHEREAS, the County issued a Notice of Recommended Award on July 20, 2012; and,

WHEREAS, the nature of the services being provided is such that the quantity and extent of services may be subject to periodic adjustment through future amendments to this Term Contract; and,

WHEREAS, the Contractor has reviewed the services required pursuant to the Term Contract and is qualified, willing and able to provide and perform all such services in accordance with its terms;

NOW, THEREFORE, the County and the Contractor, in consideration of the mutual covenants contained herein, do agree as follows:

I. CONTRACTOR'S SERVICES

A. The Contractor agrees to diligently provide all materials, services and labor for the performance of laboratory services, in accordance with the technical specifications made part of this Term Contract as Exhibit A, attached hereto and incorporated herein.

II. TERM

A. This Term Contract shall commence immediately upon execution by both the County and the Contractor and shall continue for a period of one year. This Term Contract may be renewed for up to two additional one year periods subject to written agreement of both parties.

LTC Item #1

III. COMPENSATION AND PAYMENT OF CONTRACTOR'S SERVICE

A. The County shall pay the Contractor for the services rendered hereunder and completed in accordance with the terms and conditions of this Term Contract an amount not to exceed $200,000.00 per fiscal year.

B. Notwithstanding the preceding, Contractor shall perform no work under this Term Contract until receipt of a Purchase Order from the County. Contractor acknowledges and agrees that no minimum amount of work is guaranteed under this Term Contract and County may elect to issue no purchase orders.

C. The County's performance and obligation to pay under this Term Contract is contingent upon an appropriation by the Board of County Commissioners. The County shall promptly notify the Contractor if the necessary appropriation is not made.

IV. ADDITIONAL SERVICES

A. No changes to this Term Contract or the performance contemplated hereunder shall be made unless the same are in writing and signed by both the Contractor and the County's authorized agent as set forth below.

B. The Board of County Commissioners authorizes the Procurement Official to approve and execute amendments to this Term Contract, subject to applicable County policies and procedures.

C. If the County's Administrative Agent requires the Contractor to perform additional services and if such services are not required as a result of error, omission or negligence of Contractor, then in such event the Contractor shall be entitled to additional compensation. The additional compensation shall be agreed upon before commencement of any additional services or changes and shall be incorporated into this Term Contract by written amendment. Any additional service or work performed before a written Amendment to this Term Contract shall not be compensated by the County.

V. METHOD OF PAYMENT

A. The County shall pay the Contractor through payment issued by the Clerk of the Circuit Court in accordance with the Local Government Prompt Payment Act, Section 218.70, et.seq, Florida Statutes upon receipt of the Contractor's invoice and written approval of same by the County's Administrative Agent indicating that services have been rendered in conformity with this Term Contract.

121803RC LABORATORY SERVICES
EXHIBIT B – FEE SCHEDULE

	SUBCATEGORY II: OTHER			
ITEM	**DESCRIPTION**	**MATRIX**	**UNIT**	**PRICE**
100	**Corrected Chlorophyll a**	NP	PER TEST	$22.00
101	**Calibration of chlorine secondary standards**	Not Applicable	PER TEST	$5.00
102	**Oil and Grease**	NP/S	PER TEST	$31.64
103	**Cyanide, Total**	DW/NP	PER TEST	$23.64
104	**Surfactants**	DW/NP	PER TEST	$25.64
105	**Laboratory filtration of Chlorophyll a**	NP	PER TEST	$. 64
106	**Hourly rate for sampling**	Not Applicable	Per Hour	$45.64

LTC Item #1

	SUBCATEGORY IJ: Expedited Analysis Multiplier	
	DESCRIPTION	**COST MULTIPLIER**
107	**Expedited Analysis (24 hr) (electronic report)**	1.8
108	**Expedited Analysis (48 hr) (electronic report)**	1.4
109	**Expedited Analysis (72 hr) (electronic report)**	1.2

121803RC LABORATORY SERVICES
EXHIBIT C – INSURANCE REQUIREMENTS

A. INSURANCE

Before performing any contract work, CONTRACTOR shall procure and maintain, during the life of the contract, unless otherwise specified, insurance listed below. The policies of insurance shall be primary and written on forms acceptable to the COUNTY and placed with insurance carriers approved and licensed by the Insurance Department in the State of Florida and meet a minimum financial AM Best Company rating of no less than "A- Excellent: FSC VII." No changes are to be made to these specifications without prior written specific approval by COUNTY Risk Management. Those requirements which are not applicable to this purchase or solicitation have been struck through.

1. **WORKERS' COMPENSATION:** CONTRACTOR will provide Workers' Compensation insurance on behalf of all employees who are to provide a service under this contract, as required by the laws of the state where the Contractor is domiciled. FLORIDA CONTRACTORS must provide evidence of Workers' Compensation insurance which meets the requirements of Florida Statutes, Chapter 440, **AND** Employer's Liability with limits of not less than $100,000 per employee per accident, $500,000 disease aggregate, and $100,000 per employee per disease. If applicable, coverage for the Jones Act and Longshore Harbor Workers Exposures must also be included. **NOTE** Contractors who are exempt from Florida's Workers' Compensation law must provide proof of such exemption issued by the Florida Department of Financial Services, Bureau of Workers' Compensation and qualify for the County waiver per the **Classification Matrix**.

   In the event the CONTRACTOR has "leased" employees, the CONTRACTOR or the employee leasing company must provide evidence of a Workers' Compensation policy for all personnel on the worksite. All documentation must be provided to Sarasota County Risk Management, 1660 Ringling Blvd., 3rd Floor, Sarasota, FL 34236.

2. **COMMERCIAL GENERAL LIABILITY:** Including but not limited to bodily injury, property damage, contractual, products and completed operations, watercraft, if under twenty-six (26) feet and Ocean Marine if over, and personal injury with limits of not less than $500,000 each occurrence, covering all work performed under this contract.

3. **BUSINESS AUTOMOBILE LIABILITY:** CONTRACTOR agrees to maintain Business Automobile Liability at a limit of liability not less than $500,000 each accident covering all work performed under this contract.

   CONTRACTOR further agrees coverage shall include liability for Owned, Non-Owned & Hired automobiles. In the event CONTRACTOR does not own automobiles, CONTRACTOR agrees to maintain coverage for Hired & Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy. If private passenger automobiles are used in the business, they must be commercially insured.

   If the CONTRACTOR is shipping a product via common carrier, the Contractor shall be responsible for any loss or damage sustained in delivery/transit. .

4. **HAZARDOUS MATERIALS INSURANCE:** For the purpose of this section, the term "hazardous materials" includes all materials and substances that are now designated or defined as hazardous by Florida or Federal law or by the rules or regulations of Florida or any Federal Agency. If work being performed involves hazardous materials, the need to procure and maintain any or all of the following coverage will be specifically addressed upon review of exposure. However, if hazardous materials are identified while carrying out this contract, no further work is to be performed in the area of the hazardous material until COUNTY Risk Management has been consulted as to the potential need to procure and maintain any or all of the following coverage through an addendum to the contract:

   a. **CONTRACTORS POLLUTION LIABILITY** – For sudden and gradual occurrences and in an amount no less than $1,000,000 per claim and $1,000,000 in the

LTC Item #1
LTC Item #2

CONTRACT NO. 2013-438

BCC APPROVED 7/9/13

BOARD RECORDS
FILED FOR THE RECORD
2013 JUL 11 PM 12:33
KAREN E. RUSHING
CLERK OF THE CIRCUIT COURT
SARASOTA COUNTY, FL

TERM CONTRACT FOR #122182KR AND Laboratory Services-Category 2

THIS TERM CONTRACT is made and entered into as of the date of execution by both parties, by and between SARASOTA COUNTY, a political subdivision of the State of Florida, herein after referred to as the "County" and Pace Analytical Services, Inc, a corporation licensed in the State of Florida, hereinafter referred to as "Contractor".

WITNESSETH

WHEREAS, the County requires the services of a Contractor to perform Laboratory Services-Category 2; and,

WHEREAS, the County issued a solicitation, Invitation for Bids (IFB) #122182KR on September 29, 2012; and,

WHEREAS, the County evaluated the responses received and found the Contractor qualified to perform the necessary services; and,

WHEREAS, the County issued a Notice of Recommended Award on January 8, 2013; and,

WHEREAS, the nature of the services being provided is such that the quantity and extent of services may be subject to periodic adjustment through future amendments to this Term Contract; and,

WHEREAS, the Contractor has reviewed the services required pursuant to the Term Contract and is qualified, willing and able to provide and perform all such services in accordance with its terms;

NOW, THEREFORE, the County and the Contractor, in consideration of the mutual covenants contained herein, do agree as follows:

I. CONTRACTOR'S SERVICES

A. The Contractor agrees to diligently provide all materials, services and labor for the performance of Laboratory Services-Category 2, in accordance with the technical specifications made part of this Term Contract as Exhibit A, attached hereto and incorporated herein.

II. TERM

A. This Term Contract shall commence immediately upon execution by both the County and the Contractor and shall continue for a period of one year. This Term Contract may be renewed for up to two additional one year periods subject to written agreement of both parties.

III. COMPENSATION AND PAYMENT OF CONTRACTOR'S SERVICE

A. The County shall pay the Contractor for the services rendered hereunder and completed in accordance with the terms and conditions of this Term Contract an amount not to exceed $150,000.00 per fiscal year.

B. Notwithstanding the preceding, Contractor shall perform no work under this Term Contract until receipt of a Purchase Order from the County. Contractor acknowledges and agrees that no minimum amount of work is guaranteed under this Term Contract and County may elect to issue no purchase orders.

C. The County's performance and obligation to pay under this Term Contract is contingent upon an appropriation by the Board of County Commissioners. The County shall promptly notify the Contractor if the necessary appropriation is not made.

IV. ADDITIONAL SERVICES

A. No changes to this Term Contract or the performance contemplated hereunder shall be made unless the same are in writing and signed by both the Contractor and the County's authorized agent as set forth below.

B. The Board of County Commissioners authorizes the Procurement Official to approve and execute amendments to this Term Contract, subject to applicable County policies and procedures.

C. If the County's Administrative Agent requires the Contractor to perform additional services and if such services are not required as a result of error, omission or negligence of Contractor, then in such event the Contractor shall be entitled to additional compensation. The additional compensation shall be agreed upon before commencement of any additional services or changes and shall be incorporated into this Term Contract by written amendment. Any additional service or work performed before a written Amendment to this Term Contract shall not be compensated by the County.

V. METHOD OF PAYMENT

A. The County shall pay the Contractor through payment issued by the Clerk of the Circuit Court in accordance with the Local Government Prompt Payment Act, Section 218.70, et.seq, Florida Statutes upon receipt of the Contractor's invoice and written approval of same by the County's Administrative Agent indicating that services have been rendered in conformity with this Term Contract.

LTC Item #1
LTC Item #2

#122182KR AND Laboratory Sampling-Category 2
EXHIBIT B – FEE SCHEDULE

EXTRACTABLES				
ITEM	DESCRIPTION	MATRIX	UNIT	UNIT BID PRICE
1	Corrected Chlorophyll a	NP	PER TEST	$18.00
2	Surfactants	NP/Solids	PER TEST	$16.00
3	Oil and Grease	NP/Solids	PER TEST	$30.00
4	GRO (Gasoline Range Organics)	NP	PER TEST	$15.00
5	DRO (Diesel Range Organics)	NP	PER TEST	$15.00
6	FL-PRO (Florida Petroleum Range Organics)	NP	PER TEST	$50.00
7	Bis-2(ethylhexyl)phthalate	DW/NP	PER TEST	$85.00
8	Total Recoverable phenolics	NP	PER TEST	$20.00

MICROBIOLOGICAL				
ITEM	DESCRIPTION	MATRIX	UNIT	UNIT BID PRICE
9	Fecal Coliform	NP	PER TEST	$13.00
10	Total Coliform	DW/NP	PER TEST	$10.00
11	Giardia and Cryptosporidium assay	DW/NP	PER TEST	$335.00
12	Heterotrophic plate count	DW/NP	PER TEST	$20.00
13	DI Water USE Test	Not applicable	PER TEST	$250.00

MINERALS				
ITEM	DESCRIPTION	MATRIX	UNIT	UNIT BID PRICE
14	Alkalinity, Carbonate/Bicarbonate/Total	DW/NP	PER TEST	$10.00
15	Bromide	DW/NP	PER TEST	$8.00
16	Chloride	DW/NP	PER TEST	$7.00
17	Corrosivity	DW/NP	PER TEST	$25.00
18	Fluoride	DW/NP	PER TEST	$10.00
19	Silica	DW/NP	PER TEST	$15.00
20	Sulfide	DW/NP	PER TEST	$15.00
21	Sulfate	DW/NP	PER TEST	$7.00
22	Total hardness	DW/NP	PER TEST	$15.00

NUTRIENTS				
ITEM	DESCRIPTION	MATRIX	UNIT	UNIT BID PRICE
23	Nitrate-N	DW/NP	PER TEST	$7.00
24	Nitrite-N	DW/NP	PER TEST	$7.00
25	Total Nitrate plus Nitrite N	DW/NP	PER TEST	$7.00
26	Total Ammonia	DW/NP	PER TEST	$7.00
27	Total Kjeldahl Nitrogen	NP	PER TEST	$15.00
28	Total Phosphorus	NP	PER TEST	$15.00

LTC Item #1
LTC Item #2

#122182KR AND Laboratory Sampling-Category 2
EXHIBIT B – FEE SCHEDULE

PHYSICAL PROPERTIES/DEMANDS				
ITEM	DESCRIPTION	MATRIX	UNIT	UNIT BID PRICE
29	Biochemical Oxygen Demand	NP	PER TEST	$15.00
30	Conductivity, lab	DW/NP	PER TEST	$4.00
31	Chemical Oxygen Demand	NP	PER TEST	$15.00
32	Odor	DW	PER TEST	$10.00
33	Color	DW/NP	PER TEST	$6.00
34	pH, lab	DW/NP	PER TEST	$4.00
35	Total Organic Carbon	DW/NP	PER TEST	$10.00
36	Total Residual Chlorine	DW/NP	PER TEST	$10.00
37	Turbidity, lab	DW/NP	PER TEST	$5.00
38	Total Suspended Solids	NP	PER TEST	$10.00
39	Total Dissolved Solids	DW/NP	PER TEST	$7.50

TRACE METALS				
ITEM	DESCRIPTION	MATRIX	UNIT	UNIT BID PRICE
40	Arsenic	DW/NP	PER TEST	$4.00
41	Aluminum	DW/NP	PER TEST	$4.00
42	Antimony	DW/NP	PER TEST	$4.00
43	Barium	DW/NP	PER TEST	$4.00
44	Beryllium	DW/NP	PER TEST	$4.00
45	Boron	DW/NP	PER TEST	$4.00
46	Calcium	DW/NP	PER TEST	$4.00
47	Cadmium	DW/NP	PER TEST	$4.00
48	Chromium	DW/NP	PER TEST	$4.00
49	Chromium, Hexavalent	NP	PER TEST	$20.00
50	Cobalt	NP	PER TEST	$4.00
51	Copper	DW/NP	PER TEST	$4.00
52	Cyanide	DW/NP	PER TEST	$10.00
53	Iron	DW/NP	PER TEST	$4.00
54	Lead	DW/NP	PER TEST	$4.00
55	Manganese	DW/NP	PER TEST	$4.00
56	Magnesium	DW/NP	PER TEST	~~$8.00~~ 4.00
57	Mercury	DW/NP	PER TEST	~~$50.00~~ 8.00
58	Mercury (Low level)	NP	PER TEST	~~$4.00~~ 5.00
59	Nickel	DW/NP	PER TEST	$4.00
60	Potassium	DW/NP	PER TEST	$4.00
61	Selenium	DW/NP	PER TEST	$4.00
62	Silver	DW/NP	PER TEST	~~$8.00~~ 4.00
63	Sodium	DW/NP	PER TEST	~~$4.00~~ 8.00
64	Strontium	NP	PER TEST	$4.00
65	Thallium	DW/NP	PER TEST	$4.00
66	Tin	NP	PER TEST	$4.00
67	Vanadium	DW/NP	PER TEST	$4.00
68	Zinc	DW/NP	PER TEST	$4.00

LTC Item #1
LTC Item #2

#122182KR AND Laboratory Sampling-Category 2
EXHIBIT B – FEE SCHEDULE

RADIOLOGICALS				
ITEM	DESCRIPTION	MATRIX	UNIT	UNIT BID PRICE
69	Gross Alpha	DW/NP	PER TEST	$30.00
70	Radium 226	DW/NP	PER TEST	$55.00
71	Radium 228	DW/NP	PER TEST	$55.00
72	Radon	DW	PER TEST	$25.00
73	Uranium	DW/NP	PER TEST	$20.00

BIOSOLIDS				
ITEM	DESCRIPTION	MATRIX	UNIT	UNIT BID PRICE
74	Toxicity Characteristics Leaching Procedure (including RCRA 8 metals (Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver) and also includes Aluminum, Copper, Nickel, Zinc, Percent Solids% and Percent Moisture %)	Solids	PER TEST	$87.00

SOIL/SEDIMENT				
ITEM	DESCRIPTION	MATRIX	UNIT	UNIT BID PRICE
75	Aluminum	Solids	PER TEST	$6.00
76	Cadmium	Solids	PER TEST	$6.00
77	Chromium	Solids	PER TEST	$6.00
78	Copper	Solids	PER TEST	$6.00
79	Lead	Solids	PER TEST	$6.00
80	Mercury	Solids	PER TEST	$10.00
81	Molybdenum	Solids	PER TEST	$6.00
82	Nickel	Solids	PER TEST	$6.00
83	Potassium	Solids	PER TEST	$6.00
84	Selenium	Solids	PER TEST	$6.00
85	Silver	Solids	PER TEST	$6.00
86	Zinc	Solids	PER TEST	$6.00
87	Particle size distribution	Solids	PER TEST	$102.00
88	Sieve Test (including percent moisture)	Solids	PER TEST	$45.60
89	Total Nitrogen	Solids	PER TEST	$25.00
90	Total Phosporus (T P)	Solids	PER TEST	$10.00
91	Total Organic Carbon	Solids	PER TEST	$36.00

one well $ 572.50 x 24 / year
approx 10 trip blanks - $60 each

one surface water $ 389.50 x 6 / year
approx 4 trip blanks - $60 each

gas cond. $ 594.50 x 2 / year
2 trip blanks - $60 each

LTC Item #1
LTC Item #2

#122182KR AND Laboratory Sampling-Category 2
EXHIBIT B – FEE SCHEDULE

GROUP TESTS				
ITEM	DESCRIPTION	MATRIX	UNIT	UNIT BID PRICE
92	Primary Drinking Water St. 62-550.310 FAC	DW	PER TEST	$523.00
93	Ø Inorganics without asbestos	DW/NP	PER TEST	$83.00
94	Ø Asbestos	DW	PER TEST	$100.00
95	Ø Trihalomethanes	DW/NP	PER TEST	$24.00
96	Ø Volatile Organic Compounds (VOCs)	DW/NP	PER TEST	$40.00
97	Ø Pesticides and PCBs without Dioxin	DW/NP	PER TEST	$400.00
98	Secondary Drinking Water Standards 62-550.320 FAC	DW	PER TEST	$83.00
99	EPA 601: Purgeable Halocarbons	NP	PER TEST	$50.00
100	EPA 552.2 Haloacetic Acids	DW	PER TEST	$45.00
101	EPA 524.2 Purgeable Organic Compounds	DW	PER TEST	$60.00
102	EPA 504.1 Organic compounds 1	DW	PER TEST	$40.00
103	EPA 525.2 Organic Compounds 2	DW	PER TEST	$125.00
104	EPA 508.1 Organochlorine Pesticides	DW	PER TEST	$60.00
105	EPA 515.3 Chlorinated Herbicides	DW	PER TEST	$110.00
106	EPA 8270 C Semivolatile Organics	NP	PER TEST	$125.00
107	EPA 8081 Organochlorine Pesticides	NP	PER TEST	$60.00
108	EPA 8082 PCB's	NP	PER TEST	$45.00
109	EPA 8141 Pesticides by GC	NP	PER TEST	$135.00
110	EPA 8151 Chlorinated Herbicides	NP	PER TEST	$150.00
111	EPA 8260 Volatile Organics	NP	PER TEST	$60.00
112	EPA 8011 EDB, DBCP	NP	PER TEST	$40.00
113	40 CFR 258 App I	NP	PER TEST	$120.00
114	40 CFR 258 App II	NP	PER TEST	$477.00

SW, GW Cond. GW

VOLATILE TESTS				
ITEM	DESCRIPTION	MATRIX	UNIT	UNIT BID PRICE
115	Chloromethane	DW/NP	PER TEST	$15.00
116	Dibromochloropropane	DW/NP	PER TEST	$15.00
117	Total Volatile Suspended Solids	NP	PER TEST	$8.00
118	THM Formation potential (524.2)	DW	PER TEST	$50.00
119	Methanol by modified 8015	NP	PER TEST	$50.00
120	Isopropylbenzene	NP	PER TEST	$75.00

Expedited Analysis Multiplier				
	DESCRIPTION	Estimated Annual Cost		Cost Multiplier
121	Expedited Analysis (24 hr) (electronic report)	$2,000.00	x	1.3
122	Expedited Analysis (48 hr) (electronic report)	$4,000.00	x	1.2
123	Expedited Analysis (72 hr) (electronic report)	$6,000.00	x	1.1

LTCI Item #3

Environmental Monitoring Equipment & Supplies • Sales, Rental & Service by Enviro-Equipment — Charlotte, North Carolina USA

Enviro-Equipment, Inc.
"When it has to work"
1-888-274-8929

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Landtec GEM-2000 Landfill Gas Monitor Rental

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Frequently Asked Questions

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GEM-500 & GA-90 Capabilities Combined

The GEM 2000 was designed by CES-LANDTEC specifically for use on landfills to monitor landfill gas (LFG) extraction systems, flares, and migration control systems. The GEM 2000 combines the GEM 500 and the GA-90 into one faster, more accurate, intrinsically safe instrument.

The GEM 2000 samples and analyzes the methane, carbon dioxide and oxygen content of landfill gas. The easy-to-read LCD screen shows the results as percentages of CH4, CO2, O2 and "balance" gas. The GEM 2000 calculates and displays gas flow rate.

It also measure and displays Btu content, temperature (w/optional probe), relative and atmospheric pressures and CH4 LEL (Lower Explosive Limit).

Rent This Product

Daily	Weekly	Monthly
$165.00	$495.00	$1,275.00

Rental Includes:

- **GEM 2000**
- **Battery Charger**
- **Hard Case**
- **Carrying Case w/ Strap**
- **Water Trap Filter w/ Tubing**
- **10ft PVC Tubing**
- **EEI Calibration Record**
- **Factory Calibration Certificate**
- **Data Download Cable**
- **Software**
- **Spare Filters**
- **Instruction Manual**

Features | **Applications** | **Specifications** | **Downloads** | **Rental Accessories**

Diverse Field Applications
monitors migration control systems, gas extraction systems, flares, migration probes, and more.

Gas Extraction Monitor Mode
provides automatic sampling and analysis of gas composition % by volume CH4, CO2, O2 and % balance gas, % CH4LEL, temperature (with optional probe), static pressure, differential pressure, and barometric pressure. Also calculates gas flow rates (SCFM) as well as Btu rates.

Landfill Gas Analyzer Mode
provides automatic sampling and analysis of gas composition % by volume CH4, CO2, O2 and % balance gas, % CH4LEL, temperature (with optional probe), barometric pressure and relative pressure. Can be used for data logging, with user programmed intervals.

Easy To Read Display
extra large backlit LCD shows up to five gases, atmospheric and gas vacuum pressure, temperature, ID code-all at the same time.

Intrinsically Safe

SHARE

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LTC Item #5

Florida Jetclean

Sarasota County
BID FORM

IFB #122232KR
CCSWDC Phase I and Phase II Leachate Collection System Water Jet Cleaning and Video Inspection
Bidders must provide prices for each line item for their bid to be considered responsive.

ITEM	DESCRIPTION	UNIT OF MEASURE	UNIT BID PRICE		ESTIMATED QUANTITY[1]		EXTENDED BID PRICE
1	Phase I - Water Jet Cleaning & Video Inspection of Pipe Lines (due by 3/15/2013)	Lump Sum	$ 9750	X	1	=	$ 9750
2	Phase II Cells 1 and 2 Sump Connection - Water Jet Cleaning & Video Inspection of Pipe Lines (due by 3/15/2013)	Lump Sum	$ 717	X	1	=	$ 717
3	Phase II Cells 3 and 4 - Water Jet Cleaning & Video Inspection of Pipe Lines (due by 3/15/2013)	Lump Sum	$ 18352	X	1	=	$ 18352
4	Water Jet Cleaning & Video Inspection of 6" Pipe Lines (As Requested per Attachment A Section 10)	Linear Feet	$ 1.95	X	1,000	=	$ 1950
5	Water Jet Cleaning & Video Inspection of 8" Pipe Lines (As Requested per Attachment A Section 10)	Linear Feet	$ 1.95	X	2,000	=	$ 3900
6	Water Jet Cleaning & Video Inspection of 10" Pipe Lines(As Requested per Attachment A Section 10)	Linear Feet	$ 1.95	X	500	=	$ 975
7	Set up Fee (As Requested per Attachment A Section 10)	Each	$ 100	X	10	=	$ 1000
8	Mobilization and Demobilization (As Requested per Attachment A Section 10)	Each	$ 500	X	2	=	$ 1000
TOTAL BID PRICE (sum of extended bid price line items 1-8)							$ 37644

The undersigned certifies that the bidder will provide products and/or services in accordance with the specifications of the IFB and all issued addendums at the rates listed above for the term of the Agreement.

TOTAL BID PRICE WRITTEN IN WORDS
Thirty Seven Thousand Six Hundred and Forty Four Dollars

[1]*Estimated figure only. No guarantee is made or implied as to the actual quantities that will be acquired under resulting contracts. Quantities may increase or decrease during the term of the agreement and offeror will be required to supply the products or services at the unit price quoted.*

LTC Item #5

Sarasota County
BID FORM

BIDDER[2] (INSERT LEGAL NAME OF COMPANY)			
FLORIDA JETCLEAN			
ADDRESS	**CITY**	**STATE**	**ZIP**
7538 Dunbridge Drive	Odessa		
PREPARED BY (NAME/TITLE)	**EMAIL ADDRESS OF PREPARER**		
Ralph Calistri / Managing Member	floridajetclean@yahoo.com		
PHONE	**FAX**		
800-226-8013	813-926-4616		

I, Ralph Calistri (name), the Managing Member (title)
of Florida Jetclean (bidder) swear or affirm that all
information submitted with this bid is true, and that I am authorized to complete this Bid Form on behalf of the company.

Ralph Calistri
Signature

12/11/13
Date

Ralph Calistri

[2] *To be considered for local business preference, Bidder must match the name of the business identified on the Affidavit as to Local Preference.*

LTCI - #5

Assume Worst Case Cost

Amendment 1
EXHIBIT A – FEE SCHEDULE
IFB 111347JA – HAULING AND UNLOADING OF RAW SEWAGE
Blue Septic Tank Services, Inc

ITEM	DESCRIPTION	UNIT OF MEASURE	UNIT PRICE
CATEGORY 1 - EQUIPMENT: PUMPER TRUCK			
1.1	HAULING RATE WITH DRIVER NORMAL BUSINESS HOURS	PER HOUR	$200.00
1.2	HAULING RATE WITH DRIVER AFTER HOURS	PER HOUR	$250.00
1.3	STANDBY RATE WITH DRIVER NORMAL BUSINESS HOURS	PER HOUR	$200.00
1.4	STANDBY RATE WITH DRIVER AFTER HOURS	PER HOUR	$250.00
1.5	ADDITIONAL TECHNICIAN RATE PER MAN/PER HOUR	PER HOUR	$95.00
1.6	MOBILIZATION RATE	PER JOB	$200.00
1.7	DEMOBILIZATION RATE	PER JOB	$250.00
CATEGORY 2 – EQUIPMENT: VAC TRUCK			
2.1	HAULING RATE WITH DRIVER NORMAL BUSINESS HOURS	PER HOUR	$200.00
2.2	HAULING RATE WITH DRIVER AFTER HOURS	PER HOUR	$250.00
2.3	STANDBY RATE WITH DRIVER NORMAL BUSINESS HOURS	PER HOUR	$200.00
2.4	STANDBY RATE WITH DRIVER AFTER HOURS	PER HOUR	$250.00
2.5	ADDITIONAL TECHNICIAN RATE PER MAN/PER HOUR	PER HOUR	$95.00
2.6	MOBILIZATION RATE	PER JOB	$200.00
2.7	DEMOBILIZATION RATE	PER JOB	$250.00

LTCI Item #5

Amendment 1
EXHIBIT A – FEE SCHEDULE
IFB 111347JA – HAULING AND UNLOADING OF RAW SEWAGE
Blue Septic Tank Services, Inc

ITEM	*DESCRIPTION*	*UNIT OF MEASURE*	*UNIT PRICE*
CATEGORY 3 – EQUIPMENT: TANKER TRUCK			
3.1	HAULING RATE WITH DRIVER NORMAL BUSINESS HOURS	PER HOUR	$200.00
3.2	HAULING RATE WITH DRIVER AFTER HOURS	PER HOUR	$250.00
3.3	STANDBY RATE WITH DRIVER NORMAL BUSINESS HOURS	PER HOUR	$200.00
3.4	STANDBY RATE WITH DRIVER AFTER HOURS	PER HOUR	$250.00
3.5	ADDITIONAL TECHNICIAN RATE PER MAN/PER HOUR	PER HOUR	$95.00
3.6	MOBILIZATION RATE	PER JOB	$200.00
3.7	DEMOBILIZATION RATE	PER JOB	$250.00

LTC Item #5

SARASOTA COUNTY GOVERNMENT
NOTICE OF RECOMMENDED AWARD

SOLICIATION NUMBER: 132489HR

SOLICITATION TITLE: Leachate Tank Cleaning, Inspection & Report

DUE DATE AND TIME: May 20, 2013 at 2:30PM

RESPONDENTS:			
COMPANY NAME	**CITY**	**COUNTY**	**TOTAL QUOTE PRICE**
Precon Corporation	Newberry	Alachua	$6,835.00

Award Criteria: The quote shall be awarded to the responsive and responsible offeror submitting the lowest Total Quote Price.

Results: Precon Corporation, having submitted the lowest responsive and responsible quote is awarded the procurement /

By: Helen M. Lieder for
Edward F. Coyman, Jr., Procurement Official

Date: 5/24/13

By: Lori Bailey
Procurement Analyst

By: [signature] 5/24/13
Project Manager

LTC Item #6

- Bid
  - Active Solicitations
  - Closed Solicitations
- Vendor
  - Login
  - Registration

Closed Solicitations

To participate in Active solicitations you must be registered and have all required documents uploaded to your vendor profile prior to submitting any solicitation response.

Solicitation Title: Abandonment of Groundwater Monitoring Wells
Solicitation Number: 132483KW

Solicitation Summary | Specifications and Attachments | RFI / Questions and Answers | Planholders | Tabulation | Award

Solicitation Category : RFIQ
Contact : kwood@scgov.net
Advertise Date : 4/8/2013 12:00:00 AM
Due Date and Time : 4/15/2013 3:00:00 PM
Pre-Bid Meeting: No
Pre-Bid Meeting Mandatory: No
Pre-Bid Meeting and Time: N/A
Pre-Bid Meeting Location: N/A
Bid Opening Location: There is no public bid opening for this solicitation Submittals will be available electronically after the advertised due date and time
Summary: N/A
Description: Sarasota County requires the abandonment of six groundwater monitoring wells at and adjacent to the former Bee Ridge Landfill

Commodity	Subcommodity
96296 - Well Services (Including Oil, Gas, and Water): Drilling, Plugging, Consulting, Maintenance, Repair, etc	96200 - MISCELLANEOUS SERVICES NO 2 (NOT OTHERWISE CLASSIFIED)

Tabulation

Vendors who Subscribed to Solicitation Commodities: Vendors who Downloaded Specs: Vendors who Submitted Solicitations:

Item Description: Abandonment of MW-1 Item Number: 1

Vendor Company	Quantity	Unit Price	Unit of Measure	Subtotal	Notes
All Webbs Enterprises, Inc	1	3984 50	Each	$3,984 50	w/$1000
Ardaman & Associates, Inc	1	700 00	Each	$700 00	←
TLD of Sarasota /dba/ DYCO Water Systems	1	1700	Each	$1,700 00	

Item Description: Abandonment of STF-5 Item Number: 2

Vendor Company	Quantity	Unit Price	Unit of Measure	Subtotal	Notes
All Webbs Enterprises, Inc	1	3984 50	Each	$3,984 50	
Ardaman & Associates, Inc	1	500 00	Each	$500 00	
TLD of Sarasota /dba/ DYCO Water Systems	1	1700	Each	$1,700 00	

Item Description: Abandonment of STF-8 Item Number: 3

Vendor Company	Quantity	Unit Price	Unit of Measure	Subtotal	Notes
All Webbs Enterprises, Inc	1	3984 50	Each	$3,984 50	
Ardaman & Associates, Inc	1	500 00	Each	$500 00	
TLD of Sarasota /dba/ DYCO Water Systems	1	1700	Each	$1,700 00	

Item Description: Abandonment of WM-12 Item Number: 4

Vendor Company	Quantity	Unit Price	Unit of Measure	Subtotal	Notes
All Webbs Enterprises, Inc	1	3984 50	Each	$3,984 50	
Ardaman & Associates, Inc	1	500 00	Each	$500 00	
TLD of Sarasota /dba/ DYCO Water Systems	1	1700	Each	$1,700 00	

Item Description: Abandonment of WM-20 Item Number: 5

Vendor Company	Quantity	Unit Price	Unit of Measure	Subtotal	Notes
All Webbs Enterprises, Inc.	1	3984.50	Each	$3,984.50	
Ardaman & Associates, Inc.	1	500.00	Each	$500.00	
TLD of Sarasota /dba/ DYCO Water Systems	1	1700	Each	$1,700.00	

Item Description: Abandonment of WM-21 Item Number: 6

Vendor Company	Quantity	Unit Price	Unit of Measure	Subtotal	Notes
All Webbs Enterprises, Inc.	1	3984.50	Each	$3,984.50	
Ardaman & Associates, Inc.	1	700.00	Each	$700.00	
TLD of Sarasota /dba/ DYCO Water Systems	1	1700	Each	$1,700.00	

Vendor Grand Totals

Company Name	Items Bid On	Line Item Extended Cost
All Webbs Enterprises, Inc.	6	$23,907.00
Ardaman & Associates, Inc.	6	$3,400.00
TLD of Sarasota /dba/ DYCO Water Systems	6	$10,200.00

Go to Solicitation List

Email notifications are provided as a courtesy to our vendors. It is the vendor's responsibility to ensure current copies of all documents issued by the County in relation to any solicitation have been obtained.
Sarasota County is not responsible for any technical errors associated with email notifications.
If you have any problems or need assistance please contact the System Administrator at eProcure@scgov.net or call (941) 861-5119.

Blowers LTC Item #7

GARDNER DENVER

Field Service Estimate

Centrifugal Products

Date: June 28, 2013

To: Bee Ridge LFG

Attention: Jim Szala

Quotation No. 22609

Reference: Quotation : Field Service Work

Quote Date: 6/28/2013
Customer: Bee Ridge Landfill
Location: 8750 Bee Ridge Road, Sarasota FL. 34241
Quoted To: Bee Ridge Landfill
Contact Person: Jim Szala; jszala@scgov.net
Phone #: 941-861-1589
Fax #:

*Price: $3,402.09 (includes travel, labor, expense and materials)

Brief Description Of Work: Paid service similar to PMA; (2) Mod#74102-ADGI GD Blowers. SN# M098160, MO97810. Projected (16) hours on site, 2 ea bearing kit, travel and expenses. As this is estimated, actual hours and expenses may be invoiced (Semi-annual paid service).

Gardner Denver offers field service capabilites to assist our customers in repairs to their equipment. The following is a list highlighting the capabilites that our Field Service Technicians can provide you in maintaining and troubleshooting issues with your equipment:

1. Laser Shaft Alignment
2. Certifed Vibration analysis
3. Training
4. Lubrication Change and Oiler Inspection, if applicable
5. Coupling Inspection and Evaluation
6. Oil Analysis
7. Motor Evaluation
8. Blower Operational Check; vibration readings, bearing temperature readings, surge check and recommendation for correction, if needed
9. Installation Inspection; pipe misalignment, foundation deficiencies with recommendations
10. Controls Inspection and Operational Adjustments
11. Troubleshooting
12. Filter Inspection and Recommendations

This service is offered in accordance with our standard rates, Terms & Conditions which are attached.
Just as a reminder, It is the responsibility of the customer to provide a safe working environment for the service technician.

*Estimate: Actual cost may vary depending on conditions found at jobsite

ISO 9001 CERTIFIED

"Over 145 Years of Leadership"

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HOFFMAN LAMSON

Policy

Terms & Conditions of Sale

Centrifugal Products

EXCEPT AS OTHERWISE AGREED IN WRITING, THESE TERMS AND CONDITIONS GOVERN ALL OUR CONTRACTS TO THE EXCLUSION OF OTHER TERMS AND CONDITIONS. OUR QUOTATIONS AND ESTIMATES ARE NOT OFFERS CAPABLE OF ACCEPTANCE BY YOU, AND ANY ORDER PLACED BY YOU WILL ONLY BE ACCEPTED BY OUR WRITTEN CONFIRMATION OF SUCH ORDER.

GENERAL PROVISIONS

1 The definition of terms used, interpretation of this agreement and rights of parties hereto shall be construed under and governed by the Uniform Commercial Code of the State of Illinois. "Seller" when used herein means GARDNER DENVER, INC. "Purchaser" when used herein means the person, firm or corporation to whom this quotation is addressed And "Equipment" or "Products" means those articles, supplies, and drawings, data or other property or services described herein

2. All quotations are for immediate acceptance and subject to change or withdrawal without notice before an order is acknowledged by Seller. This proposal shall not become effective until accepted by an authorized employee of the Seller This proposal cannot be changed or varied by any verbal agreement. If this proposal is deemed to constitute an offer, it may be accepted only on terms set forth in this proposal, including, without limitation, these Terms and Conditions. If this proposal constitutes an acceptance of an offer, such acceptance is expressly conditioned on Purchaser's assent solely to the terms of proposal, including, without limitation, these Terms and Conditions. An acceptance of any part of the Equipment or services covered hereunder shall be deemed to constitute such assent. Any additional and/or different terms and conditions proposed by Purchaser and/or any attempt by Purchaser to vary any of these terms and conditions shall be deemed a material alteration and is hereby objected to and rejected.
3. Unless otherwise agreed by Seller in writing, Seller's prices are subject to change without advance notice at any time prior to order acknowledgment. Seller reserves the right to adjust the invoice price, after the price is quoted and/or acknowledged, to take account of any material variation in Seller's costs beyond Seller's reasonable control since the date of the quotation or (if no quotation is issued) the order acknowledgement, and the invoice so adjusted shall be payable as if the price set out therein were the original contract price. All sales are subject to increase without notification by the amount of any sales or excise tax levied or charged by any governmental agency and are subject to any price adjustment necessitated by Seller's compliance with any government action.
4. All sales under all orders and these terms and conditions are subject to Seller and/or Government priorities, laws and regulations, now or hereafter established.
5. The Seller reserves the right to change discontinue or modify the design and construction of any product or to substitute material equal to or superior to that originally specified, without notice to the Purchaser
6. All claims by Purchaser for shortages in a shipment of Equipment or Equipment damaged in transit must be made against the carrier All claims by Purchaser against Seller for nonconforming Equipment and claims for shortages in a shipment or damaged Equipment (other than claims to be made against the carrier) must be made in writing to Seller within ten (10) days after receipt of shipment or thirty (30) days after date of shipment, whichever occurs first, or they are waived.
7. Any action for breach of the contract hereunder must be commenced within one year after the cause of action has accrued. Only variations or modifications to the contract, which are made in writing signed by Seller and Purchaser, shall be enforceable. Any failure by Seller to enforce its rights under this contract will not be deemed a waiver of such rights.
8. All disputes arising under or in connection with this Contract shall be resolved by (a) good-faith negotiations by knowledgeable, responsible representatives of each party who are fully authorized to settle any such dispute, or (b) in the event such negotiations do not resolve such dispute, binding arbitration held in Chicago, Illinois, by a single arbitrator pursuant to the Commercial Arbitration Rules of the American Arbitration Association. Each party shall bear its own costs of these procedures; the parties shall equally split the fees of the arbitration and the arbitrator. Notwithstanding the above, either party shall have the right to seek a temporary restraining order or an injunction related to the purposes of this Contract, to compel compliance with confidentiality obligations, or to file suit to compel compliance with this dispute resolution process.
9. Purchaser may not assign, novate or otherwise transfer its rights or obligations under this contract without Seller's prior written consent, and any attempt to do so shall be null and void and of no effect
10. The minimum order value is $100 00

CANCELLATION

Purchaser cannot cancel orders under any circumstances without Purchaser first reaching an agreement in writing with Seller covering all Sellers' damages. For standard Equipment (catalogue equipment, ordinarily carried in stock), such agreement shall provide, at a minimum, a cancellation charge of at least 15% of the purchase price of the goods covered by the cancelled orders to cover overhead and profit. In addition, for special Equipment (i.e., equipment manufactured per Purchaser's requirements, and not stocked as a standard product), cancellation charges must, at a minimum, reimburse Seller for all expenses incurred (including but not limited to costs of purchased materials), engineering costs, and an amount to cover overhead and profit, and be will based on the following schedule of minimum values, whichever is greater: Order Entry — 10% of purchase order value; Completion of Engineering — 25% of purchase order value; Materials on Order — 50% of purchase order value; Fabrication Started — 100% of purchase order value

ENGINEERING CRITERIA

The Equipment furnished by Seller are sophisticated engineering products; accordingly, Purchaser undertakes:

1. That it has provided and will promptly provide all the information reasonably necessary to enable Seller to (i) evaluate the requirements for performing and (ii) perform the Contract, and that all such information is full and accurate;
2. That all premises, plant, engineering support, spare parts, connected pipe work and machinery and inputs that it is required to provide for the design, engineering, installation, testing and use of the Products are fit for their purpose and of good engineering quality;
3. Fully to co-operate with Seller in the design, engineering, installation, testing and use of the Products;
4. To use the Products for the intended purpose only and in accordance with the Product literature; and
5. Not under any circumstances, to use any unapproved spare part, connected machinery, service or repair or use the Products in any manner as may render the Products dangerous and agrees that any breach of these negative criteria will negate all specific and implied conditions and obligations on the part of Seller relating to the quality of the Products.

Purchaser further agrees that it will be liable to Seller for any costs, expenses and losses it suffers by reason of any breach of these undertakings.

DRAWINGS, DESIGNS AND CONFIDENTIALITY

1. All of Seller's specifications, designs, drawings, indications of physical, chemical and electronic properties and indications of inlet pressure or vacuum, pressure output and power consumptions ("the Designs") are made in good faith and are approximate indications only and are not binding in detail unless Purchaser has specified in writing a particular indication upon which he is relying and Seller shall be entitled to vary the same and/or to correct errors and omissions provided the Products remain in substantial conformity with the contractual requirements.
2. The Designs (including all copyright, design right and other intellectual property in them) shall as between the parties be the property of Seller; and Purchaser is not entitled to make any use of the Designs other than for the purpose of this Contract.
3. Any inventions, modifications, improvements, techniques or know-how affecting the Products made or gained in the course of performing this Contract shall belong to Seller absolutely.
4. Neither party shall disclose to third parties or use for its own purposes any confidential information or trade secrets of the other party.

SHIPMENT, PAYMENT AND CREDIT

1. Credit Terms of Payment: A. Domestic – Net thirty (30) days from date of invoice. Delinquent accounts shall bear interest at 18% per annum thereafter, until paid. Said interest rate shall be reduced to the maximum permissible rate in any state having laws, which so require. B. International – Unless otherwise agreed to by the Seller's Manager of Credit and Collection, payment shall be in U.S Funds by wire transfer or irrevocable Letter of Credit, confirmed by a major U.S. Bank. In addition to such late payment charges, Seller may add to the amount past due any costs associated with collection thereof, including reasonable attorneys' fees.
2. Seller may, in its sole discretion, accept payment for Products by cash in advance or by money-down with scheduled progress payments, and, unless Seller agrees otherwise in writing, in it's sole discretion, orders over $100,000 will be subject to progress payments.
3. Shipments and deliveries shall be subject to approval of Seller's Credit Department. If Purchaser fails to fulfill the terms of payment, or if at any time before payment in full is made (whether or not payment is yet due) a petition is presented or resolution passed for the winding up or bankruptcy of Purchaser, or in the event of the appointment of a receiver or administrator of Purchaser's business, Seller may defer further shipment or at its option, cancel the unshipped balance. Seller reserves the right previous to making any shipments, to require from Purchaser satisfactory security for performance of Purchaser's obligation. No failure of Seller to exercise any right accruing from any default of Purchase shall impair Seller's right in case of any shipment default of Purchaser.

Gardner Denver, Inc.
100 Gardner Park, Peachtree City, GA 30269
Phone: 800-982-3009 / 770-632-5000
Fax: 770-486-5628
E-mail: cf.blowers@gardnerdenver.com
Web: www.**Hoffman**and**Lamson**.com

"Over 150 Years of Leadership"

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Compressors LTC Item #7

TERM CONTRACT FOR
132351KR & CCSWDC Landfill Gas System Air Compressor Maintenance Agreement

THIS TERM CONTRACT is made and entered into as of the date of execution by both parties, by and between SARASOTA COUNTY, a political subdivision of the State of Florida, herein after referred to as the "County" and Air Centers of Florida, Inc., a corporation licensed in the State of Florida, hereinafter referred to as "Contractor".

WITNESSETH

WHEREAS, the County requires the services of a Contractor to perform CCSWDC Landfill Gas System Air Compressor Maintenance; and,

WHEREAS, the County issued a solicitation, Invitation for Bids (IFB) #132351KR on January 7, 2013; and,

WHEREAS, the County evaluated the responses received and found the Contractor qualified to perform the necessary services; and,

WHEREAS, the County issued a Notice of Recommended Award on March 26, 2013; and,

WHEREAS, the nature of the services being provided is such that the quantity and extent of services may be subject to periodic adjustment through future amendments to this Term Contract; and,

WHEREAS, the Contractor has reviewed the services required pursuant to the Term Contract and is qualified, willing and able to provide and perform all such services in accordance with its terms;

NOW, THEREFORE, the County and the Contractor, in consideration of the mutual covenants contained herein, do agree as follows:

I. CONTRACTOR'S SERVICES

A. The Contractor agrees to diligently provide all materials, services and labor for the performance of CCSWDC Landfill Gas System Air Compressor Maintenance, in accordance with the technical specifications made part of this Term Contract as Exhibit A, attached hereto and incorporated herein.

II. TERM

A. This Term Contract shall commence immediately upon execution by both the County and the Contractor and shall continue for a period of one year. This Term Contract may be renewed for up to two additional one year periods subject to written agreement of both parties.

LTC Item #7

132351KR & CCSWDC Landfill Gas System Air Compressor Maintenance Agreement
EXHIBIT B – FEE SCHEDULE

DESCRIPTION	UNIT OF MEASURE	UNIT BID PRICE
Quarterly Maintenance Event	Each	$830.00
Annual Maintenance Event	Each	$2,210.00
As Requested Services (Non-Emergency)	Hours	$120.00
As Requested Services (Emergency)	Hours	$120.00
As Requested Services Overtime (Non-Emergency)	Hours	$180.00
As Requested Services Overtime (Emergency)	Hours	$180.00

x3 = $2,49
x1 = $2,21

Assume $4,700
$3,300 ot
$8,000/yr

LTC Item #8
Mowing

TERM CONTRACT FOR
IFB 132323JS Solid Waste Rough Cut Mowing

THIS TERM CONTRACT is made and entered into as of the date of execution by both parties, by and between SARASOTA COUNTY, a political subdivision of the State of Florida, herein after referred to as the "County" and Storm Tech, Inc, a corporation licensed in the State of Florida, hereinafter referred to as "Contractor".

WITNESSETH

WHEREAS, the County requires the services of a Contractor to perform Solid Waste Rough Cut Mowing; and,

WHEREAS, the County issued a solicitation, IFB 132323JS on February 15, 2013; and,

WHEREAS, the County evaluated the responses received and found the Contractor qualified to perform the necessary services; and,

WHEREAS, the County issued a Notice of Recommended Award on March 21, 2013; and,

WHEREAS, the nature of the services being provided is such that the quantity and extent of services may be subject to periodic adjustment through future amendments to this Term Contract; and,

WHEREAS, the Contractor has reviewed the services required pursuant to the Term Contract and is qualified, willing and able to provide and perform all such services in accordance with its terms;

NOW, THEREFORE, the County and the Contractor, in consideration of the mutual covenants contained herein, do agree as follows:

I. CONTRACTOR'S SERVICES

A. The Contractor agrees to diligently provide all materials, services and labor for the performance of Mowing Services, in accordance with the technical specifications made part of this Term Contract as Exhibit A, attached hereto and incorporated herein.

II. TERM

A. This Term Contract shall commence immediately upon execution by both the County and the Contractor and shall continue for a period of one year. This Term Contract may be renewed for up to two additional years subject to written agreement of both parties.

TERM CONTRACT FOR
IFB 132323JS Solid Waste Rough Cut Mowing

III. COMPENSATION AND PAYMENT OF CONTRACTOR'S SERVICE

A. The County shall pay the Contractor for the services rendered hereunder and completed in accordance with the terms and conditions of this Term Contract an amount not to exceed that authorized by each Purchase Order, inclusive of costs necessary to provide all services as outlined in this Term Contract.

B. Notwithstanding the preceding, Contractor shall perform no work under this Term Contract until receipt of a Purchase Order from the County. Contractor acknowledges and agrees that no minimum amount of work is guaranteed under this Term Contract and County may elect to issue no purchase orders.

C. The County's performance and obligation to pay under this Term Contract is contingent upon an appropriation by the Board of County Commissioners. The County shall promptly notify the Contractor if the necessary appropriation is not made.

IV. ADDITIONAL SERVICES

A. No changes to this Term Contract or the performance contemplated hereunder shall be made unless the same are in writing and signed by both the Contractor and the County's authorized agent as set forth below.

B. The Board of County Commissioners authorizes the Procurement Official to approve and execute amendments to this Term Contract, subject to applicable County policies and procedures.

C. If the County's Administrative Agent requires the Contractor to perform additional services and if such services are not required as a result of error, omission or negligence of Contractor, then in such event the Contractor shall be entitled to additional compensation. The additional compensation shall be agreed upon before commencement of any additional services or changes and shall be incorporated into this Term Contract by written amendment. Any additional service or work performed before a written Amendment to this Term Contract shall not be compensated by the County.

V. METHOD OF PAYMENT

A. The County shall pay the Contractor through payment issued by the Clerk of the Circuit Court in accordance with the Local Government Prompt Payment Act, Section 218.70, et.seq, Florida Statutes upon receipt of the Contractor's invoice and written approval of same by the County's Administrative Agent indicating that services have been rendered in conformity with this Term Contract.

LTC Item #8

IFB 132323JS Solid Waste Rough Cut Mowing
EXHIBIT B – FEE SCHEDULE

$/acre

ITEM	DESCRIPTION	UNIT OF MEASURE	UNIT PRICE	
1	Bee Ridge Landfill Mowing, Trimming, Edging Services 34.75 acres	Per Event	$850.00	$24.46
2	Bee Ridge Landfill Alternate Mowing, Trimming, Edging Services 186.25 acres	Per Event	$1,900.00	$10.20
3	Jackson Road Landfill Alternate Mowing, Trimming, Edging Services 29 acres	Per Event	$350.00	$12.07
4	Jackson Road Landfill Alternate Mowing, Trimming, Edging Services 70 acres	Per Event	$1,150.00	$16.43

IFB 132323JS Solid Waste Rough Cut Mowing
EXHIBIT C – INSURANCE REQUIREMENTS

A. INSURANCE

Before performing any contract work, CONTRACTOR shall procure and maintain, during the life of the contract, unless otherwise specified, insurance listed below. The policies of insurance shall be primary and written on forms acceptable to the COUNTY and placed with insurance carriers approved and licensed by the Insurance Department in the State of Florida and meet a minimum financial AM Best Company rating of no less than "A- Excellent: FSC VII." No changes are to be made to these specifications without prior written specific approval by COUNTY Risk Management. Those requirements which are not applicable to this purchase or solicitation have been struck through.

1. **WORKERS' COMPENSATION:** CONTRACTOR will provide Workers' Compensation insurance on behalf of all employees who are to provide a service under this contract, as required by the laws of the state where the Contractor is domiciled. FLORIDA CONTRACTORS must provide evidence of Workers' Compensation Insurance which meets the requirements of Florida Statutes, Chapter 440, **AND** Employer's Liability with limits of not less than $100,000 per employee per accident, $500,000 disease aggregate, and $100,000 per employee per disease. If applicable, coverage for the Jones Act and Longshore Harbor Workers Exposures must also be included. **NOTE** Contractors who are exempt from Florida's Workers' Compensation law must provide proof of such exemption issued by the Florida Department of Financial Services, Bureau of Workers' Compensation and qualify for the County waiver per the **Classification Matrix**.

   In the event the CONTRACTOR has "leased" employees, the CONTRACTOR or the employee leasing company must provide evidence of a Workers' Compensation policy for all personnel on the worksite. All documentation must be provided to Sarasota County Risk Management, 1660 Ringling Blvd., 3rd Floor, Sarasota, FL 34236.

2. **COMMERCIAL GENERAL LIABILITY:** Including but not limited to bodily injury, property damage, contractual, products and completed operations, watercraft, if under twenty-six (26) feet and Ocean Marine if over, and personal injury with limits of not less than **$500,000** each occurrence, covering all work performed under this contract.

3. **BUSINESS AUTOMOBILE LIABILITY:** CONTRACTOR agrees to maintain Business Automobile Liability at a limit of liability not less than **$500,000** each accident covering all work performed under this contract.

   CONTRACTOR further agrees coverage shall include liability for Owned, Non-Owned & Hired automobiles. In the event CONTRACTOR does not own automobiles, CONTRACTOR agrees to maintain coverage for Hired & Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy. If private passenger automobiles are used in the business, they must be commercially insured.

   If the CONTRACTOR is shipping a product via common carrier, the Contractor shall be responsible for any loss or damage sustained in delivery/transit.

5. **HAZARDOUS MATERIALS INSURANCE:** For the purpose of this section, the term "hazardous materials" includes all materials and substances that are now designated or defined as hazardous by Florida or Federal law or by the rules or regulations of Florida or any Federal Agency. If work being performed involves hazardous materials, the need to procure and maintain any or all of the following coverage will be specifically addressed upon review of exposure. However, if hazardous materials are identified while carrying out this contract, no further work is to be performed in the area of the hazardous material until COUNTY Risk Management has been consulted as to the potential need to procure and maintain any or all of the following coverage through an addendum to the contract:

LTC Item #9

Sarasota County
Central County Solid Waste Disposal Complex
September 2013

Soil Erosion using the Universal Soil Loss Equation (USLE)

The Universal Soil Loss Equation
A (tons/acre/year) = R * K * LS * C * P

Rainfall Factor
R = 500 Figure 2-1, Reference 2

Soil Erodibility Factor
K = 0.2 Figure 3-1, Reference 2; assuming 20% silt and very fine sand, 80% sand, organic matter (2% avg), fine granular structure, and moderate permeability

Topographic Factor
LS = 7.715 Table 4-2 Reference 2; 150 ft slope, 33% slope

Cover and Management Factor
C = 0.042 Table 10, Reference 1, Assume 60% ground cover, grasslike plant type (G).

Support Practice Factor

P = 1 Reference 2, Support practice factor (ranges 0 to 1), assumed worst case, up & down slope practice

Calculation of A = Soil Loss

A = R x K x LS x C x P = 500 x 0.2 x 7.715 x 0.042 x 1 = 32.403 tons / acre / year

Assume a soil density of 120 lb/ft^3 **A =** 20.00 cubic yards/acre/year

Assume 118 acres of Phase I and Phase II Total Soil Loss =
= 20 cubic yards/acre/year x 118 acres = **2360 cubic yards/year**

References

1 United States Department of Agriculture. "Predicting Rainfall Erosion Losses." Agriculture Handbook No. 537, December 1978.

2 United States Department of Agriculture. "Predicting Soil Erosion by Water: A Guide to Conservation Planning with the Revised Universal Soil Loss Equation." Agriculture Handbook No. 703, January 1997.

USLE is essentially an expression of the functional relationship shown in equation [1-1] (Wischmeier and Smith 1965, 1978). Both USLE and RUSLE compute the average annual erosion expected on field slopes as

$$A = R \cdot K \cdot L \cdot S \cdot C \cdot P \qquad [1\text{-}2]$$

where

A = computed spatial average soil loss and temporal average soil loss per unit of area, expressed in the units selected for K and for the period selected for R. In practice, these are usually selected so that A is expressed in ton· acre^{-1}· yr^{-1}, but other units can be selected (that is, t· ha^{-1}· yr^{-1}).

R = rainfall-runoff erosivity factor—the rainfall erosion index plus a factor for any significant runoff from snowmelt.

K = soil erodibility factor—the soil-loss rate per erosion index unit for a specified soil as measured on a standard plot, which is defined as a 72.6-ft (22.1-m) length of uniform 9% slope in continuous clean-tilled fallow.

L = slope length factor—the ratio of soil loss from the field slope length to soil loss from a 72.6-ft length under identical conditions.

S = slope steepness factor—the ratio of soil loss from the field slope gradient to soil loss from a 9% slope under otherwise identical conditions.

C = cover-management factor—the ratio of soil loss from an area with specified cover and management to soil loss from an identical area in tilled continuous fallow.

P = support practice factor—the ratio of soil loss with a support practice like contouring, stripcropping, or terracing to soil loss with straight-row farming up and down the slope.

RUSLE is an erosion model designed to predict the longtime average annual soil loss (A) carried by runoff from specific field slopes in specified cropping and management systems as well as from rangeland. Widespread use has substantiated the usefulness and validity of RUSLE for this purpose. It is also applicable to nonagricultural conditions such as construction sites.

RUSLE users need to be aware that A (in addition to being a longtime average annual soil loss) is the average loss over a field slope and that the losses at various points on the slope may differ greatly from one another. On a long uniform slope, the loss from the top part of the slope is much lower than the slope average, and the loss near the bottom of the slope is considerably higher. For instance, a 360-ft uniform slope that averages 20

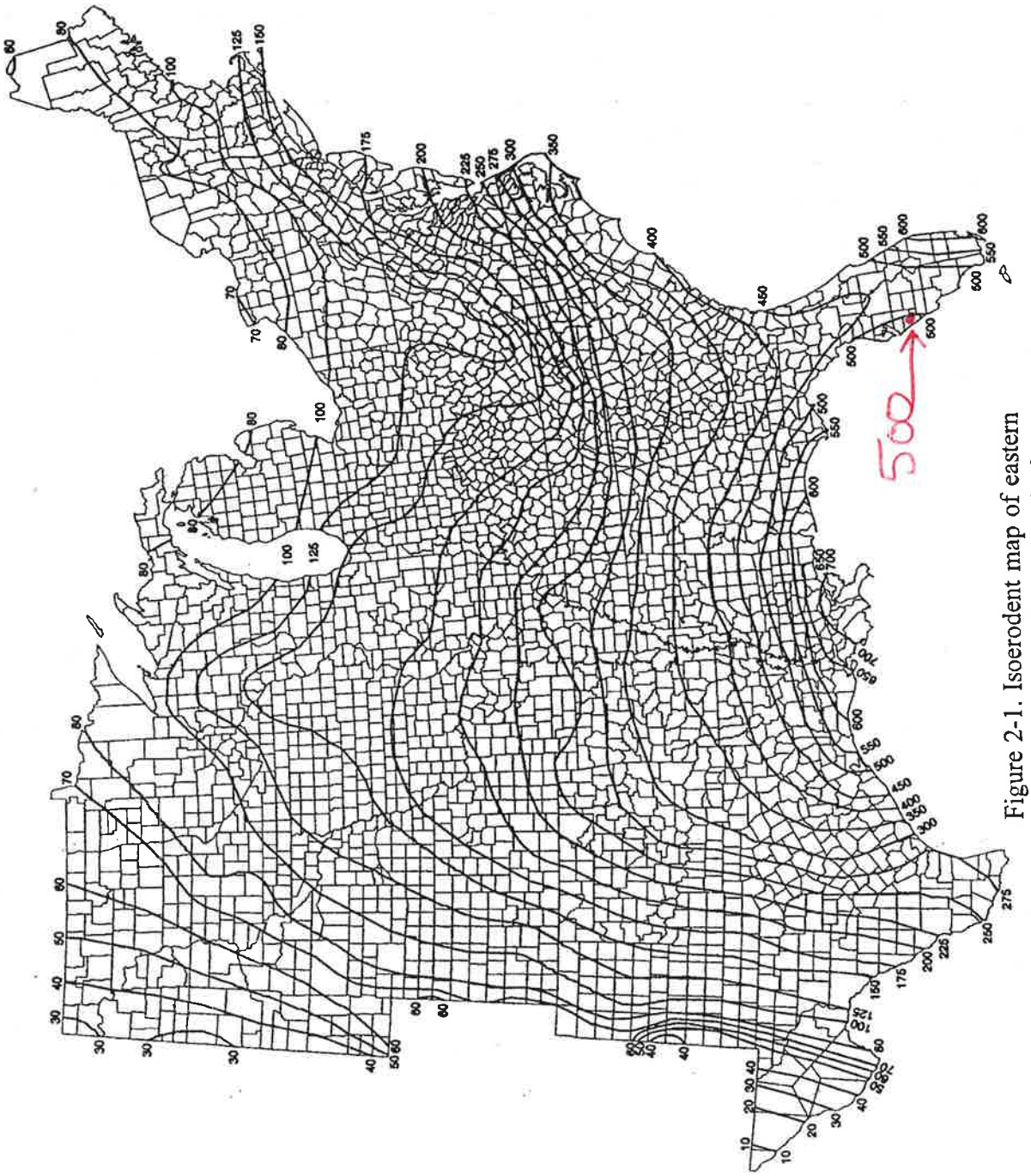

Figure 2-1. Isoerodent map of eastern United States. Units are hundreds ft·tonf·in(ac·h·yr)$^{-1}$.

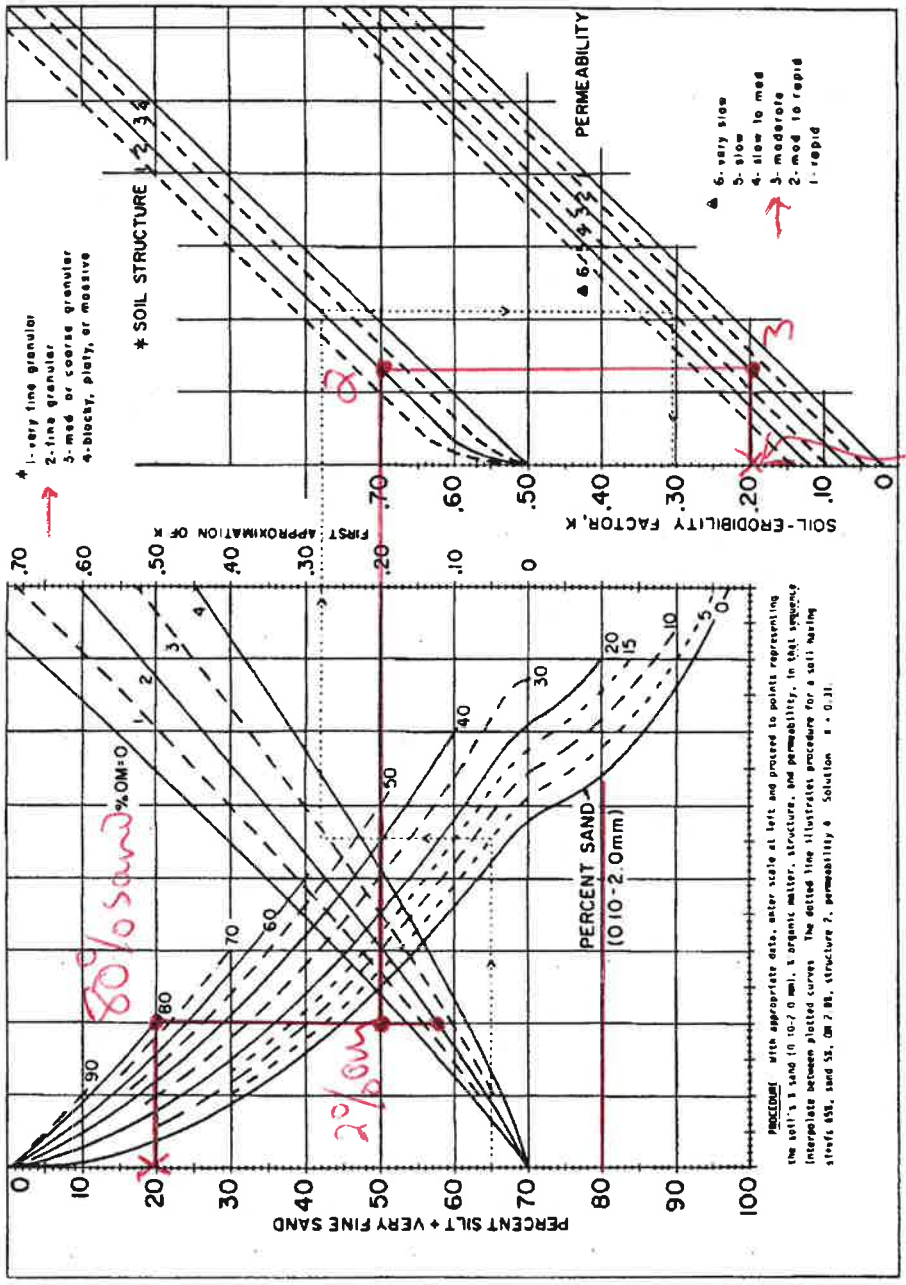

Figure 3-1. Soil-erodibility nomograph (after Wischmeier and Smith 1978). For conversion to SI divide K values of this nomograph by 7.59. K is in U.S. customary units.

V=50ft
S=3:1
L=150ft max

Table 4-2.
Values for topographic factor, LS, for moderate ratio of rill to interrill erosion.[1]

Slope (%)	Horizontal slope length (ft)																
	3	6	9	12	15	25	50	75	100	150	200	250	300	400	600	800	1000
0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06
0.5	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10
1.0	0.11	0.11	0.11	0.11	0.11	0.12	0.13	0.14	0.14	0.15	0.16	0.17	0.17	0.18	0.19	0.20	0.20
2.0	0.17	0.17	0.17	0.17	0.17	0.19	0.22	0.25	0.27	0.29	0.31	0.33	0.35	0.37	0.41	0.44	0.47
3.0	0.22	0.22	0.22	0.22	0.22	0.25	0.32	0.36	0.39	0.44	0.48	0.52	0.55	0.60	0.68	0.75	0.80
4.0	0.26	0.26	0.26	0.26	0.26	0.31	0.40	0.47	0.52	0.60	0.67	0.72	0.77	0.86	0.99	1.10	1.19
5.0	0.30	0.30	0.30	0.30	0.30	0.37	0.49	0.58	0.65	0.76	0.85	0.93	1.01	1.13	1.33	1.49	1.63
6.0	0.34	0.34	0.34	0.34	0.34	0.43	0.58	0.69	0.78	0.93	1.05	1.16	1.25	1.42	1.69	1.91	2.11
8.0	0.42	0.42	0.42	0.42	0.42	0.53	0.74	0.91	1.04	1.26	1.45	1.62	1.77	2.03	2.47	2.83	3.15
10.0	0.46	0.48	0.50	0.51	0.52	0.67	0.97	1.19	1.38	1.71	1.98	2.22	2.44	2.84	3.50	4.06	4.56
12.0	0.47	0.53	0.58	0.61	0.64	0.84	1.23	1.53	1.79	2.23	2.61	2.95	3.26	3.81	4.75	5.56	6.28
14.0	0.48	0.58	0.65	0.70	0.75	1.00	1.48	1.86	2.19	2.76	3.25	3.69	4.09	4.82	6.07	7.15	8.11
16.0	0.49	0.63	0.72	0.79	0.85	1.15	1.73	2.20	2.60	3.30	3.90	4.45	4.95	5.86	7.43	8.79	10.02
20.0	0.52	0.71	0.85	0.96	1.06	1.45	2.22	2.85	3.40	4.36	5.21	5.97	6.68	7.97	10.23	12.20	13.99
25.0	0.56	0.80	1.00	1.16	1.30	1.81	2.82	3.65	4.39	5.69	6.83	7.88	8.86	10.65	13.80	16.58	19.13
30.0	0.59	0.89	1.13	1.34	1.53	2.15	3.39	4.42	5.34	6.98	8.43	9.76	11.01	13.30	17.37	20.99	24.31
40.0	0.65	1.05	1.38	1.68	1.95	2.77	4.45	5.87	7.14	9.43	11.47	13.37	15.14	18.43	24.32	29.60	34.48
50.0	0.71	1.18	1.59	1.97	2.32	3.32	5.40	7.17	8.78	11.66	14.26	16.67	18.94	23.17	30.78	37.65	44.02
60.0	0.76	1.30	1.78	2.23	2.65	3.81	6.24	8.33	10.23	13.65	16.76	19.64	22.36	27.45	36.63	44.96	52.70

33% →

[1]Such as for row-cropped agricultural and other moderately consolidated soil conditions with little-to-moderate cover (not applicable to thawing soil)

$$\frac{9.43-6.98}{40-30} = \frac{9.43-x}{40-33}$$

$$1.715 = 9.43-x$$

$$LS = x = 7.715$$

tion and developmental areas can be obtained from table 5 if good judgment is exercised in comparing the surface conditions with those of agricultural conditions specified in lines of the table. Time intervals analogous to cropstage periods will be defined to begin and end with successive construction or management activities that appreciably change the surface conditions. The procedure is then similar to that described for cropland.

Establishing vegetation on the denuded areas as quickly as possible is highly important. A good sod has a **C** value of 0.01 or less (table 5-B), but such a low **C** value can be obtained quickly only by laying sod on the area, at a substantial cost. When grass or small grain is started from seed, the probable soil loss for the period while cover is developing can be computed by the procedure outlined for estimating cropstage-period soil losses. If the seeding is on topsoil, without a mulch, the soil loss ratios given in line 141 of table 5 are appropriate for cropstage **C** values. If the seeding is on a desurfaced area, where residual effects of prior vegetation are no longer significant, the ratios for periods SB, 1 and 2 are 1.0, 0.75 and 0.50, respectively, and line 141 applies for cropstage 3. When the seedbed is protected by a mulch, the pertinent mulch factor from the upper curve of figure 6 or table 9 is applicable until good canopy cover is attained. The combined effects of vegetative mulch and low-growing canopy are given in figure 7. When grass is established in small grain, it can usually be evaluated as established meadow about 2 mo after the grain is cut.

C Values for Pasture, Range, and Idle Land

Factor **C** for a specific combination of cover conditions on these types of land may be obtained from table 10 (57). The cover characteristics that must be appraised before consulting this table are defined in the table and its footnotes. Cropstage periods and **EI** monthly distribution data are generally not necessary where perennial vegetation has become established and there is no mechanical disturbance of the soil.

Available soil loss data from undisturbed land were not sufficient to derive table 10 by direct comparison of measured soil loss rates, as was done for development of table 5. However, analyses of the assembled erosion data showed that the research information on values of **C** can be extended to completely different situations by combining subfactors that evaluate three separate and distinct, but interrelated, zones of influence: (a) vegetative cover in direct contact with the soil surface, (b) canopy cover, and (c) residual and tillage effects.

Subfactors for various percentages of surface cover by mulch are given by the upper curve of

TABLE 10.—*Factor* **C** *for permanent pasture, range, and idle land*[1]

Vegetative canopy			Cover that contacts the soil surface					
			Percent ground cover					
Type and height[2]	Percent cover[3]	Type[4]	0	20	40	60	80	95+
No appreciable canopy		G	0.45	0.20	0.10	0.042	0.013	0.003
		W	.45	.24	.15	.091	.043	.011
Tall weeds or short brush with average drop fall height of 20 in	25	G	.36	.17	.09	.038	.013	.003
		W	.36	.20	.13	.083	.041	.011
	50	G	.26	.13	.07	.035	.012	.003
		W	.26	.16	.11	.076	.039	.011
	75	G	.17	.10	.06	.032	.011	.003
		W	.17	.12	.09	.068	.038	.011
Appreciable brush or bushes, with average drop fall height of 6½ ft	25	G	.40	.18	.09	.040	.013	.003
		W	.40	.22	.14	.087	.042	.011
	50	G	.34	.16	.08	.038	.012	.003
		W	.34	.19	.13	.082	.041	.011
	75	G	.28	.14	.08	.036	.012	.003
		W	.28	.17	.12	.078	.040	.011
Trees, but no appreciable low brush. Average drop fall height of 13 ft	25	G	.42	.19	.10	.041	.013	.003
		W	.42	.23	.14	.089	.042	.011
	50	G	.39	.18	.09	.040	.013	.003
		W	.39	.21	.14	.087	.042	.011
	75	G	.36	.17	.09	.039	.012	.003
		W	.36	.20	.13	.084	.041	.011

[1] The listed **C** values assume that the vegetation and mulch are randomly distributed over the entire area.

[2] Canopy height is measured as the average fall height of water drops falling from the canopy to the ground. Canopy effect is inversely proportional to drop fall height and is negligible if fall height exceeds 33 ft.

[3] Portion of total-area surface that would be hidden from view by canopy in a vertical projection (a bird's-eye view).

[4] G: cover at surface is grass, grasslike plants, decaying compacted duff, or litter at least 2 in deep.

W: cover at surface is mostly broadleaf herbaceous plants (as weeds with little lateral-root network near the surface) or undecayed residues or both.

SUPPORT PRACTICE FACTOR (P) FOR CONTOURING

The effect of contour tillage on soil erosion by water is described by the contour P factor in the Revised Universal Soil Loss Equation (RUSLE). If erosion by flow occurs, a network of small eroded channels or rills develops in the areas of deepest flow. On relatively smooth soil surfaces, the flow pattern is determined by random natural microtopography. When tillage is oriented along the contour, the ridges or oriented roughness will partially or completely redirect the runoff, thereby modifying the flow pattern. When tillage leaves high ridges, runoff stays within the furrows between the ridges, and the flow pattern is completely determined by the tillage marks. High ridges from tillage on the contour cause runoff to flow around the slope, significantly reducing the grade along the flow path and reducing the flow's detachment and transport capacity compared to runoff directly downslope.

When grade is sufficiently flat along the tillage marks, much of the sediment eroded from the ridges separating the furrows is deposited in the furrows (Meyer and Harmon 1985). However, tillage is seldom exactly on the contour. Runoff collects in the low areas on the landscape and if accumulated water overtops the ridges, then rill and concentrated flow erosion usually occur, especially in recently tilled fields (Hill et al. 1944). Runoff from contoured fields is often less than that from fields tilled upslope-downslope (Van Doren et al. 1950). Contour tillage reduces erosion by reducing both the runoff and the grade along the flow path.

Values currently used in USLE (Wischmeier and Smith 1978) for the contour P factor are almost identical to those developed by Smith and Whitt (1947, 1948). At a 0% slope, Smith and Whitt reasoned that the value for the contouring subfactor should be 1.0 because no flow direction is defined. For steep slopes, they reasoned that the contouring subfactor value should be 1.0 for slopes steeper than 25% because a typical ridge 6 in high would store no water. At intermediate slopes, they chose a value of 0.6 for a 2% slope from the plot study of Van Doren et al. (1950) and a value of 0.5 for a 7% slope from the study of Smith et al. (1945).

This handbook recommends values for the RUSLE contour P factor based on erosion theory and analyses of experimental data. Data were from three sources: plots, small watersheds, and solutions of equations derived from erosion theory.

ATTACHMENT K

LEACHATE DISPOSAL TREATMENT PLANT AGREEMENTS

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,

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:\USERS\shared\projects\Central County Solid Waste Disposal Complex\Leachate\Correspondence\Kim Ford - leachate Disposal (Author Warren Wagner) - 11-21-01.doc

Florida Department of Environmental Protection

Twin Towers Office Bldg., 2600 Blair Stone Road, Tallahassee, Florida 32399-2400

NOTIFICATION/APPLICATION FOR CONSTRUCTING A DOMESTIC WASTEWATER COLLECTION/TRANSMISSION SYSTEM

PART I - GENERAL

Subpart A: Permit Application Type

Permit Application Type (mark one only)	EDUs Served	Application Fee*	"X"
Are you applying for an individual permit for a domestic wastewater collection/transmission system? Note: an EDU is equal to 3.5 persons. Criteria for an individual permit are contained in Rule 62-604.600(7), F.A.C.	≥ 10	$500	☒
	< 10	$300	☐
Is this a Notice of Intent to use the general permit for wastewater collection/transmission systems? Criteria for qualifying for a general permit are contained in Rule 62-604.600(6), F.A.C. Projects not meeting the criteria in Rule 62-604.600(6), F.A.C., must apply for an individual permit.	N/A	$250	☐

*Note: Each non-contiguous project (i.e., projects that are not interconnected or are not located on adjacent streets or in the same neighborhood) requires a separate application and fee.

Subpart B: Instructions

(1) This form shall be completed for all domestic wastewater collection/transmission system construction projects as follows:
- If this is a Notice of Intent to use the general permit, this notification shall be submitted to the Department at least 30 days prior to **initiating construction.**
- If this is an application for an individual permit, the permit must be obtained prior to initiating construction.

(2) One copy of the completed form shall be submitted to the appropriate DEP district office or delegated local program along with the appropriate fee, and one copy of the following supporting documents. Checks should be made payable to the Florida Department of Environmental Protection, or the name of the appropriate delegated local program.

- If this is a Notice of Intent to use the general permit, attach a site plan or sketch showing the size and approximate location of new or altered gravity sewers, pump stations and force mains; showing the approximate location of manholes and isolation valves; and showing how the proposed project ties into the existing or proposed wastewater facilities. The site plan or sketch shall be signed and sealed by a professional engineer registered in Florida.
- If this is an application for an individual permit, one set of plans and specifications shall be submitted with this application, or alternatively, an engineering report shall be submitted. Plans and specifications and engineering reports shall be prepared in accordance with the applicable provisions of Chapters 10 and 20 of *Recommended Standards for Wastewater Facilities*. The plans and specifications or engineering report shall be signed and sealed by a Professional Engineer registered in Florida.

(3) All information shall be typed or printed in ink. Where attached sheets (or other technical documentation) are utilized in lieu of the blank spaces provided, indicate appropriate cross-references on the form. For Items (1) through (4) of Part II of this application form, if an item is not applicable to your project, indicate "NA" in the appropriate space provided.

Northwest District
160 Governmental Center
Pensacola, Florida 32502-5794
850-595-8300

Northeast District
7825 Baymeadows Way
Suite 200B
Jacksonville, Florida 32256-7590
904-807-3300

Central District
3319 Maguire Blvd
Suite 232
Orlando, Florida 32803-3767
407-894-7555

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-8318
813-744-6100

South District
2295 Victoria Ave
Suite 364
Fort Myers, Florida 33902-2549
239-332-6975

Southeast District
400 North Congress Ave
Suite 200
West Palm Beach, Florida 33401
561-681-6600

PART II – PROJECT DOCUMENTATION

(1) Collection/Transmission System Permittee

Name: Frank Coggins — Title: Manager - Solid Waste Operations
Company Name: Sarasota County - Solid Waste Department
Address: 4000 Knights Trail Road
City: Nokomis — State: Florida — Zip: 34275
Telephone: 941-861-1578 — Fax: 941-486-2620 — Email: fcoggins@scgov.net

(2) General Project Information

Project Name: Central County Landfill - Leachate Force Main and Pump Station
Location: County: Sarasota — City: Nokomis — Section: 20/29/33 — Township: 38 — Range: 19
Project Description and Purpose (including pipe length, range of pipe diameter, total number of manholes, and total number of pump stations): Proposed to construct a pump station and a 5.2 mile 4" diameter force main to pump leachate from the Central County Landf Landfill to Lift Station 376-0527 on Knights Trail Road Just North of Laurel Road.

Estimated date for: Start of construction: January 2006 — Completion of construction: January 2007
Connections to existing system or treatment plant: Connect to Lift Station 376-0527

(3) Project Capacity

A = Type of Unit	B = Number of Units	C = Population Unit	D = Total Populatio (Columns B x C)	E = Per Cap Flow	F = Total Average Daily Flow (Columns D x E)	G = Peak hou flow
Single-Family Home	N/A	N/A	N/A	N/A	N/A	N/A
Mobile Home	N/A	N/A	N/A	N/A	N/A	N/A
Apartment	N/A	N/A	N/A	N/A	N/A	N/A
Commercial, Institutional, or Industrial Facility*	117EDU	1	117EDU	175 GPD/ED	20,550GPD	40GPM
Total			117EDU		20,550GPD	40GPM

* Description of commercial, institutional, and industrial facilities and explanation of method used to estimate per capita flow for these facilities:

The landfill creates 7.5 MG of leachate per year. 7.5 MG divided by 365 days per year equals 20,550GPD.
Using 175GPD/EDU, this equates to 117EDU'S. The maximum pumping rate for the proposed pumping station is 40GPM.
The pump station has a 1.0MG storage tank to attenuate flows.

(4) Pump Station Data (attached additional sheets as necessary)

Location	Type	Estimated Flow to the Station (GPD) Maximum	Average	Minimum	Operating Conditions [GP @ FT (TDH)]
Landfill			20,550		40@46

(5) Collection/Transmission System Design Information

A. This information must be completed for all projects by the applicant's professional engineer, and if applicable, those professional engineers in other disciplines who assisted with the design of the project.

If this project has been designed to comply with the standards and criteria listed below, the engineer shall initial in ink before the standards or criteria. If any of the standards or criteria do not apply to this project or if this project has not been designed to comply with the standards or criteria, mark "X" before the appropriate standard or criteria and provide an explanation, including any applicable rule references, in (5)B. below.

allow for another alternative that will result in an equivalent level of reliability and public health protection, the project can be constructed using the general permit.

General Requirements

X 1. The project is designed based on an average daily flow of 100 gallons per capita plus wastewater flow from industrial plants and major institutional and commercial facilities unless water use data or other justification is used to better estimate the flow. The design includes an appropriate peaking factor, which covers I/I contributions and non-wastewater connections to those service lines. [RSWF 11.243]

N/A 2. Procedures are specified for operation of the collection/transmission system during construction. [RSWF 20.15]

N/A 3. The project is designed to be located on public right-of-ways, land owned by the permittee, or easements and to be located no closer than 100 feet from a public drinking water supply well and no closer than 75 feet from a private drinking water supply well; or documentation is provided in Part II.(5)B., showing that another alternative will result in an equivalent level of reliability and public health protection. [62-604.400(1)(b) and (c), F.A.C.]

N/A 4. The project is designed with no physical connections between a public or private potable water supply system and a sewer or force main and with no water pipes passing through or coming into contact with any part of a sewer manhole. [RSFW 38.1 and 48.5]

N/A 5. The project is designed to preclude the deliberate introduction of storm water, surface water, groundwater, roof runoff, subsurface drainage, swimming pool drainage, air conditioning system condensate water, noncontact cooling water except as provided by Rule 62-610.668(1), F.A.C., and sources of uncontaminated wastewater, except to augment the supply of reclaimed water in accordance with Rule 62-610.472(3)(c), F.A.C. [62-604.400(1)(d), F.A.C.]

N/A 6. The project is designed so that all new or relocated, buried sewers and force mains, are located in accordance with the separation requirements from water mains and reclaimed water lines of Rules 62-604.400(2)(g)(h) and (i) and (3), F.A.C. Note, if the criteria of Rules 62-604.400(2)(g) 4. or (2)(i) 3., F.A.C., are used, describe in Part II.C. alternative construction features that will be provided to afford a similar level of reliability and public health protection. [62-604.400(2)(g), (h), and (i) and (3), F.A.C.]

Gravity Sewers

X 7. The project is designed with no public gravity sewer conveying raw wastewater less than 8 inches in diamete. [RSWF 33.1]

X 8. The design considers buoyancy of sewers, and appropriate construction techniques are specified to prevent flotation of the pipe where high groundwater conditions are anticipated. [RSWF 33.3}

X 9. All sewers are designed with slopes to give mean velocities, when flowing full, of not less than 2.0 feet per second based on Manning's formula using an "n" value of 0.013; or if it is not practicable to maintain these minimum slopes and the depth of flow will be 0.3 of the diameter or greater for design average flow, the owner of the system has been notified that additional sewer maintenance will be required. The pipe diameter and slope are selected to obtain the greatest practical velocities to minimize solids deposition problems. Oversized sewers are not specified to justify flatter slopes. [RSWF 33.41, 33.42, and 33.43]

X 10. Sewers are designed with uniform slope between manholes. [RWSF 33.44]

X 11. Where velocities greater than 15 fps are designed, provisions to protect against displacement by erosion and impact are specified. [RSWF 33.45]

X 12. Sewers on 20% slopes or greater are designed to be anchored securely with concrete, or equal, anchors spaced as follows: not over 36 feet center to center on grades 20% and up to 35%; not over 24 feet center to center on grades 35% and up to 50%; and not over 16 feet center to center on grades 50% and over. [RSWF 33.46]

X 13. Sewers 24 inches or less are designed with straight alignment between manholes. Where curvilinear sewers are proposed for sewers greater than 24 inches, the design specifies compression joints; ASTM or specific pipe manufacturer's maximum allowable pipe joint deflection limits are not exceeded; and curvilinear sewers are limited to simple curves which start and end at manholes. [RSWF 33.5]

X 14. Suitable couplings complying with ASTM specifications are required for joining dissimilar materials. [RSWF 33.7]

X 15. Sewers are designed to prevent damage from superimposed loads. [RSWF 33.7]

X 16. Appropriate specifications for the pipe and methods of bedding and backfilling are provided so as not to damage the pipe or its joints, impede cleaning operations and future tapping, nor create excessive side fill pressures and ovalation of the pipe, nor seriously impair flow capacity. [RSWF 33.81]

X 17. Appropriate deflection tests are specified for all flexible pipe. Testing is required after the final backfill has been in place at least 30 days to permit stabilization of the soil-pipe system. Testing requirements specify: 1) no pipe shall exceed a deflection of 5%; 2) using a rigid ball or mandrel for the deflection test with a diameter not less than 95% of the base inside diameter or average inside diameter of the pipe, depending on which is specified in the ASTM specification, including the appendix, to which the pipe is manufactured; and 3) performing the test without mechanical pulling devices. [RSWF 33.85]

X 18. Leakage tests are specified requiring that: 1) the leakage exfiltration or infiltration does not exceed 200 gallons per inch of pipe diameter per mile per day for any section of the system; 2) exfiltration or infiltration tests be performed with a minimum positive head of 2 feet; and 3) air tests, as a minimum, conform to the test procedure described in ASTM G 828 for clay pipe, ASTM C 924 for concrete pipe, ASTM F-1417 for plastic pipe, and for other materials appropriate test procedures. [RSWF 33.93, 33.94, and 33.95]

X 19. If an inverted siphon is proposed, documentation of its need is provided in Part II.C. Inverted siphons are designed with: 1) at least two barrels; 2) a minimum pipe size of 6 inches; 3) necessary appurtenances for maintenance, convenient flushing, and cleaning equipment; and 4) inlet and discharge structures having adequate clearances for cleaning equipment, inspection, and flushing. Design provides sufficient head and appropriate pipe sizes to secure velocities of at least 3.0 fps for design average flows. The inlet and outlet are designed so that the design average flow may be diverted to one barrel, and that either barrel may be cut out of service for cleaning. [RSWF 35]

Manholes

X 20. The project is designed with manholes at the end of each line; at all changes in grade, size, or alignment; at all intersections; and at distances not greater than 400 feet for sewers 15 inches or less and 500 feet for sewers 18 inches to 30 inches, except in the case where adequate modern cleaning equipment is available at distances not greater than 600 feet. [RSWF 34.1]

X 21. Design requires drop pipes to be provided for sewers entering manholes at elevations of 24 inches or more above the manhole invert. Where the difference in elevation between the incoming sewer and the manhole invert is less than 24 inches, the invert is designed with a fillet to prevent solids deposition. Inside drop connections (whennecessary) are designed to be secured to the interior wall of the manhole and provide access for cleaning. Design requires the entire outside drop connection be encased in concrete. [RSWF 34.2]

X 22. Manholes are designed with a minimum diameter of 48 inches and a minimum access diameter of 22 inches. [RSWF 34.3]

X 23. Design requires that a bench be provided on each side of any manhole channel when the pipe diameter(s) are less than the manhole diameter and that no lateral sewer, service connection, or drop manhole pipe discharges onto the surface of the bench. [RSWF 34.5]

X 24. Design requires: 1) manhole lift holes and grade adjustment rings be sealed with nonshrinking mortar or other appropriate material; 2) inlet and outlet pipes be joined to the manhole with a gasketed flexible watertight connection or another watertight connection arrangement that allows differential settlement of the pipe and manhole wall; and 3) watertight manhole covers be used wherever the manhole tops may be flooded by street runoff orhigh water. [RSWF 34.6]

X 25. Manhole inspection and testing for watertightness or damage prior to placing into service are specified. Air testing, if specified for concrete sewer manholes, conforms to the test procedures described in ASTM C-1244. [RSWF 34.7]

X 26. Electrical equipment specified for use in manholes is consistent with Item 46 of this checklist. [RSWF 34.9]

Stream Crossings

X 27. Sewers and force mains entering or crossing streams are designed to be constructed of ductile iron pipe with mechanical joints or so they will remain watertight and free from changes in alignment or grade. Appropriate materials which will not readily erode, cause siltation, damage pipe during placement, or corrode the pipe are specified to backfill the trench. [RSWF 36.21 and 48.5]

X 28. Stream crossings are designed to incorporate valves or other flow regulating devices (which may include pump stations) on the shoreline or at such distances form the shoreline to prevent discharge in the event the line is damaged. [62 604.400(2)(k)5., F.A.C.]

X 29. Sewers and force mains entering or crossing streams are designed at a sufficient depth below the natural bottom of the stream bed to protect the line. At a minimum, the project is designed with subaqueous lines to be buried at least three feet below the design or actual bottom, whichever is deeper, of a canal and other dredged waterway or the natural bottom of streams, rivers, estuaries, bays, and other natural water bodies; or if it is not practicable to design the project with less than three-foot minimum cover, alternative construction features (e.g. a concrete cap, sleeve, or some other properly engineered device to insure adequate protection of the line) are described in Part II.C. [62-604.400(2)(k)1., F.A.C., and RSWF 36.11]

X 30. Specifications require permanent warning signs be placed on the banks of canals, streams, and rivers clearly identifying the nature and location (including depths below design or natural bottom) of subaqueous crossings and suitably fixed signs be placed at the shore, for subaqueous crossings of lakes, bays, and other large bodies of water, and in any area where anchoring is normally expected. [62-604.400(2)(k)2., F.A.C.]

X 31. Provisions for testing the integrity of subaqueous lines are specified. [62-604.400(2)(k)4., F.A.C.]

X 32. Supports are designed for all joints in pipes utilized for aerial crossings and to prevent overturning and settlement. Expansion jointing is specified between above ground and below ground sewers and force mains. The design considers the impact of floodwaters and debris. [RSWF 37 and 48.5]

X 33. Aerial crossings are designed to maintain existing or required navigational capabilities within the waterway and to reserve riparian rights of adjacent property owners. [62-604.400(2)(k)3., F.A.C.]

Pump Stations

34. In areas with high water tables, pump stations are designed to withstand flotation forces when empty. When siting the pump station, the design considers the potential for damage or interruption of operation because of flooding. Pump station structures and electrical and mechanical equipment are designed to be protected from physical damage by the 100-year flood. Pump stations are designed to remain fully operational and accessible during the 25-year flood unless lesser flood levels are appropriate based on local considerations, but not less than the 10-year flood. [62-604.400(2)(e), F.A.C.]

35. Pump stations are designed to be readily accessible by maintenance vehicles during all weather conditions. [RSWF 41.2]

36. Wet well and pump station piping is designed to avoid operational problems from the accumulation of grit. [RSWF 41.3]

X 37. Dry wells, including their superstructure, are designed to be completely separated from the wet well. Common walls are designed to be gas tight. [RSWF 42.21]

38. The design includes provisions to facilitate removing pumps, motors, and other mechanical and electrical equipment. [RSWF 42.22]

X 39. The design includes provisions for: 1) suitable and safe means of access for persons wearing selfcontained breathing apparatus are provided to dry wells, and to wet wells; 2) stairway access to wet wells more than 4 feet deep containing either bar screens or mechanical equipment requiring inspection or maintenance; 3) for builtin-place pump stations, a stairway to the dry well with rest landings at vertical intervals not to exceed 12 feet; 4) for factory-built pump stations over 15 feet deep, a rigidly fixed landing at vertical intervals not to exceed 10 feet unless a manlift or elevator is provided; and 5) where a landing is used, a suitable and rigidly fixed barrier to prevent an individual from falling past the intermediate landing to a lower level. If a manlift or elevator is provided, emergency access is included in the design. [RSWF 42.23]

40. Specified construction materials are appropriate under conditions of exposure to hydrogen sulfide and other corrosive gases, greases, oils, and other constituents frequently present in wastewater. [RSWF 42.25]

41. Except for low-pressure grinder or STEP systems, multiple pumps are specified, and each pump has an individual intake. Where only two units are specified, they are of the same size. Specified units have capacity such that, with any unit out of service, the remaining units will have capacity to handle the design peak hourlyflow. [RSWF 42.31 and 42.36]

X 42. Bar racks are specified for pumps handling wastewater from 30 inch or larger diameter sewers. Where a bar rack is specified, a mechanical hoist is also provided. The design includes provisions for appropriate protection fom clogging for small pump stations. [RSWF 42.322]

X 43. Pumps handling raw wastewater are designed to pass spheres of at least 3 inches in diameter. Pump suction and discharge openings are designed to be at least 4 inches in diameter. [RSWF 42.33] (Note, this provision is not applicable to grinder pumps.)

44. The design requires pumps be placed such that under normal operating conditions they will operate under a positive suction head, unless pumps are suction-lift pumps. [RSWF 42.34]

45. The design requires: 1) pump stations be protected from lightning and transient voltage surges; and 2) pump stations be equipped with lighting arrestors, surge capacitors, or other similar protection devices and phase protection. Note, pump stations serving a single building are not required to provide surge protection devices if not necessary to protect the pump station. [62-604.400(2)(b), F.A.C.]

46. The design requires 1) electrical systems and components (e.g., motors, lights, cables, conduits, switch boxes, control circuits, etc.) in raw wastewater wet wells, or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors may be present, comply with the National Electrical Code requirements for Class I Group D, Division 1 locations; 2) electrical equipment located in wet wells be suitable for use under corrosive conditions; 3) each flexible cable be provided with a watertight seal and separate strain relief; 4) a fused disconnect switch located above ground be provided for the main power feed for all pump stations; 5) electrical equipment exposed to weather to meet the requirements of weatherproof equipment NEMA 3R or 4; 6) a 110 volt power receptacle to facilitate maintenance be provided inside the control panel for pump stations that have control panels outdoors; and 7) ground fault interruption protection be provided for all outdoor outlets. [RSWF 42.35]

X 47. The design requires a sump pump equipped with dual check valves be provided in dry wells to remove leakage or drainage with discharge above the maximum high water level of the wet well. [RSWF 42.37]

X 48. Pump station design capacities are based on the peak hourly flow and are adequate to maintain a minimum velocity of 2 feet per second in the force main. [RSWF 42.38]

49. The design includes provisions to automatically alternate the pumps in use. [RSWF 42.4]

50. The design requires: 1) suitable shutoff valves be placed on the suction line of dry pit pumps; 2) suitable shutoff and check valves be placed on the discharge line of each pump (exceptон screw pumps); 3) a check valve be located between the shutoff valve and the pump; 4) check valves be suitable for the material being handled; 5) check valves be placed on the horizontal portion of discharge piping (except for ball checks, which may beplaced in the vertical run); 6) all valves be capable of withstanding normal pressure and water hammer; and 7) all shutoff and check valves be operable from the floor level and accessible for maintenance. [RSWF 42.5]

51. The effective volume of wet wells isbased on design average flows and a filling time not to exceed 30 minutes unless the facility is designed to provide flow equalization. The pump manufacturer's duty cycle recommendations were utilized in selecting the minimum cycle time. [RSWF 42.62]

X 52. The design requires wet well floors have a minimum slope of 1 to 1 to the hopper bottom and the horizontal area of hopper bottoms be no greater than necessary for proper installation and function of the inlet. [RSWF 42.63]

X 53. For covered wet wells, the design provides for air displacement to the atmosphere, such as an inverted "j" tube or other means. [RSWF 42.64]

X 54. The design provides for adequate ventilation all pump stations; mechanical ventilation where the dry well is below the ground surface; permanently installed ventilation if screens or mechanical equipment requiring maintenance or inspection are located in the wet well. Pump stations are designed with no interconnection between the wet well and dry well ventilation systems. [RSWF 42.71]

X 55. The design requires all intermittently operated ventilation equipment to be interconnected with the respective pit lighting system and the manual lighting/ventilation switch to override the automatic controls. [RSWF 42.73]

X 56. The design requires the fan wheels of ventilation systems be fabricated from non-sparking material and automatic heating and dehumidification equipment be provided in all dry wells. [RSWF 42.74]

X 57. If wet well ventilation is continuous, design provides for at least 12 complete 100% fresh air changes per hour; if wet well ventilation is intermittent, design provides for at least 30 complete 100% fresh air changes per hour; and design requires air to be forced into wet wells by mechanical means rather than solely exhausted from the wet well. [RSWF 42.75]

X 58. If dry well ventilation is continuous, design provides at least 6 complete 100% fresh air changes per hour; and dry well ventilation is intermittent, design provides for at least 30 complete 100% fresh air changes per hour, unless a system of two speed ventilation with an initial ventilation rate of 30 changes per hour for 10 minutes and automatic switch over to 6 changes per hour is used to conserve heat. [RSWF 42.76]

X 59. Pump stations are designed and located on the site to minimize adverse effects from odors, noise, and lighting. [62-604.400(2)(c), F.A.C.]

X 60. The design requires pump stations be enclosed with a fence or otherwise designed with appropriate features to discourage the entry of animals and unauthorized persons. Posting of an unobstructed ign made of durable weather resistant material at a location visible to the public with a telephone number for a point of contact in case of emergency is specified. [62-604.400(2)(d), F.A.C.]

X 61. The design requires suitable devices for measuring wastewaterflow at all pump stations. Indicating, totalizing, and recording flow measurement are specified for pump stations with a 1200 gpm or greater design peak flow. [RSWF 42.8]

X 62. The project is designed with no physical connections between any potable water supplies and pump stations. If a potable water supply is brought to a station, reduced-pressure principle backflow-prevention assemblies are specified. [RSWF 42.9 and 62-555.30(4), F.A.C.]

Additional Items to be Completed for Suction-Lift Pump Stations

X 63. The design requires all suction-lift pumps to be either self-priming or vacuum-priming and the combined total of dynamic suction-lift at the "pump off" elevation and required net positive suction head at design operating conditions not to exceed 22 feet. For self-priming pumps, the design requires: 1) pumps be capable of rapid priming and repriming at the "lead pump on" elevation with self-priming and repriming accomplished automatically under design operating conditions; 2) suction piping not to exceed the size of the pump suction or 25 feet in total length; and 3) priming lift at the "lead pump on" elevation to include a safety factor of at least 4 feet from the maximum allowable priming lift for the specific equipment at design operating conditions. For vacuum-priming pump stations, the design requires dual vacuum pumps capable of automatically and completely removing air from the suction-lift pumps and the vacuum pumps be adequately protected from damage due to wastewater. [RSWF 43.1]

X 64. The design requires: 1) suction-lift pump equipment compartments to be above grade or offset and to be effectively isolated from the wet well to prevent a hazardous and corrosive sewer atmosphere from entering the equipment compartment; 2) wet well access not to be through the equipment compartment and to be at least 24 inches in diameter; 3) gasketed replacement plates be provided to cover the opening to the wet well for pump units to be remove for service; and 4) no valving be located in the wet well. [RSWF 43.2]

Additional Items to be Completed for Submersible Pump Stations

X 65. Submersible pumps and motors are designed specifically for raw wastewater use, including totally submerged operation during a portion of each pump cycle and to meet the requirements of the National Electrical Code for such units. Provisions for detecting shaft seal failure or potential seal failure are included in the design. [RSWF 44.1]

X 66. The design requires submersible pumps be readily removable and replaceable without dewatering the wet wellor disconnecting any piping in the wet well. [RSWF 44.2]

X 67. In submersible pump stations, electrical supply, control, and alarm circuits are designed to provide strain relief; to allow disconnection from outside the wet well; and to protect terminals and connectors from corrosion by location outside the wet well or through use of watertight seals. [RSWF 44.31]

X 68. In submersible pump stations, the design requires the motor control center to be located outside the wet well, readily accessible, and protected by a conduit seal or other appropriate measures meeting the requirements of the National Electrical Code, to prevent the atmosphere of the wet well from gaining access to the control center. If a seal is specified, the motor can be removed and electrically disconnected without disturbing the seal. The design requires control equipment exposed to weather to meet the requirements of weatherproof equipment NEMA 3R or 4. [RSWF 44.32]

X 69. In submersible pump stations, the design requires: 1) pump motor power cordsbe flexible and serviceable under conditions of extra hard usage and to meet the requirements of the National Electrical Code standards for flexible cords in wastewater pump stations; 2) ground fault interruption protection be used to deenergize the circuit in the event of any failure in the electrical integrity of the cable; and 3) power cord terminal fittings be corrosion-resistant and constructed in a manner to prevent the entry of moisture into the cable, provided with strain relief appurtenances, anddesigned to facilitate field connecting. [RSWF 44.33]

X 70. In submersible pump stations, the design requires all shut-off and check valves be located in a separate valve pit. Provisions to remove or drain accumulated water from the valve pit are included inthe design. [RSWF 44.4]

Emergency Operations for Pump Stations

71. Pump stations are designed with an alarm system which activates in cases of power failure, sump pump failure, pump failure, unauthorized entry, or any cause of pump station malfunction. Pump station alarms are designed to be telemetered to a facility that is manned 24 hours a day. If such a facility is not available and a 24hour holding capacity is not provided, the alarm is designed to be telemetered to utility offices during normal working hours and to the home of the responsible person(s) in charge of the lift station during off-duty hours. Note, if an audio-visual alarm system with a self-contained power supply is provided in lieu of a telemetered system, documentation is provided in Part II.C. showing an equivalent level of reliability and public health protection. [RSWF 45]

72. The design requires emergency pumping capability be provided for all pump stations. For pump stations that receive flow from one or more pump stations through a force main or pump stations discharging through pipes 12 inches or larger, the design requires uninterrupted pumping capability be provided, including an in-place emergency generator. Where portable pumping and/or generating equipment or manual transfer is used, the design includes sufficient storage capacity with an alarm system to allow time for detection of pump station failure and transportation and connection of emergency equipment. [62-604.400(2)(a)1. and 2., F.A.C., and RSWF 46.423 and 46.433]

73. The design requires: 1) emergency standby systems to have sufficient capacity to start up and maintain the total rated running capacity of the station, including lighting, ventilation, and other auxiliary equipment necessary for safety and proper operation; 2) special sequencing controls be provided to start pump motors unless the generating equipment has capacity to start all pumps simultaneously with auxiliary equipment operating; 3) a riser from the force main with rapid connection capabilities and appropriate valving be provided for all pump stations to hook up portable pumps; and 4) all pump station reliability design features be compatible with the available temporary service power generating and pumping equipment of the authority responsible for operation and maintenance of the collection/transmission system. [62-604.400(2)(a)3., F.A.C., and RSWF 46.431]

74. The design provides for emergency equipment to be protected from operation conditions that would result in damage to the equipment and from damage at the restoration of regular electrical power. [RSWF 46.411, 46.417, and 46.432]

X 75. For permanently-installed internal combustion engines, underground fuel storage and piping facilities are designed in accordance with applicable state and federal regulations; and the design requires engines to be located above grade with adequate ventilation of fuel vapors and exhaust gases. [RSWF 46.414 and46.415]

X 76. For permanently-installed or portable engine-driven pumps are used, the design includes provisions for manual startup. [RSWF 46.422]

X 77. Where independent substations are used for emergency power, each separate substation and its associated transmission line is designed to be capable of starting and operating the pump station at its rated capacity. [RSWF 46.44]

Force Mains

X 78. Force mains are designed to maintain, at design pumping rates, a cleansing velocity of at least 2 feet per second. The minimum force main diameter specified for raw wastewater is not less than 4 inches. [RSWF 48.1]

N/A 79. The design requires: 1) branches of intersecting force mains be provided with appropriate valves such that one branch may shut down for maintenance and repair without interrupting the flow of other branches; and 2) stubouts on force mains, plac in anticipation of future connections, be equipped with a valve to allow such connection without interruption of service. [6 604.400(2)(f), F.A.C.]

N/A 80. The design requires air relief valves be placed at high points in the force main to prevent air locking. [RSWF 48.2]

N/A 81. Specified force main pipe and joints are equal to water main strength materials suitable for design conditions. The force main, reaction blocking, and station piping are designed to withstand water hammer pressures and stresses associated with cycling of wastewater pump stations. [RSWF 48.4]

N/A 82. When the Hazen and Williams formula is used to calculate friction losses through force mains, the value for "C" is 100 for unlined iron or steel pipe for design. For other smooth pipe materials, such as PVC, polyethylene, lined ductile iron, the value for C does not exceed 120 for design. [RSWF 48.61]

N/A 83. Where force mains are constructed of material, which might cause the force main to be confused with potable water mains, specifications require the force main to be clearly identified. [RSWF 48.7]

N/A 84. Leakage tests for force mains are specified including testing methods and leakage limits. [RSWF 48.8]

*RSWF = *Recommended Standards for Wastewater Facilities* (1997) as adopted by rule 62-604.300(5)(c), F.A.C.

B. Explanation for Requirements or Standards Marked "X" in II(5)A. Above (Attach additional sheets if necessary):

The proposed system consists of an above ground pump ststion pumping at 40GPM through a 4" force main. There are no manholes.
The proposed pipe does not cross any streams.
The proposed system is pumping filtered water with no solids, therefore 2FPS cleaning velocity is not needed.

PART III - CERTIFICATIONS

(1) Collection/Transmission System Permittee

I, the undersigned owner or authorized representative* of PBS&J
am fully aware that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge a belief. I agree to retain the design engineer or another professional engineer registered in Florida, to conduct on-site observation of construction, prepare a certification of completion of construction, and to review record drawings for adequacy. Further, I agree to provide an appropriate operat and maintenance manual for the facilities pursuant to Rule 62-604.500(4), F.A.C., and to retain a professional engineer registered in Florida examine (or to prepare if desired) the manual. I am fully aware that Department approval must be obtained before this project is placed into serv for any purpose other than testing for leaks and testing equipment operation.

Signed _____ Date _____
Name Frank Coggins Title Project Manager
*Attach a letter of authorization.

(2) Owner of Collection/Transmission System

I, the undersigned owner or authorized representative* of Sarasota County Utilities certify that we will be the Owner of this project after it is placed into service. I agree that we will operate and maintain this project in a manner that will comply with applicable Department rules. Also I agree that we will promptly notify the Department if we sell or legally transfer ownership of this project.

Signed _____ Date _____
Name MIKE MEHAN, PE Title General Manager- Sarasota County Utilities
Company Name Sarasota County
Address 1301 CATTLEMEN ROAD
City Sarasota State Florida Zip 34232
Telephone 941-650-2050 Fax _____ Email MMEHAN@SCGOV.NET
* *Attach a letter of authorization.*

(3) Wastewater Facility Serving Collection/Transmission System**

If this is a Notice of Intent to use a general permit, check here:

☑ The undersigned owner or authorized representative* of the CITY OF VENICE WWTP wastewater facility hereby certifies that the above referenced facility has the capacity to receive the wastewater generated by the proposed collection system; is in compliance with the capacity analysis report requirements of Rule 62-600.405, F.A.C.; is not under a Department order associated with effluent violations or the ability to treat wastewater adequately; and will provide the necessary treatment and disposal as required by Chapter 403, F.S., and applicable Department rules.

If this is an application for an individual permit, check one:

☐ The undersigned owner or authorized representative* of the _____ wastewater facility hereby certifies that the above referenced facility has and will have adequate reserve capacity to accept the flow from this project and will provide the necessary treatment and disposal as required by Chapter 403, F.S., and applicable Department rules.

☐ The undersigned owner or authorized representative* of the _____ wastewater facility hereby certifies that the above referenced facility currently does not have, but will have prior to placing the proposed project into operation, adequate reserve capacity to accept the flow from this project and will provide the necessary treatment and disposal as required by Chapter 403, F.S., and applicable Department rules.

Name of Treatment Plant Serving Project City of Venice Wastewater Treatment Plant
County Sarasota City Venice
DEP permit number FL 0041441 Expiration Date 4/24/05 Extended
Maximum monthly average daily flow over the last 12 month period 3.590 MGD Month(s) used feb-05
Maximum three-month average daily flow over the last 12 month period 3.259 MGD Month(s) used Dec.04, Jan 05
Current permitted capacity 6MGD MGD ☐ AADF ☐ MADF ☒ TMADF
Current outstanding flow commitments (including this project) against treatment plant capacity: Unknown

Signed _____ Date 7/5/05
Name R Christopher Sharek PE. Title Utilities Manager
Address 200 N. Warfield Avenue
City Venice State Florida Zip 34292
Telephone 941480-3333 ext 224 Fax 941486-2084 Email csharek@ci.venicefl.us
* *Attach a letter of authorization.*
** *If there is an intermediate collection system, a letter shall be attached certifying that the intermediate downstream collection system has adequate reserve capacity to accept the flow from this project.*

(4) Professional Engineer Registered in Florida

I, the undersigned professional engineer registered in Florida, certify that I am in responsible charge of the preparation and production of engineering documents for this project; that plans and specifications for this project have been completed; that I have expertise in the design of wastewater collection/transmission systems; and that, to the best of my knowledge and belief, the engineering design for this project complies with the requirements of Chapter 62-604, F.A.C.

(Affix Seal)

Signed

Date 6/16/05

Name John M. Eash, P.E. Florida Registration No. 46235
Company Name PBS&J
Address 2803 Fruitville Road, Suite 130
City Sarasota State Florida Zip 34237
Telephone 954-4036 Fax 951-1477 Email jmeash@pbsj.com
Portion of Project for Which Responsible Pipe Layout

(Affix Seal)

Signed

Date 6/16/05

Name Dave A. Weber, P.E. Florida Registration No. 29323
Company Name PBS&J
Address 2803 Fruitville Road, Suite 130
City Sarasota State Florida Zip 34237
Telephone 954-4036 Fax 951-1477 Email DAWeber@pbsj.com
Portion of Project for Which Responsible Pump Station

(Affix Seal)

Signed

Date

Name Florida Registration No.
Company Name
Address
City State Zip
Telephone Fax Email
Portion of Project for Which Responsible