Appendix F
Well Completion Reports

Rec'd 12/22/16

Part of certification of construction completion for Cell A-4

MEI
MORTENSEN ENGINEERING, INC.

October 29, 2010
Project No 10-10-07289

TO: RIPA & Associates, Inc.
1409 Tech Boulevard, Suite 1
Tampa, Florida 33619

Attention: Mr. Alan Taylor

SUBJECT: ***Well Abandonment Services***
Four (4) 2 to 4-Inch Diameter Monitoring Wells
West Pasco Class 1 Landfill Cell A-4
Pasco County, Florida

Dear Alan

In accordance with your request and direction, Mortensen Engineering, Inc (MEI) has completed the abandonment of four (4) 2 to 4-inch diameter monitoring wells (2MW-20D, MW-11A, MW-11B, and DMW-5) at the above referenced site, within the construction footprint of the new Ash Cell A-4, under SWFWMD direction

A copy of the completed well abandonment permits, rock variance, well grouting inspection reports, and well completion reports are attached. **A licensed water well contractor working for MEI, abandoned the subject monitoring wells under the direction of and in compliance with SWFWMD (Chapter 40D-3.531) and the FDEP (Rule 62-532.440, F.A.C.) well abandonment regulations.**

Thank you for this opportunity to be of service to you If you have any questions with this submittal, please do not hesitate to call us

Sincerely,
MORTENSEN ENGINEERING, INC.

Cary M. Richardson
Licensed Water Well Contractor
No 9371

CMR/418/07289b rep

Attachments: **Well Abandonment Permits**
Rock Variance
Well Grouting Inspection Reports
Well Completion Reports

6408 West Linebaugh Avenue Suite 111
Tampa, Florida 33625 (813) 908-5555 Fax (813) 908-3588
meltampa@tampabay rr com www meltampa com

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

☑ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River

CHECK BOX FOR APPROPRIATE DISTRICT ADDRESS ON BACK OF PERMIT FORM

THIS FORM MUST BE FILLED OUT COMPLETELY

The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegated county where applicable

Permit No **803570**
Florida Unique I D
Permit Stipulations Required (See attached)
04
62-524 Quad # **Q3521** Delineation #
CUP/WUP Application No
ABOVE THIS LINE - OFFICIAL USE ONLY

Fold at this line in order that address is visible through envelope window

1 **PASCO COUNTY** | **FACILITIES MANAGEMENT DEPT 7220** | **NEW PORT RICHEY FL** | **34653- 0000**
Owner, Legal Name of Entity if Corporation | *Address* | *City* | *Zip* | *Telephone Number*

2 **14230 HAYS RD, N/A**
Well Location _ Address, Road Name or number, City
Parcel # (Pin) **1724250000002000000**

3 **CARY M RICHARDSON** | **9371** | **(813) 908-5555**
Well Drilling Contractor | License No | Telephone No

6408 WEST LINEBAUGH AVE
Address

TAMPA | **FL** | **33625**
City | State | Zip

4 ____ 1/4 of ____ 1/4 of Section **25**
(smallest / biggest)
(Indicate Well on Chart)

5. Township **24** Range **17**

6 **PASCO**
County | Subdivision Name | Lot | Block | Unit

NW NE SW SE

7 Number of proposed wells **1** Check the use of well (See back of permit for additional choices) ____ Domestic Monitor (type)____
____ (See Back) Irrigation (Type) Public Water Supply (type) ____ (See Back) List Other **PLUGGED**
Distance from septic system____ ft Description of facility ____ Estimated start of construction date **3/22/2010**

8 Application for ____ New Construction ____ Repair/Modify **✓** Abandonment ____ (Reason for Abandonment)
Abandonment Reason = Construction of Ash Cell A-4

Date Stamp
Received Monday, March 22, 2010

9 Estimated Well Depth **47** Casing Depth ____ Screen Interval from ____ to ____
Casing Material [redacted] / PVC Casing Diameter **2** (smallest) Seal Material **Cement**

10. If applicable Proposed Grouting Interval
From **0** to **47** Seal Material **Cement**
From ____ to ____ Seal Material ____
From ____ to ____ Seal Material ____

Draw a map of well location and indicate well site with an "X" Identify known roads and landmarks provide distances between well and landmarks

North
West
East
South

11 Telescope Casing ___ or Liner ___ (check one) Diameter ____
Blk-Steel / Galvanized / PVC Other (specify)____

12 Method of Construction ____ Rotary ____ Cable Tool ____ Combination
____ Auger **✓** Other (specify:) **Plugged by approved method**

13. Indicate total No of wells on site **4** List number of unused wells on site **4**

14 Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? **✓** No ___ Yes
(IF YES, COMPLETE THE FOLLOWING) CUP/WUP No ____
District well I D No ____
Latitude **28° 22' 16.20"** Longitude **82° 33' 40.75"**
Data obtained from GPS ___ or map ___ or survey ___ *(map datum NAD 27__ NAD 83__)*

15 I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code and that a water use permit or artificial recharge permit, if needed has been or will be obtained prior to commencement of well construction I further certify that all information provided on this application is accurate and that I will obtain necessary approval from other federal state or local governments, if applicable I agree to provide a well completion report to the District within 30 days after drilling or the permit expiration whichever occurs first

I certify that I am the owner of the property, that the information provided is accurate and that I am aware of my responsibilities under Chapter 373, Florida Statutes to maintain or properly abandon this well, or I certify that I am the agent for the owner that the information provided is accurate and that I have informed the owner of his responsibilities as stated above Owner consents to personnel of the WMD or a representative access to the well site

Digitally Signed | **9371** | **Digitally Signed** | Date
Signature of Contractor | License No | Owner's or Agent's Signature

DO NOT WRITE BELOW THIS LINE - FOR OFFICIAL USE ONLY

Approval Granted By **Automatically Issued** Issue Date **3/22/2010** Hydrologist Approval ____ Initials

Owner Number ____ Fee Received $ **00** Receipt No ____ Check No ____

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD IT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL DRILLING OPERATIONS *This permit is valid for 90 days from the date of Issue*

FORM 41 10 - 410 (1) REV 12/04

WHITE ORIGINAL FILE
YELLOW DRILLING CONTRACTOR
PINK OWNER

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

☑ Southwest
☐ Northwest
☐ St Johns River
☐ South Florida
☐ Suwannee River

CHECK BOX FOR APPROPRIATE DISTRICT ADDRESS ON BACK OF PERMIT FORM

THIS FORM MUST BE FILLED OUT COMPLETELY

The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegated county where applicable

Permit No **803571**
Florida Unique I D
Permit Stipulations Required (See attached)
04
62-524 Quad # **Q3521** Delineation #
CUP/WUP Application No

ACCEPTANCE - NOT FINAL UNTIL SIGNED

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1 **PASCO COUNTY** | **FACILITIES MANAGEMENT DEPT 7220** | **NEW PORT RICHEY FL** | **34653- 0000**
Owner, Legal Name of Entity if Corporation | *Address* | *City* | *Zip* | *Telephone Number*

2 **14230 HAYS RD, N/A**
Well Location _ Address, Road Name or number, City
Parcel # (Pin) **1724250000002000000**

3 **CARY M RICHARDSON** | **9371** | **(813) 908-5555**
Well Drilling Contractor | License No | Telephone No

6408 WEST LINEBAUGH AVE
Address

TAMPA | **FL** | **33625**
City | State | Zip

4 ____ 1/4 of ____ 1/4 of Section **25**
(smallest / biggest)
(Indicate Well on Chart)

5. Township **24** Range **17**

6 **PASCO**
County | Subdivision Name | Lot | Block | Unit

NW NE SW SE

7 Number of proposed wells **1** Check the use of well (See back of permit for additional choices) ____ Domestic Monitor (type)____
____ Irrigation (Type) (See Back) Public Water Supply (type) ____ (See Back) List Other **PLUGGED**
Distance from septic system ____ ft Description of facility ____ Estimated start of construction date **3/22/2010**

8 Application for ____ New Construction ____ Repair/Modify ✓ Abandonment ____ (Reason for Abandonment)
Abandonment Reason = Construction of Ash Cell A-4

Date Stamp

9 Estimated Well Depth **43** Casing Depth ____ Screen Interval from ____ to ____
Casing Material Blk-Steel / Gal / PVC Casing Diameter **4** (smallest) Seal Material **Cement**

10 If applicable. Proposed Grouting Interval From **0** to **43** Seal Material **Cement**
From ____ to ____ Seal Material ____
From ____ to ____ Seal Material ____

Received: Monday, March 22, 2010

Draw a map of well location and indicate well site with an "X" identify known roads and landmarks provide distances betwen well and landmarks

North / West / East / South

11 Telescope Casing ____ or Liner ____ (check one) Diameter ____
Blk-Steel / Galvanized / PVC Other (specify)____

12 Method of Construction ____ Rotary ____ Cable Tool ____ Combination
____ Auger ✓ Other (specify) **Plugged by approved method**

13 Indicate total No of wells on site **4** List number of unused wells on site **4**

14 Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? ✓ No ____ Yes
(IF YES, COMPLETE THE FOLLOWING) CUP/WUP No ____

District well I D No ____

Latitude **28° 22' 17 96"** Longitude **82° 33' 48.96"**

Data obtained from GPS ____ or map ____ or survey ____ (*map datum NAD 27*__ *NAD 83*__)

15 I hereby certify that I will comply with the applicable rules of Title 40 Florida Administrative Code and that a water use permit or artificial recharge permit if needed has been or will be obtained prior to commencement of well construction I further certify that all information provided on this application is accurate and that I will obtain necessary approval from other federal state or local governments If applicable I agree to provide a well completion report to the District within 30 days after drilling or the permit expiration whichever occurs first

I certify that I am the owner of the property, that the information provided is accurate and that I am aware of my responsibilities under Chapter 373, Florida Statutes to maintain or properly abandon this well, or I certify that I am the agent for the owner, that the information provided is accurate, and that I have informed the owner of his responsibilities as stated above Owner consents to personnel of the WMD or a representative access to the well site

Digitally Signed | **9371** | **Digitally Signed** | Date
Signature of Contractor | License No | Owner's or Agent's Signature

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Approval Granted By: **Automatically Issued** Issue Date **3/22/2010** Hydrologist Approval ____ (Initials)

Owner Number ____ Fee Received $ **.00** Receipt No ____ Check No. ____

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FORM 41 10 - 410 (1) REV 12/04

WHITE ORIGINAL FILE
YELLOW DRILLING CONTRACTOR
PINK OWNER

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

☑ Southwest
☐ Northwest
☐ St Johns River
☐ South Florida
☐ Suwannee River

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Permit No **803572**
Florida Unique I D
Permit Stipulations Required (See attached)
04
62-524 Quad # **Q3521** Delineation #
CUP/WUP Application No.

ABOVE THIS LINE - FOR OFFICIAL USE ONLY

1 **PASCO COUNTY** | **FACILITIES MANAGEMENT DEPT 7220** | **NEW PORT RICHEY FL** | **34653- 0000**
Owner, Legal Name of Entity if Corporation | *Address* | *City* | *Zip* | *Telephone Number*

2 **14230 HAYS RD, N/A**
Well Location _ Address, Road Name or number, City
Parcel # (Pin) **1724250000002000000**

3 **CARY M RICHARDSON** | **9371** | **(813) 908-5555**
Well Drilling Contractor | License No | Telephone No

6408 WEST LINEBAUGH AVE
Address

TAMPA | **FL** | **33625**
City | State | Zip

4 ____ 1/4 of ____ 1/4 of Section **25**
(smallest) (biggest)
(Indicate Well on Chart)

5 Township **24** Range **17**

6 **PASCO**
County | Subdivision Name | Lot | Block | Unit

NW NE SW SE

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7 Number of proposed wells **1** Check the use of well (See back of permit for additional choices) ____ Domestic Monitor (type)____
____ (See Back) Irrigation (Type) Public Water Supply (type) ____ (See Back) List Other **PLUGGED**
Distance from septic system____ ft Description of facility ____ Estimated start of construction date **3/22/2010**

8 Application for ____ New Construction ____ Repair/Modify **✓** Abandonment ____ (Reason for Abandonment)
Abandonment Reason = Construction of Ash Cell A-4

Date Stamp

9 Estimated Well Depth **60** Casing Depth ____ Screen Interval from ____ to ____
Casing Material: Blk-Steel / Gal / PVC Casing Diameter **4** (smallest) Seal Material **Cement**

10 If applicable Proposed Grouting Interval From **0** to **60** Seal Material **Cement**
From ____ to ____ Seal Material ____
From ____ to ____ Seal Material ____

Received. Monday, March 22, 2010

Draw a map of well location and indicate well site with an "X" identify known roads and landmarks provide distances betwen well and landmarks

North
West
East
South

11 Telescope Casing ____ or Liner ____ (check one) Diameter ____
Blk-Steel / Galvanized / PVC Other (specify)____

12 Method of Construction. ____ Rotary ____ Cable Tool ____ Combination
____ Auger **✓** Other (specify) **Plugged by approved method**

13 Indicate total No of wells on site **4** List number of unused wells on site **4**

14 Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? **✓** No ___ Yes
(IF YES, COMPLETE THE FOLLOWING) CUP/WUP No ____
District well I D No ____
Latitude **28° 22' 17 94"** Longitude **82° 33' 48.68"**
Data obtained from GPS ___ or map ___ or survey ___ (*map datum NAD 27__ NAD 83__*)

15 I hereby certify that I will comply with the applicable rules of Title 40 Florida Administrative Code and that a water use permit or artificial recharge permit, if needed has been or will be obtained prior to commencement of well construction I further certify that all information provided on this application is accurate and that I will obtain necessary approval from other federal state or local governments If applicable, I agree to provide a well completion report to the District within 30 days after drilling or the permit expiration whichever occurs first

I certify that I am the owner of the property that the information provided is accurate and that I am aware of my responsibilities under Chapter 373, Florida Statutes to maintain or properly abandon this well, or I certify that I am the agent for the owner that the information provided is accurate and that I have informed the owner of his responsibilities as stated above. Owner consents to personnel of the WMD or a representative access to the well site

Digitally Signed | **9371** | **Digitally Signed**
Signature of Contractor | License No | Owner's or Agent's Signature | Date

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FORM 41 10 - 410 (1) REV 12/04

WHITE ORIGINAL FILE
YELLOW DRILLING CONTRACTOR
PINK OWNER

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

☑ Southwest
☐ Northwest
☐ St Johns River
☐ South Florida
☐ Suwannee River

CHECK BOX FOR APPROPRIATE DISTRICT ADDRESS ON BACK OF PERMIT FORM

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Permit No **803573**
Florida Unique I D
Permit Stipulations Required (See attached)
04
62-524 Quad # **Q3521** Delineation #
CUP/WUP Application No.

Fold at this line in order that address is visible through envelope window

1 **PASCO COUNTY** | **FACILITIES MANAGEMENT DEPT 7220** | **NEW PORT RICHEY FL** | **34653- 0000**
Owner, Legal Name of Entity if Corporation | *Address* | *City* | *Zip* | *Telephone Number*

2 **14230 HAYS RD, N/A**
Well Location _ Address, Road Name or number, City
Parcel # (Pin) **1724250000002000000**

3 **CARY M RICHARDSON** | **9371** | **(813) 908-5555**
Well Drilling Contractor | License No | Telephone No

6408 WEST LINEBAUGH AVE
Address

4 ____ smallest 1/4 of ____ biggest 1/4 of Section **25**
(Indicate Well on Chart)

TAMPA | **FL** | **33625**
City | State | Zip

5 Township **24** Range **17**

NW NE SW SE

6 **PASCO**
County | Subdivision Name | Lot | Block | Unit

7 Number of proposed wells **1** Check the use of well (See back of permit for additional choices) ____ Domestic Monitor (type)____
____ (See Back) Irrigation (Type) Public Water Supply (type) ____ (See Back) List Other **PLUGGED**
Distance from septic system____ ft Description of facility ____ Estimated start of construction date **3/22/2010**

8 Application for ____ New Construction ____ Repair/Modify ✓ Abandonment ____ (Reason for Abandonment)
Abandonment Reason = Construction of Ash Cell A-4

Date Stamp
Received Monday, March 22, 2010

9 Estimated Well Depth **151** Casing Depth ____ Screen Interval from ____ to____
Casing Material ~~XXXXXX~~ / ~~SXI~~ / PVC Casing Diameter **4** smallest Seal Material **Cement**

10. If applicable Proposed Grouting Interval From **0** to **151** Seal Material **Cement**
From ____ to ____ Seal Material ____
From ____ to ____ Seal Material ____

Draw a map of well location and indicate well site with an "X" identify known roads and landmarks provide distances between well and landmarks

North
West
East
South

11 Telescope Casing ____ or Liner ____ (check one) Diameter ____
Blk-Steel / Galvanized / PVC Other (specify)____

12 Method of Construction ____ Rotary ____ Cable Tool ____ Combination
____ Auger ✓ Other (specify) **Plugged by approved method**

13 Indicate total No of wells on site **4** List number of unused wells on site **4**

14 Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? ✓ No ___ Yes
(IF YES, COMPLETE THE FOLLOWING) CUP/WUP No ____
District well I D No ____
Latitude **28° 22' 14.83"** Longitude **82° 33' 52.96"**
Data obtained from GPS ___ or map ___ or survey ___ (*map datum NAD 27__ NAD 83__*)

15 I hereby certify that I will comply with the applicable rules of Title 40 Florida Administrative Code and that a water use permit or artificial recharge permit if needed has been or will be obtained prior to commencement of well construction I further certify that all information provided on this application is accurate and that I will obtain necessary approval from other federal state or local governments, if applicable I agree to provide a well completion report to the District within 30 days after drilling or the permit expiration whichever occurs first

I certify that I am the owner of the property that the information provided is accurate and that I am aware of my responsibilities under Chapter 373 Florida Statutes to maintain or properly abandon this well, or, I certify that I am the agent for the owner that the information provided is accurate and that I have informed the owner of his responsibilities as stated above Owner consents to personnel of the WMD or a representative access to the well site

Digitally Signed | **9371** | **Digitally Signed**
Signature of Contractor | License No | Owner's or Agent's Signature | Date

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Owner Number ____ Fee Received $ **00** Receipt No ____ Check No ____

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FORM 41 10 - 410 (1) REV 12/04

WHITE ORIGINAL FILE
YELLOW DRILLING CONTRACTOR
PINK OWNER

Cary Richardson

From: Eric Eshom [Eric Eshom@swfwmd state fl us]
Sent: Tuesday, March 23, 2010 3 10 PM
To: caryr@tampabay rr com
Subject RE Rock Variance

Cary, Sorry for the short delay regarding the rock variance I spoke with Mr. Tony Gilboy on this issue and he felt it would be OK to place the 10 feet of rock in the bottom of these wells and then grout them up to land surface

We can make up a Stip #19 for each of the permit numbers you have provided to us for abandonment purposes and FAX them to your office.

Let me know of your needs.

Eric Eshom, P.G.
Resource Regulation Dept./Well Const
Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604
Phone: (352) 796-7211 ext. 4448
FAX: (352) 754-6882
email eric.eshom@swfwmd.state.fl.us

From caryr@tampabay rr.com
Sent: Monday, March 22, 2010 3:18 PM
To Eric Eshom
Subject: Rock Variance

Eric,

I have three (3) 4-inch diameter monitoring wells located within 25-24-17 in Pasco County, which were associated with monitoring groundwater for a Pasco County landfill and are now needed to be abandoned because of the construction of a new ash cell The permits for the 3 monitoring wells are as follows 803573, 803572, and 803571 I am assuming they were constructed in a similar manor as to newly required wells that we will be constructing in the future.. ... with approximately 10 feet of an open hole section at the bottom of the well... . .therefore I am proposing to rock these open hole sections (approx 10 feet in depth) for all 3 wells and then grouting the rest from bottom to top. Please let me know if this is acceptable.

Thanks for your time

Cary M. Richardson
Project Manager

MORTENSEN ENGINEERING, INC.
6408 W Linebaugh Avenue, Suite 111
Tampa, FL 33625

(813) 908-5555 (office)
(813) 908-3588 (fax)
(813) 390-0767 (cell)
www.meitampa.com<http://www.meitampa com>
caryr@tampabay.rr.com<mailto:caryr@tampabay.rr com>

IMPORTANT NOTICE All E-mail sent to or from this address are public record and archived. The Southwest Florida Water Management District does not allow use of District equipment and E-mail facilities for non-District business purposes.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL GROUTING/ABANDONMENT FORM

GROUTING _____ ABANDONMENT X

Permit No 2022 11 01 Drilling Contractor Cory Kinn Inc License No _____

1/4 _____ 1/4 _____ SEC 25 TWP 31 RGE 17 Latitude 28 22 16.50 Longitude 82 30 31.50

Data obtained from GPS X or Map _____ or Survey _____. Datum NAD 27 _____ NAD 83 _____

Property Owner Jones Co.

Address of Well 17220 Hwy 50 Spring Hill

County Pasco QWIP No _____ WUP No _____

DID No _____

WELL SPECIFICATIONS

T D. of Well (to be verified by inspector) 47 Water Level 23

Casing: Double ____ or Single X, Diameters 2 ,Depth _____ Measured ____, Estimated ____, Logged ____

Material (check) Black Steel ___, Galv ___, PVC X, Other _____

Drill Method (check) Rotary ___, Cable Tool ___, Combination ___, Other _____

Was well information verified from driller's log? Yes ___ No ___ (Explain in comments)

Special Construction Stipulation? No ____ Yes ____, Stipulation No _____ Was Special Condition met? Yes ___ No ___

Old Permit? No ___ Yes ___ Permit No. _____ Well Depth _____ Casing Depth _____ Diameter _____

(For public supply) Approved Public Supply Plan match location? Yes ____ No ____

(For 62-524) Yes ____ No ____ Well location same as surveyed location? Yes ____ No ____

2nd 20 D

GROUT SPECIFICATIONS AND INSPECTION

Date	3-24-10			
BENTONITE INTERVAL				
Type (check) chips ___, pellets/tablets ___ Size 3/4 ___, 1/2 ___, 3/8 ___, Bentonite Slurry ___				
Estimated Bags of Bentonite				
Actual Bags of Bentonite				
** Special additives				
% of water with slurry				
CEMENT INTERVAL	47 To Surface			
Cement Type (check)	Type I ___ Type II ___ Type I / II X			
* Estimated No of sacks X /yards __	1			
Actual No of sacks X /yards __	1.5			
% Bentonite added				
Gallons water per sack X /yard __	5.5			
Grout Method (types)	Tremie			
Total Time on Site	2 h.			

COMMENTS

Observed 1 bag of cement to fill 47' w/ 23' water column. Cement Pre-mixed To surface was observed. JM

X Driller or ___ Contractor Signature _____ Date 3-24-10

Observer Signature _____ Date 3-24-10

Work was satisfactorily completed in accordance with 40D-3, F A C ? Yes X No __ Water samples taken? Yes __ No __

Compliance Tracking No _____

Authorized Signature _____ Date _____

(Not official unless signed by SWFWMD Supervisor or designated representative)

41.10-410(06/01)

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL GROUTING/ABANDONMENT FORM

GROUTING ____ ABANDONMENT X

Permit No [illegible] Drilling Contractor [illegible] License No [illegible]
1/4 ____ 1/4 ____ SEC [illegible] TWP [illegible] RGE [illegible] Latitude [illegible] Longitude [illegible]
Data obtained from: GPS X or Map ____ or Survey ____. Datum NAD 27 ____ NAD 83 ____
Property Owner [illegible]
Address of Well [illegible]
County ____ QWIP No ____ WUP No ____
DID No ____

WELL SPECIFICATIONS

T D of Well (to be verified by inspector) 45 Water Level ____
Casing Double ____ or Single X; Diameters 4" ,Depth ____. Measured ____, Estimated ____, Logged ____
Material (check) Black Steel ___, Galv ___, PVC X, Other ____
Drill Method (check) Rotary ___, Cable Tool ___, Combination ___, Other ____
Was well information verified from driller's log? Yes ___ No ___ (Explain in comments)
Special Construction Stipulation? No ____ Yes ____, Stipulation No. ____ Was Special Condition met? Yes ___ No ___
Old Permit? No ___ Yes ___ Permit No. ____ Well Depth ____ Casing Depth ____ Diameter ____
(For public supply) Approved Public Supply Plan match location? Yes ____ No ____
(For 62-524) Yes ____ No ____ Well location same as surveyed location? Yes ____ No ____

11A

GROUT SPECIFICATIONS AND INSPECTION

Date	3-24-10			
BENTONITE INTERVAL				
Type (check) chips ___, pellets/tablets ____ Size 3/4 ___, 1/2 ____, 3/8 ____, Bentonite Slurry ____				
Estimated Bags of Bentonite				
Actual Bags of Bentonite				
** Special additives				
% of water with slurry				
CEMENT INTERVAL	45 to Surface			
Cement Type (check)	Type I ___ Type II ___ Type I / II X			
* Estimated No of sacks X /yards ___	3			
Actual No of sacks X /yards ___	3.5			
% Bentonite added				
Gallons water per sack X /yard ___	5.5			
Grout Method (types)	Tremie			
Total Time on Site	2 hr			

COMMENTS

Observed well grout to 45' from bottom with Tremie pipe. Grout to surface was observed. Static level not reached. Does not meet surface seal requirements.

X Driller or ___ Contractor Signature [illegible] Date 3-24-10
Observer Signature [illegible] Date 3-24-10
Work was satisfactorily completed in accordance with 40D-3, F A C.? Yes X No ___ Water samples taken? Yes ___ No ___
Compliance Tracking No ____

Authorized Signature ____ Date ____
(Not official unless signed by SWFWMD Supervisor or designated representative)

41 10-410(06/01)

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL GROUTING/ABANDONMENT FORM

GROUTING ____ ABANDONMENT X

Permit No [illegible] Drilling Contractor [illegible] License No [illegible]
1/4 ____ 1/4 ____ SEC 25 TWP [illegible] RGE [illegible] Latitude 28 22 11.90 Longitude [illegible]
Data obtained from GPS ____ or Map ____ or Survey ____ Datum NAD 27 ____ NAD 83 ____
Property Owner Pasco County
Address of Well 17250 Hwy 52 Shady Hills
County Pasco QWIP No ____ WUP No ____
DID No. ____

WELL SPECIFICATIONS

T.D. of Well (to be verified by inspector) 60' Water Level ____
Casing Double ____ or Single X, Diameters 4" ,Depth ____ Measured ____ , Estimated ____ , Logged ____
Material (check) Black Steel ___ , Galv ___ , PVC X , Other ____
Drill Method (check) Rotary ___ , Cable Tool ___ , Combination ___ , Other ____
Was well information verified from driller's log? Yes ___ No ___ (Explain in comments)
Special Construction Stipulation? No ____ Yes ____ , Stipulation No ____ Was Special Condition met? Yes ___ No ___
Old Permit? No ___ Yes ___ Permit No ____ Well Depth ____ Casing Depth ____ Diameter ____
(For public supply) Approved Public Supply Plan match location? Yes ____ No ____
(For 62-524) Yes ____ No ____ Well location same as surveyed location? Yes ____ No ____

11 B

GROUT SPECIFICATIONS AND INSPECTION

Date	3-4-10			
BENTONITE INTERVAL				
Type (check) chips ___ , pellets/tablets ____ Size: 3/4 ___ , 1/2 ____ , 3/8 ____ , Bentonite Slurry ____				
Estimated Bags of Bentonite				
Actual Bags of Bentonite				
** Special additives				
% of water with slurry				
CEMENT INTERVAL	to surface			
Cement Type (check)	Type I ___ Type II ___ Type I / II X			
* Estimated No of sacks X /yards ___	42			
Actual No. of sacks 2 /yards ___	45			
% Bentonite added				
Gallons water per sack X /yard ___	55			
Grout Method (types)	Tremie			
Total Time on Site	2hr			

COMMENTS

Contractor is bringing in 4" pvc Tremie with Temporary Cap and will pump cement. Backfilling to surface was observed Tom

X Driller or ___ Contractor Signature [signature] Date 3-24-10
Observer Signature [signature] Date 3-24-10
Work was satisfactorily completed in accordance with 40D-3, F A C ? Yes X No ___ Water samples taken? Yes ___ No ___
Compliance Tracking No ____

Authorized Signature ____ Date ____
(Not official unless signed by SWFWMD Supervisor or designated representative)

41 10-410(06/01)

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
WELL GROUTING/ABANDONMENT FORM

GROUTING ____ ABANDONMENT X

Permit No [illegible] Drilling Contractor [illegible] License No [illegible]
1/4 ____ 1/4 ____ SEC 25 TWP [illegible] RGE [illegible] Latitude [illegible] Longitude [illegible]
Data obtained from GPS X or Map ____ or Survey ____ Datum NAD 27 ____ NAD 83 ____
Property Owner [illegible]
Address of Well 1425 Hope Rd Sarasota FL
County Pasco QWIP No ____ WUP No ____
DID No ____

WELL SPECIFICATIONS

T D of Well (to be verified by inspector) 151' Water Level ____
Casing Double ____ or Single X; Diameters 4" ,Depth ____ Measured ____ , Estimated ____ , Logged ____
Material (check) Black Steel ___ , Galv ___ , PVC X , Other ____
Drill Method (check) Rotary ___ , Cable Tool ___ , Combination ___ , Other ____
Was well information verified from driller's log? Yes ___ No ___ (Explain in comments)
Special Construction Stipulation? No ____ Yes ____ , Stipulation No ____ Was Special Condition met? Yes ___ No ___
Old Permit? No ___ Yes ___ Permit No ____ Well Depth ____ Casing Depth ____ Diameter ____
(For public supply) Approved Public Supply Plan match location? Yes ____ No ____
(For 62-524) Yes ____ No ____ Well location same as surveyed location? Yes ____ No ____

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GROUT SPECIFICATIONS AND INSPECTION

Date	3-24-10			
BENTONITE INTERVAL				
Type (check) chips ___ , pellets/tablets ____ Size 3/4 ___ , 1/2 ____ , 3/8 ____ ; Bentonite Slurry ____				
Estimated Bags of Bentonite				
Actual Bags of Bentonite				
** Special additives				
% of water with slurry				
CEMENT INTERVAL	151 TO Surface			
Cement Type (check)	Type I ___ Type II ___ Type I / II X			
* Estimated No of sacks X /yards ___	10.56			
Actual No of sacks X /yards ___	12			
% Bentonite added				
Gallons water per sack X /yard ___	5.5			
Grout Method (types)	Tremie			
Total Time on Site	2 hr			

COMMENTS

Well was backfilled to 4' below ground surface then filled with sand. Grout Poured Times To Surface was observed 3/24

X Driller or ___ Contractor Signature [illegible] Date 3-24-10
Observer Signature [illegible] Date 3-24-10
Work was satisfactorily completed in accordance with 40D-3, F A C ? Yes X No ___ Water samples taken? Yes ___ No ___
Compliance Tracking No ____

Authorized Signature ____ Date ____
(Not official unless signed by SWFWMD Supervisor or designated representative)

41 10-410(06/01)

WELL COMPLETION REPORT (Please complete in black ink or type)

PERMIT #. 803570.1 CUP/WUP# _____ DID# _____
Indicate the number of wells drilled/abandoned for this report· 1
Indicate the number of wells permitted but not drilled/abandoned that are being cancelled _____

WATER WELL CONTRACTOR'S
SIGNATURE Digitally Signed License # 9371
I certify that the information provided in this report is accurate and true

Grout	No. of Bags	From (ft.)	To (ft.)
Neat Cement	15	0	47
Bentonite			
(Other)			

WELL LOCATION County PASCO
_____ 1/4 of _____ 1/4 of Section 25, Township 24, Range 17
Latitude. 28° 22' 16.2", Longitude -82° 33' 40.75"

DATE STAMP
Mar 26 2010
Official Use Only

Sketch of well location on property

Give distances from septic tank and house, or other reference points

CHEMICAL ANALYSIS WHEN REQUIRED
Iron ____ppm Sulfate ____ppm
Chlorides. ____ ppm TDS _____mg/l
Conductivity _____umhos/cm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower· _____ Capacity _____ GPM _____
Pump Depth _____ft Intake Depth· _____ft.

Form LEG-R 005 00(10/05)

OWNER'S NAME PASCO COUNTY
COMPLETION DATE 03/24/2010 Florida Unique I D _____
Parcel # (Pin) 172425000002000000
WELL USE·
[ ] Public Supply [ ] Irrigation [ ] Domestic [ ] Monitor
[ ] Injection [X] Other PLUGGED

DRILL METHOD.
[ ] Rotary [ ] Cable Tool [ ] Combination
[ ] Jet [ ] Auger [X] Other Plugged

Measured Static Water Level 20 80 Measured Pumping Water Level _____
After ____Hours at _____GPM Measuring Pt (Describe) _____
Which is _____ft [ ] above [X] below land surface
Casing [ ] Black Steel [ ] Galvanized [X] PVC [ ] Other _____

[ ] Open Hole
[ ] Screen

Depth (feet)

Casing Diameter and Depth (ft)

From | To

DRILL CUTTINGS LOG
Examine cuttings every 20 ft or at formation changes Note cavities, depth to producing zones
Color | Grain Size | Type of Material

Diameter 2
From 0
To 47
Plugged by approved method

Diameter _____
From _____
To. _____

Liner [ ] or
Casing [ ]
Diameter _____
From _____
To _____

2MW20D

Driller's Name (print or type) Cary Richardson

WELL COMPLETION REPORT (Please complete in black ink or type)

PERMIT #: 803571 1 CUP/WUP#: _____ DID# _____
Indicate the number of wells drilled/abandoned for this report 1
Indicate the number of wells permitted but not drilled/abandoned that are being cancelled: _____

WATER WELL CONTRACTOR'S
SIGNATURE Digitally Signed License # 9371
I certify that the information provided in this report is accurate and true

Grout	No. of Bags	From (ft.)	To (ft.)
Neat Cement	3 5	0	43
Bentonite.			
(Other)			

WELL LOCATION: County PASCO
_____ 1/4 of _____ 1/4 of Section 25, Township 24, Range 17
Latitude 28° 22' 17 96", Longitude -82° 33' 48.96"

DATE STAMP
Mar 26 2010
Official Use Only

Sketch of well location on property
Give distances from septic tank and house, or other reference points

CHEMICAL ANALYSIS WHEN REQUIRED
Iron ____ppm Sulfate ____ppm
Chlorides ____ ppm TDS ____mg/l
Conductivity ____umhos/cm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower _____ Capacity: _____ GPM _____
Pump Depth _____ft Intake Depth _____ft

Form LEG-R 005 00(10/05)

OWNER'S NAME PASCO COUNTY
COMPLETION DATE 03/24/2010 Florida Unique I D _____
Parcel # (Pin) 172425000002000000
WELL USE:
[ ] Public Supply [ ] Irrigation [ ] Domestic [ ] Monitor
[ ] Injection [X] Other PLUGGED

DRILL METHOD
[ ] Rotary [ ] Cable Tool [ ] Combination
[ ] Jet [ ] Auger [X] Other Plugged

Measured Static Water Level 15 70 Measured Pumping Water Level _____
After ____Hours at _____GPM Measuring Pt (Describe) _____
Which is _____ft [ ] above [X] below land surface
Casing [ ] Black Steel [ ] Galvanized [X] PVC [ ] Other _____

[ ] Open Hole
[ ] Screen

Depth (feet)

Casing Diameter and Depth (ft)

From | To

DRILL CUTTINGS LOG
Examine cuttings every 20 ft or at formation changes Note cavities, depth to producing zones
Color | Grain Size | Type of Material

Diameter 4
From 0
To 43

Plugged by approved method

Diameter _____
From _____
To _____

Liner [ ] or Casing [ ]
Diameter _____
From _____
To _____

MW11A

Driller's Name (print or type) Cary Richardson

WELL COMPLETION REPORT (Please complete in black ink or type)

PERMIT #. 803572 1 CUP/WUP# _____ DID# _____
Indicate the number of wells drilled/abandoned for this report· 1
Indicate the number of wells permitted but not drilled/abandoned that are being cancelled _____

WATER WELL CONTRACTOR'S
SIGNATURE Digitally Signed License # 9371
I certify that the information provided in this report is accurate and true.

Grout	No. of Bags	From (ft.)	To (ft.)
Neat Cement·	4 5	0	60
Bentonite			
(Other)			

WELL LOCATION. County PASCO
_____ 1/4 of _____ 1/4 of Section 25, Township 24, Range 17
Latitude 28° 22' 17 94", Longitude -82° 33' 48.68"

DATE STAMP
Mar 26 2010
Official Use Only

Sketch of well location on property
Give distances from septic tank and house, or other reference points

CHEMICAL ANALYSIS WHEN REQUIRED
Iron ____ppm Sulfate ____ppm
Chlorides ____ ppm TDS ____ mg/l
Conductivity ____ umhos/cm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower· _____ Capacity· _____ GPM _____
Pump Depth _____ft Intake Depth _____ft

Form LEG-R 005 00(10/05)

OWNER'S NAME. PASCO COUNTY
COMPLETION DATE 03/24/2010 Florida Unique I D _____
Parcel # (Pin) 1724250000002000000
WELL USE·
[ ] Public Supply [ ] Irrigation [ ] Domestic [ ] Monitor
[ ] Injection [X] Other PLUGGED

DRILL METHOD
[ ] Rotary [ ] Cable Tool [ ] Combination
[ ] Jet [ ] Auger [X] Other Plugged

Measured Static Water Level 16 40 Measured Pumping Water Level _____
After ____Hours at ____GPM Measuring Pt (Describe) _____
Which is ____ft [ ] above [X] below land surface
Casing [ ] Black Steel [ ] Galvanized [X] PVC [ ] Other· _____

[ ] Open Hole
[ ] Screen

Depth (feet)

Casing Diameter and Depth (ft)

From | To

DRILL CUTTINGS LOG
Examine cuttings every 20 ft or at formation changes Note cavities, depth to producing zones
Color | Grain Size | Type of Material

Diameter· 4
From 0
To 60
Plugged by approved method

Diameter· _____
From _____
To _____

Liner [ ] or
Casing [ ]
Diameter· _____
From _____
To _____

MW11B

Driller's Name (print or type) Cary Richardson

WELL COMPLETION REPORT (Please complete in black ink or type)

PERMIT # 803573 1 CUP/WUP# _____ DID# _____
Indicate the number of wells drilled/abandoned for this report 1
Indicate the number of wells permitted but not drilled/abandoned that are being cancelled _____

WATER WELL CONTRACTOR'S
SIGNATURE Digitally Signed License # 9371
I certify that the information provided in this report is accurate and true

Grout	No. of Bags	From (ft.)	To (ft.)
Neat Cement	12	0	151
Bentonite			
(Other)			

WELL LOCATION County PASCO
_____ 1/4 of _____ 1/4 of Section 25, Township 24, Range 17
Latitude 28° 22' 14 83", Longitude -82° 33' 52.96"

DATE STAMP
Mar 26 2010
Official Use Only

Sketch of well location on property
Give distances from septic tank and house, or other reference points

CHEMICAL ANALYSIS WHEN REQUIRED
Iron ____ppm Sulfate ____ppm
Chlorides ____ ppm TDS ____ mg/l
Conductivity ____ umhos/cm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower _____ Capacity. _____ GPM _____
Pump Depth _____ft. Intake Depth _____ft

Form LEG-R 005 00(10/05)

OWNER'S NAME PASCO COUNTY
COMPLETION DATE 03/24/2010 Florida Unique I D _____
Parcel # (Pin) 1724250000002000000
WELL USE
[ ] Public Supply [ ] Irrigation [ ] Domestic [ ] Monitor
[ ] Injection [X] Other PLUGGED
DRILL METHOD
[ ] Rotary [ ] Cable Tool [ ] Combination
[ ] Jet [ ] Auger [X] Other Plugged

Measured Static Water Level 15 70 Measured Pumping Water Level _____
After ____Hours at _____GPM Measuring Pt (Describe) _____
Which is _____ft [ ] above [X] below land surface
Casing [ ] Black Steel [ ] Galvanized [X] PVC [ ] Other _____

[ ] Open Hole [ ] Screen	Depth (feet)		DRILL CUTTINGS LOG Examine cuttings every 20 ft or at formation changes Note cavities, depth to producing zones
Casing Diameter and Depth (ft)	From	To	*Color | Grain Size | Type of Material*
Diameter 4 From 0 To 151	Plugged by approved method		
Diameter _____ From _____ To _____			
Liner [ ] or Casing [ ] Diameter _____ From _____ To _____			

DMW5

Driller's Name (print or type) Cary Richardson

MEI
MORTENSEN ENGINEERING, INC.

October 29, 2010
Project No 10-10-07289

TO: RIPA & Associates, Inc
1409 Tech Boulevard, Suite 1
Tampa, Florida 33619

Attention: Mr. Alan Taylor

SUBJECT: ***Monitoring Well Installation Services***
Ten (10) 2 to 4-Inch Diameter Monitoring Wells
West Pasco Class 1 Landfill Cell A-4
Pasco County, Florida

Dear Alan

In accordance with your request and direction, Mortensen Engineering, Inc (MEI) has completed the installation of ten (10) 2 to 4-inch diameter monitoring wells at the above referenced site, under Camp Dresser & McKee, Inc (CDM) direction and guidance

A copy of the completed SWFWMD well construction permits, the SWFWMD well completion reports, the FDEP well completion reports, and MEI soil boring logs **A licensed water well contractor working for MEI, supervised the installation of the subject monitoring wells in compliance with CDM's Water Quality Monitoring Plan (December 2008) and email revision (April 2010).**

Thank you for this opportunity to be of service to you If you have any questions with this submittal, please do not hesitate to call us

Sincerely,
MORTENSEN ENGINEERING, INC.

Cary M Richardson
Licensed Water Well Contractor
No 9371

CMR/418/07289c rep

Attachments: **SWFWMD Well Construction Permits**
SWFWMD Well Completion Reports
FDEP Well Completion Reports
MEI Soil Boring Logs

6408 West Linebaugh Avenue Suite 111
Tampa Florida 33625 (813) 908-5555 Fax (813) 908-3588
meitampa@tampabay rr com www meitampa com

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR MODIFY OR ABANDON A WELL

☑ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River

CHECK BOX FOR APPROPRIATE DISTRICT ADDRESS ON BACK OF PERMIT FORM

THIS FORM MUST BE FILLED OUT COMPLETELY

The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegated county where applicable

Permit No 805238
Florida Unique I.D. _____
Permit Stipulations Required (See attached) 23, 39
62-524 Quad # 03621 Delineation # _____
CUP/WUP Application No. _____

1 PASCO COUNTY — 7530 OSTEEN RD — NEW PORT RICHEY FL 34655-5000
Owner, Legal Name of Entity if Corporation — Address — City — Zip — Telephone Number

2 14220 HATS RD, Spring Hill
Well Location - Address, Road Name or number, City
Parcel # (Pin) 17245500000020000000

3 GARY M RICHARDSON — 9371 — (813) 855-2555
Well Drilling Contractor — License No — Telephone No.

6408 WEST LINEBAUGH AVE
Address

TAMPA — FL — 33625
City — State — Zip

4 ___ feet of ___ feet of Section 25
Indicate Yes or Over

5 Township 24 Range 17

NW NE SW SE

6 PASCO
County — Subdivision Name — Lot — Block — Unit

Fold at this line & enter text address in window through envelope window

7. Number of proposed wells 1 Check the use of well (See back of permit for additional choices) _____ Domestic Monitor (type) ✓
Irrigation (Type) Public Water Supply (type) List Other

Distance from septic system _____ ft. Description of facility PASCO COUNTY Estimated start of construction date 6/1/2010

8 Application for ✓ New Construction _____ Repair/Modify _____ Abandonment _____ (Reason for Abandonment)

9 Estimated Well Depth 150 Casing Depth 140 Screen Interval from ___ to ___
Casing Material SCH 80 PVC / 40 / PVC Casing Diameter 4 inches Seal Material Cement

10 If applicable, Proposed Grouting Interval From 0 to 140 Seal Material Cement
From ___ to ___ Seal Material ___
From ___ to ___ Seal Material ___

Date Stamp
Received, Wednesday, May 26, 2010

Draw a map of the location and indicate well site with an "X" identify known roads and landmarks, provide distances between well and landmarks.

11 Telescope Casing ___ or Liner ___ (check one) Diameter ___
Blk-Steel / Galvanized / PVC Other (specify) _____

12 Method of Construction ✓ Rotary Cable Tool Combination
Auger Other (specify)

13 Indicate total No. of wells on site 0 List number of unused wells on site 0

14 Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? ✓ No ___ Yes
(If Yes COMPLETE the FOLLOWING) CUP/WUP No _____

District well I.D. No _____

Latitude 28° 22' 12.81" Longitude 82° 35' 47.12"

Data obtained from GPS ___ or map ___ or survey ___ (map datum NAD 27 ___ NAD 83 ___)

West — East — South

15 I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code and that a water use permit or affidavit meeting permit exemption will be obtained prior to commencement of well construction. I further certify that all information provided in the application is accurate and that all applicable requirements of the Water Use Permitting rules and other federal, state, and local permits, if applicable, will be met. I agree to properly grout and plug the well in accordance with Chapter 62-532, F.A.C., within 30 days after drilling or the permit expiration, whichever occurs first.

I certify that I am the owner of the property, that the information provided is accurate, and that I am aware of my responsibilities under Chapter 373, Florida Statutes, to maintain or properly abandon the well, and that I have the right to the water at the above location. I further certify that the information provided is accurate and that I have informed the owner of his responsibilities as stated above. Owner consents to personnel of the WMD or a representative access to the well site.

Digitally Signed — 9371
Signature of Contractor — License No.

Digitally Signed
Owner's or Agent's Signature — Date

Approval Granted By, JOSHUA MADDEN STATUS: ISSUED Issue Date 5/27/2010 Hydrologist Approval _____
Initials

Owner Number _____ Fee Received $ 50.00 Receipt No R10772226 Check No _____

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD. IT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL DRILLING OPERATIONS. *This permit is valid for 90 days from the date of issue*

WHITE ORIGINAL FILE
YELLOW DRILLING CONTRACTOR
PINK OWNER

FORM 41 10 410 (1) REV 12/04

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

- [x] Southwest
- [ ] Northwest
- [ ] St. Johns River
- [ ] South Florida
- [ ] Suwannee River

THIS FORM MUST BE FILLED OUT COMPLETELY

The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegated county where applicable

CHECK BOX FOR APPROPRIATE DISTRICT ADDRESS ON BACK OF PERMIT FORM

Permit No. **805240**

Florida Unique I.D. _____

Permit Stipulations Required (See attached)
23, 39

82-524 Quad # **G2621** Delineation # _____

CUP/WUP Application No. _____

1 **PASCO COUNTY** **7530 OSTEEN RD** **NEW PORT RICHEY FL** **34653- 6000**
Owner Legal Name of Entity if Corporation — Address — City — Zip — Telephone Number

2 **19326 HAYS RD, Hudson**
Well Location - Address, Road Name or number, City
Parcel # (Pin) **17242500000020000**

3 **GARY M RICHARDSON** **9371** **(813) 909-5505**
Well Drilling Contractor — License No — Telephone No

6429 WEST LINEBAUGH AVE
Address

TAMPA FL **33625**
City — State — Zip

4 ___ feet of ___ feet of Section **28**

5. Township **24** Range **17** (indicate West or East)

NW NE SW SE

6 **PASCO**
County — Subdivision Name — Lot — Block — Unit

7. Number of proposed wells **1** Check the use of well (See back of permit for additional choices) _____ Domestic Monitor (type) ✓ _____
Irrigation (Type) Public Water Supply (type) Test Other
(See Back)
Distance from septic system _____ ft. Description of facility **Pasco co landfill** Estimated start of construction date **5/28/2010**

8 Application for ✓ New Construction ___ Repair/Modify ___ Abandonment (Please fill in Abandonment)

Lab Stamp

9 Estimated Well Depth **77** Casing Depth **67** Screen Interval from **67**
Casing Material **[illegible]** / PVC Casing Diameter **4** (nominal) Seal Material **Cement**

10 If applicable Proposed Grouting Interval From **0** to **67** Seal Material **Cement**
From ___ to ___ Seal Material
From ___ to ___ Seal Material

Received: Wednesday, May 05, 2010

Draw a map of the location and indicate well site with an "X". Identify known roads and landmarks, provide distances between well and landmarks

North

11. Telescope Casing ___ or Liner ___ (check one) Diameter ___
Blk-Steel / Galvanized / PVC Other (specify) _____

12 Method of Construction ✓ Rotary Cable Tool Combination
Auger Other (specify:)

13 Indicate total No. of wells on site **0** Last number of unused wells on site **0**

14 Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive Water Use Permit (CUP/WUP) or CUP/WUP Application? ✓ No ___ Yes
IF YES, COMPLETE THE FOLLOWING: CUP/WUP No _____

District well I.D. No _____

Latitude **28° 22' 12.79"** Longitude **82° 35' 56.94"**

South

Data obtained from GPS ___ or map ___ or survey ___ (map datum NAD 27 ___ NAD 83 ___)

15 I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code and that a water use permit or exemption number, if required, has been obtained and prior to commencement of well construction. I further certify that all information provided in the application is accurate and that I will obtain necessary approval from other federal, state, or local governmental, if applicable. I agree to provide a well completion report to the District within 30 days after drilling or the permit expiration, whichever occurs first.

I certify that I am the owner of the property, that the information provided is accurate, and that I am aware of my responsibilities under Chapter 373, Florida Statutes. In addition to properly abandon this well, I certify that I am the agent for the owner, that the information provided is accurate, and that I have informed the owner of his responsibilities as stated above. Owner consents to personnel of the WMD or a representative access to the well site.

Digitally Signed — **9371** — Digitally Signed
Signature of Contractor — License No. — Owner's or Agent's Signature — Date

Approval Granted By: **JOSHUA MADDEN** **STATUS: ISSUED** Issue Date **5/7/2010** Hydrologist Approval _____
Initials

Owner Number _____ Fee Received. $ **60.00** Receipt No **IN10772210** Check No _____

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD. IT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL DRILLING OPERATIONS. *This permit is valid for 90 days from the date of issue*

FORM 40 10 .410)1 (REV 12/01

WHITE: ORIGINAL FILE
YELLOW: DRILLING CONTRACTOR
PINK: OWNER

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR MODIFY OR ABANDON A WELL

☑ Southwest
☐ Northwest
☐ St Johns River
☐ South Florida
☐ Suwannee River

THIS FORM MUST BE FILLED OUT COMPLETELY

The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegation county where applicable

CHECK BOX FOR APPROPRIATE DISTRICT ADDRESS ON BACK OF PERMIT FORM

Permit No. 805242
Florida Unique I.D. _____
Permit Stipulations Required (See attached)
23, 39
62-524 Quad # 03621 Delineation # _____
CUP/WUP Application No _____

1 PASCO COUNTY — 7320 OSTEEN RD — NEW PORT RICHEY FL — 34653- 6000
Owner (Legal Name of Entity if Corporation) — Address — City — Zip — Telephone Number

2 14236 HATH RD, N/A
Well Location _ Address, Road Name or number, City
Parcel # (Pin) 17242500000020000000

3 GARY M RICHARDSON — 9371 — (813) 909-5585
Well Drilling Contractor — License No — Telephone No

6406 WEST LINEBAUGH AVE
Address

TAMPA — FL — 33625
City — State — Zip

4 ___ feet of ___ feet of Section 25
Township (Plus or Minus) 5 Township 24 Range 17

NW NE SW SE

6 PASCO
County — Subdivision Name — Lot — Block — Unit

7. Number of proposed wells 1 Check the use of well (See back of permit for additional choices) _____ Domestic Monitor (type) ✓
Irrigation (Type) Public Water Supply (type) List Other
(Non-Ag) (Specify)
Distance from septic system _____ ft Description of facility _____ Estimated start of construction date 5/28/2010

8 Application to ✓ New Construction ___ Repair/Modify ___ Abandonment ___ (Reason for Abandonment) ___

9 Estimated Well Depth 42 Casing Depth 27 Screen Interval from 27 to 42
Casing Material: Steel / Galv / PVC Casing Diameter 2 (nominal) Seal Material Cement

10 If applicable: Proposed Grouting Interval From 0 to 21 Seal Material Cement
From 21 to 30 Seal Material Bentonite
From _____ to _____ Seal Material _____

Late Stamp
Received, Wednesday, May 26, 2010

11. Telescope Casing ___ or Liner ___ (check one) Diameter ___
Blk-Steel / Galvanized / PVC Other (specify) _____

Draw a map of well location and indicate well's site with at least three known roads and landmarks, provide distances between well and landmarks.

North

12 Method of Construction Rotary Cable Tool Combination
✓ Auger Other (specify)

13 Indicate total No. of wells on site 0 List number of unused wells on site 0

West East

14 Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive Water Use Permit (CUP/WUP) or CUP/WUP Application? ✓ No ___ Yes
If YES COMPLETE THE FOLLOWING: CUP/WUP No _____

District well I.D. No. _____

Latitude 28° 22' 12.69" Longitude 82° 33' 27.14"

Data obtained from GPS ___ or map ___ or survey ___ (map datum NAD 27 ___ NAD 83 ___)

South

15 I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code and that a water use permit or affidavit exempting permit, if required, has been obtained prior to commencement of well construction. I further certify that all information provided on this application is accurate and that all work will meet necessary approval from other federal, state or local governments, if applicable. I agree to provide a well completion report to the District within 30 days after drilling or the permit expiration, whichever occurs first.

I certify that I am the owner of the property, that the information provided is accurate, and that I am aware of my responsibilities under Chapter 373, Florida Statutes, to maintain or properly abandon the well. I certify that I am the agent for the owner that the information provided is accurate, and that I have informed the owner of his responsibilities as stated above. Owner consents to personnel of the WMD or its representative access to the well site.

Digitally Signed — 9371 — Digitally Signed
Signature of Contractor — License No — Owner's or Agent's Signature — Date

Approval Granted By: Automatically Issued — Issue Date 5/26/2010 — Hydrologist Approval _____ (Initials)

Owner Number _____ Fee Received $ 50.00 Receipt No.: IN10772382 Check No _____

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD. IT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL DRILLING OPERATIONS. *This permit is valid for 90 days from the date of issue*

FORM 41-10 410(1) REV 10/04

WHITE — ORIGINAL FILE
YELLOW — DRILLING CONTRACTOR
PINK — OWNER

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY OR ABANDON A WELL

☑ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River

CHECK BOX FOR APPROPRIATE DISTRICT ADDRESS ON BACK OF PERMIT FORM

THIS FORM MUST BE FILLED OUT CORRECTLY

The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegated county where applicable

Permit No. 805243
Florida Unique I.D. _____
Permit Stipulations Required (See attached) 23, 39
82-524 Quad # 09821 Delineation # _____
CUP/WUP Application No _____

1 PASCO COUNTY — 7320 OSTEEN RD — NEW PORT RICHEY FL — 34653- 6000
Owner Legal Name of Entity if Corporation — *Address* — *City* — *Zip* — *Telephone Number*

2 14230 HAYS RD N/A
Well Location _ Address, Road Name or number City
Parcel # (Pin) 17243500000020000000

3 GARY M RICHARDSON — 9371 — (813) 909-9509
Well Drilling Contractor — License No — Telephone No

6406 WEST LINEBAUGH AVE
Address

TAMPA — FL — 33625
City — State — Zip

4 ___ ¼ of ___ ¼ of Section 25
Indicate Well on Chart

5 Township 24 Range 17

NW NE SW SE

6 PASCO
County — Subdivision Name — Lot — Block — Unit

7 Number of proposed wells 1 Check the use of well (Use box at right for additional choices) _____ Domestic Monitor (type) ✓
Irrigation (Type) Public Water Supply (type) Other
(Non-Potable) (Potable)
Distance from septic system _____ ft. Description of facility _____ Estimated start of construction date 5/28/2010

8 Application for ✓ New Construction ___ Repair/Modify ___ Abandonment ___ (Reason for Abandonment)

Lab Stamp

8 Estimated Well Depth 18 Casing Depth 8 Screen Interval from 8 to 18
Casing Material: ~~Blk-Steel~~ / ~~Galv~~ / PVC Casing Diameter 2 (inches) Seal Material Cement

10 If applicable Proposed Grouting Interval From ___ to ___ Seal Material ___
From ___ to ___ Seal Material ___
From ___ to ___ Seal Material ___

Received, Wednesday, May 26, 2010

Draw a map of well location and indicate any site with an "X". Identify known roads and landmarks, provide distances between well and landmarks.

North

11 Telescope Casing ___ or Liner ___ (check one) Diameter ___
Blk-Steel / Galvanized / PVC Other (specify) ___

12 Method of Construction ___ Rotary ___ Cable Tool ___ Combination
✓ Auger Other (specify:)

13 Indicate total No of wells on site 0 . Last number of unused wells on site 0

West East

14 Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? ✓ No ___ Yes
IF YES COMPLETE THE FOLLOWING: CUP/WUP No ___

District well I.D. No. ___

Latitude 28° 22' 12.75" Longitude 82° 33' 47.20"

South

Data obtained from GPS ___ or map ___ or survey ___ (map datum NAD 27 ___ NAD 83 ___)

15 I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code and that a water use permit or additional variance permit, if required, has been or will be obtained prior to commencement of well construction. I further certify that all information provided in this application is accurate and that I will obtain necessary approval from other federal, state or local governments, if applicable. I agree to provide a well completion report to the District within 30 days after drilling or the permit expiration, whichever occurs first.

Digitally Signed — 9371
Signature of Contractor — License No

I certify that I am the owner of the property, that the information provided is accurate and that I am aware of my responsibilities under Chapter 373, Florida Statutes, to maintain or properly abandon the well. I certify that I am the agent for the owner that the information provided is accurate and that I have informed the owner of his responsibilities as stated above. Owner consents to permanent of the WMD or a representative access to the well site.

Digitally Signed
Owner's or Agent's Signature — Date

Approval Granted By: Automatically Issued — Issue Date 5/26/2010 — Hydrologist Approval ___ (Initials)

Owner Number ___ Fee Received $ 69.00 Receipt No IN1077266 Check No ___

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD. IT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL DRILLING OPERATIONS. *This permit is valid for 90 days from the date of issue.*

WHITE ORIGINAL FILE
YELLOW DRILLING CONTRACTOR
PINK OWNER

FORM 41-10 .410(1) REV 12-01

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR MODIFY OR ABANDON A WELL

- [x] Southwest
- [ ] Northwest
- [ ] St Johns River
- [ ] South Florida
- [ ] Suwannee River

CHECK BOX FOR APPROPRIATE DISTRICT ADDRESS ON BACK OF PERMIT FORM

THIS FORM MUST BE FILLED IT COMPLETELY

The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegated county where applicable

Permit No. 806582

Florida Unique ID

Permit Stipulations Required (See attached)

33, 39

52-524 Quad # 03821 Delineation #

CUP/WUP Application No

1 PASCO COUNTY — FACILITIES MANAGEMENT DEPT 7530 NEW PORT RICHEY FL 34653- 8000
Owner, (Legal) Name of Entity if Corporation — Address — City — Zip — Telephone Number

2 15220 HAYS RD W/A
Well Location _ Address, Road Name or number City
Parcel # (Pin) 17242500000020000

3 GARY M RICHARDSON — 9371 — (813) 909-9585
Well Drilling Contractor — License No — Telephone No

4 ___ feet of ___ feet of Section 25

5 Township 24 Range 17

6 PASCO
County — Subdivision Name — Lot — Block — Unit

NW NE SW SE

Fold at this line a color that address is visible through envelope window

7. Number of proposed wells 3 Check the use of well (Enter # of proposed wells in parenthesis) ___ Domestic Monitor (type) ✓ ___
Irrigation (Type) Public Water Supply (type) List Other
Distance from septic system ___ ft Description of facility ___ Estimated start of construction date 8/3/2010

8 Application for ✓ New Construction ___ Repair/Modify ___ Abandonment ___ (Reason for Abandonment)

Date Stamp

9 Estimated Well Depth 20 Casing Depth 10 Screen Interval from 10 to 20
Casing Material [redacted] / PVC Casing Diameter 2 (inches) Seal Material Cement

10 If applicable Proposed Grouting Interval From ___ to ___ Seal Material ___
From ___ to ___ Seal Material ___
From ___ to ___ Seal Material ___

Received: Thursday, July 29, 2010

Draw a map of well location and indicate well site with an "X". Identify known roads and landmarks, provide distances between well and landmarks

North

11. Telescope Casing ___ or Liner ___ (check one) Diameter ___
Blk-Steel / Galvanized / PVC Other (specify) ___

12 Method of Construction Rotary Cable Tool Combination
✓ Auger Other (specify:)

13 Indicate total No of wells on site 3 List number of unused wells on site 2

14 Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? ✓ No ___ Yes
IF YES COMPLETE THE FOLLOWING CUP/WUP No ___

District well I D No ___

Latitude 28° 22' 26.19" Longitude 82° 33' 43.11"

Data obtained from GPS ___ or map ___ or survey ___ (map datum NAD 27 ___ NAD 83 ___)

West East South

16 I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code and that a water use permit or additional water use permit, if required, has been or will be obtained prior to commencement of well construction. I further certify that all information provided on this application is accurate and that I will obtain necessary approval from other federal, state or local governmental, if applicable. I agree to provide a final completion report to the District within 30 days after drilling or the permit expiration, whichever occurs first.

Digitally Signed — 9371
Signature of Contractor — License No

I certify that I am the owner of the property, that the information provided is accurate, and that I am aware of my responsibilities under Chapter 373, Florida Statutes, for operation of property, other than well, for which I am the agent for the owner, that the information provided is accurate, and that I have informed the owner of his responsibilities as stated above. Owner consents to personnel of the WMD or a representative access to the well site.

Digitally Signed
Owner's or Agent's Signature — Date

Approval Granted By, Automatically Issued — Issue Date 7/29/2010 — Hydrologist Approval (Initials)

Owner Number. ___ Fee Received $ 69.50 Receipt No IN10000948 Check No ___

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD IT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL DRILLING OPERATIONS This permit is valid for 90 days from the date of issue

FORM 41 10 410 1 | REV 12-01

WHITE ORIGINAL FILE
YELLOW DRILLING CONTRACTOR
PINK OWNER

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR MODIFY OR ABANDON A WELL

☑ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River

THIS FORM MUST BE FILLED OUT COMPLETELY

The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegated county when applicable

CHECK BOX FOR APPROPRIATE DISTRICT ADDRESS ON BACK OF PERMIT FORM

Permit No. 806614
Florida Unique ID
Permit Stipulations Required (See attached)
23, 39
62-524 Quad # 03621 Delineation #
CUP/WUP Application No

1 PASCO COUNTY — FACILITIES MANAGEMENT DEPT 7530 — NEW PORT RICHEY FL — 34653- 5000
Owner, Legal Name of Entity if Corporation — Address — City — Zip — Telephone Number

2 19329 HAYS RD, N/A
Well Location _ Address, Road Name or number City
Parcel # (Pin) 17265000000020000000

3 GARY M RICHARDSON — 9371 — (813) 909-5935
Well Drilling Contractor — License No — Telephone No

6408 WEST LINEBAUGH AVE
Address

TAMPA — FL — 33625
City — State — Zip

4 ___ ft of ___ ft of Section 25
(Indicate West or East)

5 Township 24 Range 17

NW NE SW SE

6 PASCO
County — Subdivision Name — Lot — Block — Unit

7. Number of proposed wells 3 Check the use of well (See back of permit for additional choices) ___ Domestic Monitor (Type) ✓
Irrigation (Type) Public Water Supply (type) List Other
(Note Water)

Distance from septic system ___ ft. Description of facility ___ Estimated start of construction date 8/2/2010

8 Application for ✓ New Construction ___ Repair/Modify ___ Abandonment (Reason for Abandonment)

Lot Stamp

9 Estimated Well Depth 47 Casing Depth 27 Screen Interval from 27 to 47
Casing Material [illegible] / PVC Casing Diameter 2 (inches) Seal Material Cement

10 If applicable, Proposed Grouting Interval From ___ to ___ Seal Material ___
From ___ to ___ Seal Material ___
From ___ to ___ Seal Material ___

Received: Friday, July 30, 2010

Draw a map of well location and indicate well's site with at least 2 distinct known roads and landmarks, provide distances between well and landmarks

North

11 Telescope Casing ___ or Liner ___ (check one) Diameter ___
Blk-Steel / Galvanized / PVC Other (specify) ___

12 Method of Construction ✓ Rotary Cable Tool Combination
Auger Other (specify)

13 Indicate total No. of wells on site 4 Last number of unused wells on site 0

West East

14 Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive Water Use Permit (CUP/WUP) or CUP/WUP Application? ✓ No ___ Yes
IF YES COMPLETE THE FOLLOWING: CUP/WUP No ___

District well I.D. No. ___

Latitude 28° 22' 28.15" Longitude 82° 33' 53.56"

Date obtained from GPS ___ or map ___ or survey ___ (map datum) NAD 27 ___ NAD 83 ___)

South

15 I hereby certify that all work will comply with the applicable rules of Title 40, Florida Administrative Code and that a water use permit or affidavit (where applicable) has been or will be obtained prior to commencement of well construction. I further certify that all information provided on this application is accurate and that all obtainable necessary approval from other federal, state, or local governmental, if applicable, I agree to provide a copy of this application report to the District within 30 days after drilling or the permit expiration, whichever occurs first.

I certify that I am the owner of the property, that the information provided is accurate, and that all owners of the property/business under Chapter 373, Florida Statutes, by execution of property, sign this form and I certify that I am the agent for the owner that the information provided is accurate, and that I have informed the owner of all responsibilities as stated above. Owner consents to personnel of the WMD or a representative access to the well site.

Digitally Signed — 9371
Signature of Contractor — License No

Digitally Signed
Owner's or Agent's Signature — Date

Approval Granted By: Automatically Issued — Issue Date 7/30/2010 — Hydrologist Approval ___ (Initials)

Owner Number ___ Fee Received: $ 60.00 Receipt No IN1093537 Check No ___

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD. IT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL DRILLING OPERATIONS. *This permit is valid for 90 days from the date of issue*

WHITE ORIGINAL FILE
YELLOW DRILLING CONTRACTOR
PINK OWNER

FORM 41 10 410 (1) REV 12-08

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

STIPULATION NUMBER 39 - WELL AND DRILLHOLE ABANDONMENT

It will be the **water well contractor's** responsibility to have any incomplete well or drillhole attempted under this permit properly abandoned

Any incomplete or abandoned well or drillhole as described in 40D-3, Florida Administrative Code (F A C), shall be abandoned as follows

A The well shall be examined from land surface to the original depth of construction for debris or obstructions (any debris or obstruction shall be removed prior to abandonment)

B The well shall be plugged from bottom to top by an approved method of grouting with either Portland neat cement grout or an approved Bentonite product as specified in 40D-3 517 2 (b), F A C

It will be the **owner's** responsibility to have any well completed under this permit, or any existing well on this property, which meets the definition of an abandoned well as defined in Chapter 40D-3 021(1), F A C , properly abandoned in accordance with Chapter 40D-3 531, F A C

It will be the **owner's** responsibility to have any inactive well, which does not meet the above criteria and is no threat to the water resource properly capped in an air and watertight manner with a threaded, welded or bolted cover or valve If the pump and well seal are water tight, the pump may be left in place If practical, a protective cover two (2) feet in height shall be placed around the well casing

A Wells with a diameter of six (6) inches or more without pumping equipment shall have the well casing extended a minimum of two (2) feet above land surface

B Wells with a diameter of less than six (6) inches without pumping equipment shall be securely set in a concrete slab and have either the well casing extended a minimum height of two (2) feet above land surface or a protective cover centered over the well casing The concrete slab shall be a minimum of four (4) inches in thickness by two (2) feet by two (2) feet square The protective cover shall be set in the concrete slab and extend a minimum of two (2) feet above land surface

In flood prone areas all wells shall extend a minimum of one (1) foot above the 100 year flood elevation, if practical, in accordance with Chapter 40D-3 521(4), F A C

Any plugging operations shall be permitted separately from this permit by the Southwest Florida Water Management District and be witnessed by a designated District representative Arrangement for a District representative shall be made with the local District Field Services office a minimum of 24 hours in advance of these operations A District representative will be available for assignment during normal working hours (8 00 AM - 4 30 PM), Monday through Friday Travel time must be taken into consideration Exemptions may be made for extenuating circumstances For scheduling, please contact the Field Service Supervisor in the Brooksville office at (352) 796-7211

Permit Number 805238

(11/03)

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

STIPULATION # 23 - TEST/MONITOR WELL

A This well is to be used as a test/monitor well If it is to be converted into a production well, an additional permit shall be obtained

B There shall be no injection of fluids into the monitor well without prior written approval from the Florida Department of Environmental Protection (DEP) or the District This includes, but is not limited to treated ground water, or the introduction of microbes for in-situ aquifer restoration

C The well shall be constructed in such a manner to prevent the unauthorized interchange of water between different water bearing zones (i e , breaching of confining beds, clays or hardpan intervals) as per Chapter 62-532.500 (2)(C), Florida Administrative Code (F A C)

D Prior written approval from the District shall be required if the monitor well will be pumped for use in hydrodynamic control and/or contaminant plume management, if quantities reach or exceed requirement of a Water Use Permit

E All monitor wells constructed at any facility which has been designated as a ground water contamination site, or a possible ground water contamination site, shall adhere to the construction standards set forth by the DEP and other applicable rules

F In the event the well needs to be abandoned, an abandonment permit shall be obtained prior to commencing with abandonment operations

G An observer from our Regulation Department is required on all abandonments to ensure compliance with applicable 40D-3 regulations Please contact the Field Service Supervisor in the Brooksville Office at (352) 796-7211 for additional information

Permit No. 805238

COPY TO OWNER TO BE PROVIDED BY CONTRACTOR

(11/03)

WELL COMPLETION REPORT (Please complete in black ink or type)

PERMIT #: 805238 1 CUP/WUP# _____ DID# _____
Indicate the number of wells drilled/abandoned for this report 1
Indicate the number of wells permitted but not drilled/abandoned that are being cancelled _____

WATER WELL CONTRACTOR'S
SIGNATURE Digitally Signed License # 9371
I certify that the information provided in this report is accurate and true

Grout	No. of Bags	From (ft.)	To (ft.)
Neat Cement.	36	0	146
Bentonite			
(Other)			

WELL LOCATION County PASCO
_____ 1/4 of _____ 1/4 of Section 25, Township 24, Range 17
Latitude 28° 22' 12.81", Longitude. -82° 33' 47 12"

DATE STAMP
Jul 08 2010
Official Use Only

Sketch of well location on property

Give distances from septic tank and house, or other reference points

CHEMICAL ANALYSIS WHEN REQUIRED
Iron ____ppm Sulfate ____ppm
Chlorides ____ ppm TDS ____mg/l
Conductivity ____umhos/cm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower _____ Capacity _____ GPM _____
Pump Depth _____ft Intake Depth _____ft

Form LEG-R 005 00(10/05)

OWNER'S NAME PASCO COUNTY
COMPLETION DATE 06/07/2010 Florida Unique I D _____
Parcel # (Pin) 1724250000002000000
WELL USE
[ ] Public Supply [ ] Irrigation [ ] Domestic [ ] Monitor
[ ] Injection [X] Other OBSERVATION OR MONITOR WE
DRILL METHOD
[X] Rotary [ ] Cable Tool [ ] Combination
[ ] Jet [ ] Auger [ ] Other _____

Measured Static Water Level 17 00 Measured Pumping Water Level _____
After ____Hours at _____GPM Measuring Pt (Describe) _____
Which is _____ft [ ] above [X] below land surface
Casing [ ] Black Steel [ ] Galvanized [X] PVC [ ] Other _____

[X] Open Hole
[ ] Screen

Casing Diameter and Depth (ft)
Diameter 4
From 0
To 146

Diameter _____
From _____
To _____

Liner [ ] or Casing [ ]
Diameter _____
From _____
To _____

Depth (feet) From	To	DRILL CUTTINGS LOG Examine cuttings every 20 ft or at formation changes Note cavities, depth to producing zones — Color | Grain Size | Type of Material
0	12	tan fine sand
12	14 5	brown very fine sand and clay
14 5	24	gray very fine sandy clay
24	25	white very fine limestone
25	35	gray very fine sandy clay
35	37	tan very fine sand and clay
37	40 5	gray very fine sandy clay
37	156	white very fine limestone

4MW-27D

Driller's Name (print or type) Charles Ralle

WELL COMPLETION REPORT (Please complete in black ink or type)

PERMIT # 805240 1 CUP/WUP# _____ DID# _____
Indicate the number of wells drilled/abandoned for this report 1
Indicate the number of wells permitted but not drilled/abandoned that are being cancelled _____

WATER WELL CONTRACTOR'S
SIGNATURE Digitally Signed License # 9371
I certify that the information provided in this report is accurate and true

Grout	No of Bags	From (ft.)	To (ft.)
Neat Cement	58 5	0	67
Bentonite			
(Other)			

WELL LOCATION County PASCO
_____ 1/4 of _____ 1/4 of Section 25, Township 24, Range 17
Latitude 28° 22' 12.79", Longitude -82° 33' 46 94"

DATE STAMP
Jul 08 2010
Official Use Only

Sketch of well location on property

Give distances from septic tank and house, or other reference points

CHEMICAL ANALYSIS WHEN REQUIRED
Iron ____ppm Sulfate ____ppm
Chlorides ____ ppm TDS ____mg/l
Conductivity ____umhos/cm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower _____ Capacity _____ GPM _____
Pump Depth _____ft Intake Depth. _____ft

Form LEG-R 005 00(10/05)

OWNER'S NAME PASCO COUNTY
COMPLETION DATE 06/11/2010 Florida Unique I D _____
Parcel # (Pin) 1724250000002000000
WELL USE
[ ] Public Supply [ ] Irrigation [ ] Domestic [ ] Monitor
[ ] Injection [X] Other OBSERVATION OR MONITOR WE

DRILL METHOD
[X] Rotary [ ] Cable Tool [ ] Combination
[ ] Jet [ ] Auger [ ] Other _____

Measured Static Water Level 17 40 Measured Pumping Water Level _____
After ____Hours at _____GPM Measuring Pt (Describe) _____
Which is _____ft [ ] above [X] below land surface
Casing [ ] Black Steel [ ] Galvanized [X] PVC [ ] Other _____

[X] Open Hole
[ ] Screen

Casing Diameter and Depth (ft)

Diameter 4
From 0
To 67

Diameter _____
From _____
To _____

Liner [ ] or Casing [ ]
Diameter _____
From _____
To _____

Depth (feet)

From	To	DRILL CUTTINGS LOG (Color | Grain Size | Type of Material)
0	11	brown fine sand
11	14 5	brown very fine sand and clay
14 5	18	white very fine limestone
18	77	white very fine limestone

4MW-27

Driller's Name (print or type) Charles Ralle

WELL COMPLETION REPORT (Please complete in black ink or type)

PERMIT # 805242 1 CUP/WUP# _____ DID# _____
Indicate the number of wells drilled/abandoned for this report 1
Indicate the number of wells permitted but not drilled/abandoned that are being cancelled _____

WATER WELL CONTRACTOR'S
SIGNATURE Digitally Signed License # 9371
I certify that the information provided in this report is accurate and true

Grout	No. of Bags	From (ft.)	To (ft)
Neat Cement.	3	0	23
Bentonite	1	23	25
(Other)			

WELL LOCATION: County PASCO
_____ 1/4 of _____ 1/4 of Section 25, Township 24, Range 17
Latitude 28° 22' 12 83", Longitude -82° 33' 47 14"

DATE STAMP
Jul 08 2010
Official Use Only

Sketch of well location on property
Give distances from septic tank and house, or other reference points

CHEMICAL ANALYSIS WHEN REQUIRED
Iron ____ppm Sulfate ____ppm
Chlorides ____ ppm TDS ____mg/l
Conductivity ____umhos/cm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower _____ Capacity. _____ GPM _____
Pump Depth _____ft Intake Depth _____ft

Form LEG-R 005 00(10/05)

OWNER'S NAME PASCO COUNTY
COMPLETION DATE 06/24/2010 Florida Unique I D _____
Parcel # (Pin) 172425000002000000
WELL USE
[ ] Public Supply [ ] Irrigation [ ] Domestic [ ] Monitor
[ ] Injection [X] Other OBSERVATION OR MONITOR WE

DRILL METHOD
[X] Rotary [ ] Cable Tool [ ] Combination
[ ] Jet [ ] Auger [ ] Other _____

Measured Static Water Level 18 00 Measured Pumping Water Level _____
After ____Hours at _____GPM Measuring Pt (Describe) _____
Which is _____ft [ ] above [X] below land surface
Casing [ ] Black Steel [ ] Galvanized [X] PVC [ ] Other _____

[ ] Open Hole
[X] Screen

Casing Diameter and Depth (ft)
Diameter 2
From 0
To 23
Diameter 2
From 23
To 25
Liner [ ] or Casing [ ]
Diameter _____
From _____
To _____

Depth (feet)

From	To	DRILL CUTTINGS LOG Examine cuttings every 20 ft or at formation changes Note cavities, depth to producing zones
		Color | Grain Size | Type of Material
0	11 5	brown fine sand
11 5	17 5	white very fine sandy clay
17 5	24	gray very fine sand, limestone and clay
24	42	white very fine clayey limestone

2MW-27D

Driller's Name (print or type) Charles Ralle

WELL COMPLETION REPORT (Please complete in black ink or type)

PERMIT # 805243.1 CUP/WUP# _____ DID# _____
Indicate the number of wells drilled/abandoned for this report 1
Indicate the number of wells permitted but not drilled/abandoned that are being cancelled _____

WATER WELL CONTRACTOR'S
SIGNATURE Digitally Signed License # 9371
I certify that the information provided in this report is accurate and true

Grout	No. of Bags	From (ft.)	To (ft.)
Neat Cement	0 5	0	4
Bentonite			
(Other)	4	4	8

WELL LOCATION County PASCO
_____ 1/4 of _____ 1/4 of Section 25, Township 24, Range 17
Latitude 28° 22' 12 75", Longitude -82° 33' 47 2"

DATE STAMP
Jul 08 2010
Official Use Only

Sketch of well location on property

Give distances from septic tank and house, or other reference points

CHEMICAL ANALYSIS WHEN REQUIRED
Iron ____ppm Sulfate ____ppm
Chlorides ____ ppm TDS ____ mg/l
Conductivity _____umhos/cm
[ ] Lab Test [ ] Field Test Kit

Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower _____ Capacity _____ GPM _____
Pump Depth _____ft Intake Depth. _____ft

Form LEG-R 005 00(10/05)

OWNER'S NAME PASCO COUNTY
COMPLETION DATE 06/25/2010 Florida Unique I D _____
Parcel # (Pin) 172425000002000000
WELL USE
[ ] Public Supply [ ] Irrigation [ ] Domestic [ ] Monitor
[ ] Injection [X] Other OBSERVATION OR MONITOR WE
DRILL METHOD
[ ] Rotary [ ] Cable Tool [ ] Combination
[ ] Jet [X] Auger [ ] Other _____

Measured Static Water Level _____ Measured Pumping Water Level _____
After ____Hours at _____GPM Measuring Pt (Describe) _____
Which is _____ft [ ] above [X] below land surface
Casing [ ] Black Steel [ ] Galvanized [X] PVC [ ] Other _____

[ ] Open Hole
[X] Screen

Casing Diameter and Depth (ft)

Depth (feet) — From / To

DRILL CUTTINGS LOG
Examine cuttings every 20 ft or at formation changes Note cavities, depth to producing zones
Color | Grain Size | Type of Material

Diameter 2
From 0
To 4

0 12 brown fine sand
12 18 orange very fine sandy clay

Diameter 2
From 4
To 8

Liner [ ] or Casing [ ]
Diameter _____
From _____
To _____

2MW-27S

Driller's Name (print or type) Charles Rallie

Water Management Information System

WCP File of Record Report

Southwest Florida Water Management District

Permit #	806582	**Status:**	Completed	**Application Received:**	07/29/2010
Reference #		**Type**	New Construction	**Issue Date:**	07/29/2010
Well Use:	MONITOR	**Const. Date:**	08/02/2010	**Suspense Date:**	10/27/2010

Owner Information: 806582

Name	Address	City/State/Zip
PASCO COUNTY	FACILITIES MANAGEMENT DEPT 7220	NEW PORT RICHEY FL 34653

Contractor Information: 806582

Name	License #	Address	City/State/Zip
CARY M RICHARDSON	9371	6408 WEST LINEBAUGH AVE SUITE 111	

Well Information 806582

Diameter	Drill Method	Depth	Primary Casing	Material	Casing Depth	Casing Diameter	Contamination
2	AUGER	20		Cement	10		

Well Location: 806582

Site ID	Address	City/State	Lat	Long	Section	Township	Range
762635	14230 HAYS RD	N/A	28° 22" 26 18'	82° 33" 43 11'	25	24	17
762636	14230 HAYS RD	N/A	28° 22" 26 18'	82° 33" 43 11'	25	24	17
762637	14230 HAYS RD	N/A	28° 22" 26 18'	82° 33" 43 11'	25	24	17

Well Completion Information. 806582

Completion Date	Static Water Level	Finish Code	Drill Method	Status	Well Depth	Casing Diameter	Casing From Depth	Casing To Depth	Casing Material
08/04/2010	19	SCREENED OR SANDPOINT	AUGER	Complete	26	2		11	PVC
08/20/2010	0	SCREENED OR SANDPOINT	AUGER	Complete	15	2		5	PVC
08/27/2010	0	SCREENED OR SANDPOINT	AUGER	Complete	20	2		10	PVC

Report Generation Date October 08, 2010

Permit #	806614	**Status**	Completed	**Application Received:**	07/30/2010
Reference #.		**Type:**	New Construction	**Issue Date:**	07/30/2010
Well Use	MONITOR	**Const. Date**	08/02/2010	**Suspense Date**	10/28/2010

Owner Information 806614

Name	Address	City/State/Zip
PASCO COUNTY	FACILITIES MANAGEMENT DEPT 7220	NEW PORT RICHEY FL 34653

Contractor Information: 806614

Name	License #	Address	City/State/Zip
CARY M RICHARDSON	9371	6408 WEST LINEBAUGH AVE SUITE 111	

Well Information: 806614

Diameter	Drill Method	Depth	Primary Casing	Material	Casing Depth	Casing Diameter	Contamination
2	ROTARY	47		Cement	37		

Well Location 806614

Site ID	Address	City/State	Lat	Long	Section	Township	Range
762680	14230 HAYS RD	N/A	28° 22" 26 15'	82° 33" 43 56'	25	24	17
762681	14230 HAYS RD	N/A	28° 22" 26 15'	82° 33" 43 56'	25	24	17
762682	14230 HAYS RD	N/A	28° 22" 26 15'	82° 33" 43 56'	25	24	17

Well Completion Information: 806614

Completion Date	Static Water Level	Finish Code	Drill Method	Status	Well Depth	Casing Diameter	Casing From Depth	Casing To Depth	Casing Material
08/03/2010	19	SCREENED OR SANDPOINT	ROTARY	Complete	44	2		34	PVC
08/19/2010	16	SCREENED OR SANDPOINT	ROTARY	Complete	32	2		17	PVC
08/26/2010	22	SCREENED OR SANDPOINT	ROTARY	Complete	52	2		42	PVC

DEP Form # 62-520.900(3)
Form Title MONITORING WELL COMPLETION REPORT
Effective Date July 12, 2009
DEP Application No _____
(Filled in by DEP)

Florida Department of Environmental Protection

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

MONITORING WELL COMPLETION REPORT

PART I: GENERAL INFORMATION

Well ID	Site Name		Well Install Date
2MW-24S	West Pasco Landfill Ash Cell A-4		8/4/2010
Facility ID	Alternate ID	FLUWID #	WMD Permit #
			806582
Well Purpose ☐ Background ☐ Intermediate ☐ Compliance ☒ Other (explain) Detection			
Latitude (to nearest 0 1 seconds)		Longitude (to nearest 0 1 seconds)	
28 22' 21 6"		82 33' 43 4"	
Latitude and Longitude collection method ☐ DGPS ☐ AGPS ☐ MAP ☐ ZIPCODE ☐ DPHO ☐ UNKNOWN ☒ OTHER			

PART II: WELL CONSTRUCTION DETAILS

Contractor Name	Contractor License #
Cary M Richardson	9371
Company Name	
Mortensen Engineering, Inc	
Construction Method ☒ Hollow Stem Auger ☐ Solid Stem Auger ☐ Water/Mud Rotary ☐ Air Rotary ☐ Cable Tool ☐ Direct Push ☐ Sonic ☐ Other (describe)	Aquifer Monitored Shallow
Top of Casing Elevation (NVGD or NAVD) 50 4 (+/-) NGVD	Ground Surface Elevation (NVGD or NAVD) 47 4 (+/-) NGVD

Casing

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To
PVC	2-inch		0	11

Screen

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To	Slot Size
PVC	2-inch		11	26	.006

Annular

Material including additives for sealant	Size of Material	Amount (# of bags)	Depth (ft) From	Depth (ft) To	Installation Method
Silica Sand	30/45	9	9	26	Surface Pore
Silica Sand	30/65	1	7	9	Surface Pore
Portland Cement	-	1	0	7	Tremie

PART III WELL DEVELOPMENT DETAILS

Well Development Date 9/1/2010	Well Development Method ☐ Surge/Pump ☒ Pump ☐ Compressed Air ☐ Other (explain)		
Development Duration 80 Minutes			
Pumping Rate 0 18 gal/min	Maximum Drawdown Dry	Well Purged Dry ☒ yes ☐ no	Pumping Condition ☐ continuous ☒ intermittent

Turbidity (if Measured)		Stabilized Water Level (BLS)
Start 198NTU	End 8 46NTU	N/A

Water appearance (color and odor) at start of development
Brown
No odor detected
Water appearance (color and odor) at end of development
Clear
No odor detected

Report Prepared By	Date
Cary M Richardson	10/13/2010
Title/Company	License #
Project Manager Mortensen Engineering, Inc	9371

PLEASE ATTACH BORING LOG

Remarks
See Attached boring log labeled 2MW-24D.

DEP Form # 62-520.900(3)
Form Title MONITORING WELL COMPLETION REPORT
Effective Date July 12, 2009
DEP Application No _____
(Filled in by DEP)

Florida Department of Environmental Protection

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

MONITORING WELL COMPLETION REPORT

PART I GENERAL INFORMATION

Well ID	Site Name		Well Install Date
2MW-24D	West Pasco Landfill Ash Cell A-4		8/2 & 8/3/2010
Facility ID	Alternate ID	FLUWID #	WMD Permit #
			806614
Well Purpose ☐ Background ☐ Intermediate ☐ Compliance ☒ Other (explain) Detection			
Latitude (to nearest 0 1 seconds)		Longitude (to nearest 0 1 seconds)	
28 22' 21 6"		82 33' 43 6"	
Latitude and Longitude collection method ☐ DGPS ☐ AGPS ☐ MAP ☐ ZIPCODE ☐ DPHO ☐ UNKNOWN ☒ OTHER			

PART II. WELL CONSTRUCTION DETAILS

Contractor Name				Contractor License #
Cary M Richardson				9371
Company Name				
Mortensen Engineering, Inc				
Construction Method ☐ Hollow Stem Auger ☐ Solid Stem Auger ☒ Water/Mud Rotary ☐ Air Rotary ☐ Cable Tool ☐ Direct Push ☐ Sonic ☐ Other (describe)				Aquifer Monitored Intermediate
Top of Casing Elevation (NVGD or NAVD)			Ground Surface Elevation (NVGD or NAVD)	
50 6 (+/-) NGVD			47 4 (+/-) NGVD	

Casing

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To
PVC	2-inch		0	34

Screen

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To	Slot Size
PVC	2-inch		34	44	006

Annular

Material including additives for sealant	Size of Material	Amount (# of bags)	Depth (ft) From	Depth (ft) To	Installation Method
Silica Sand	30/45	6	32	44	Tremie
Bentonite Chips	3/8-inch	0 5	30	32	Tremie
Portland Cement	-	5 5	0	30	Tremie

PART III WELL DEVELOPMENT DETAILS

Well Development Date	Well Development Method ☐ Surge/Pump ☒ Pump ☐ Compressed Air ☐ Other (explain)		
9/1/2010			
Development Duration			
21 Minutes			
Pumping Rate	Maximum Drawdown	Well Purged Dry	Pumping Condition
2 5 gal/min	0 5 feet	☐ yes ☒ no	☒ continuous ☐ intermittent

Turbidity (if Measured)		Stabilized Water Level (BLS)
Start 1 2NTU	End 0 73NTU	19 4 feet

Water appearance (color and odor) at start of development
Clear
No odor detected
Water appearance (color and odor) at end of development
Clear
No odor detected

Report Prepared By	Date
Cary M Richardson	10/13/2010
Title/Company	License #
Project Manager Mortensen Engineering, Inc	9371

PLEASE ATTACH BORING LOG

Remarks
See Attached boring log labeled 2MW-24D

DEP Form # 62-520.900(3)
Form Title MONITORING WELL COMPLETION REPORT
Effective Date July 12, 2009
DEP Application No _____
(Filled in by DEP)

Florida Department of Environmental Protection

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

MONITORING WELL COMPLETION REPORT

PART I GENERAL INFORMATION

Well ID	Site Name		Well Install Date
2MW-25S	West Pasco Landfill Ash Cell A-4		8/20/2010
Facility ID	Alternate ID	FLUWID #	WMD Permit #
			806582
Well Purpose ☐ Background ☐ Intermediate ☐ Compliance ☒ Other (explain) Detection			
Latitude (to nearest 0 1 seconds)		Longitude (to nearest 0 1 seconds)	
28 22' 21 7"		82 33' 49 7"	
Latitude and Longitude collection method ☐ DGPS ☐ AGPS ☐ MAP ☐ ZIPCODE ☐ DPHO ☐ UNKNOWN ☒ OTHER			

PART II WELL CONSTRUCTION DETAILS

Contractor Name				Contractor License #
Cary M Richardson				9371
Company Name				
Mortensen Engineering, Inc				
Construction Method ☒ Hollow Stem Auger ☐ Solid Stem Auger ☐ Water/Mud Rotary ☐ Air Rotary ☐ Cable Tool ☐ Direct Push ☐ Sonic ☐ Other (describe)				Aquifer Monitored Shallow
Top of Casing Elevation (NVGD or NAVD)		Ground Surface Elevation (NVGD or NAVD)		
47 8 (+/-) NGVD		45 3 (+/-) NGVD		

Casing

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To
PVC	2-inch		0	4 5

Screen

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To	Slot Size
PVC	2-inch		4 5	14 5	006

Annular Space

Material including additives for sealant	Size of Material	Amount (# of bags)	Depth (ft.) From	Depth (ft.) To	Installation Method
Silica Sand	30/45	6	2 5	14 5	Surface Pore
Silica Sand	30/65	1	1 5	2 5	Surface Pore
Portland Cement	-	0 5	0	1 5	Tremie

PART III. WELL DEVELOPMENT DETAILS

Well Development Date	Well Development Method ☐ Surge/Pump ☐ Pump ☐ Compressed Air ☒ Other (explain)		
9/1/2010			
Development Duration	DRY		
DRY			
Pumping Rate	Maximum Drawdown	Well Purged Dry	Pumping Condition
DRY	DRY	☐ yes ☐ no	☐ continuous ☐ intermittent

Turbidity (if Measured)		Stabilized Water Level (BLS)
Start	End	

Water appearance (color and odor) at start of development
DRY
Water appearance (color and odor) at end of development
DRY

Report Prepared By	Date
Cary M Richardson	10/13/2010
Title/Company	License #
Project Manager Mortensen Engineering, Inc	9371

PLEASE ATTACH BORING LOG

Remarks
See Attached boring log labeled 2MW-25D.

DEP Form # 62-520.900(3)
Form Title MONITORING WELL COMPLETION REPORT
Effective Date July 12, 2009
DEP Application No _____
(Filled in by DEP)

Florida Department of Environmental Protection

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

MONITORING WELL COMPLETION REPORT

PART I: GENERAL INFORMATION

Well ID	Site Name		Well Install Date
2MW-25D	West Pasco Landfill Ash Cell A-4		8/18 & 8/19/2010
Facility ID	Alternate ID	FLUWID #	WMD Permit #
			806614
Well Purpose ☐ Background ☐ Intermediate ☐ Compliance ☒ Other (explain) Detection			
Latitude (to nearest 0 1 seconds)		Longitude (to nearest 0 1 seconds)	
28 22' 21 7"		82 33' 49 5"	
Latitude and Longitude collection method ☐ DGPS ☐ AGPS ☐ MAP ☐ ZIPCODE ☐ DPHO ☐ UNKNOWN ☒ OTHER			

PART II. WELL CONSTRUCTION DETAILS

Contractor Name				Contractor License #
Cary M. Richardson				9371
Company Name				
Mortensen Engineering, Inc				
Construction Method ☐ Hollow Stem Auger ☐ Solid Stem Auger ☒ Water/Mud Rotary ☐ Air Rotary ☐ Cable Tool ☐ Direct Push ☐ Sonic ☐ Other (describe)				Aquifer Monitored Intermediate
Top of Casing Elevation (NVGD or NAVD)		Ground Surface Elevation (NVGD or NAVD)		
47 9 (+/-) NGVD		45.2 (+/-) NGVD		

Casing

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To
PVC	2-inch		0	17

Screen

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To	Slot Size
PVC	2-inch		17	32	006

Annular Space

Material including additives for sealant	Size of Material	Amount (# of bags)	Depth (ft) From	Depth (ft) To	Installation Method
Silica Sand	30/45	7	16	32	Tremie
Bentonite Chips	3/8-inch	0 5	14	16	Tremie
Portland Cement	-	3	0	14	Tremie

PART III WELL DEVELOPMENT DETAILS

Well Development Date	Well Development Method		
9/1/2010	☐ Surge/Pump ☒ Pump ☐ Compressed Air ☐ Other (explain)		
Development Duration			
69 Minutes			
Pumping Rate	Maximum Drawdown	Well Purged Dry	Pumping Condition
2 0 gal/min	0 5 feet	☐ yes ☒ no	☒ continuous ☐ intermittent

Turbidity (if Measured)		Stabilized Water Level (BLS)
Start 2 44NTU	End 0 64NTU	16 7 feet

Water appearance (color and odor) at start of development
Clear
No odor detected
Water appearance (color and odor) at end of development
Clear
No odor detected

Report Prepared By	Date
Cary M Richardson	10/13/2010
Title/Company	License #
Project Manager Mortensen Engineering, Inc	9371

PLEASE ATTACH BORING LOG

Remarks
See Attached boring log labeled 2MW-25D

DEP Form # 62-520 900(3)
Form Title MONITORING WELL COMPLETION REPORT
Effective Date July 12, 2009
DEP Application No _____
(Filled in by DEP)

Florida Department of Environmental Protection

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

MONITORING WELL COMPLETION REPORT

PART I. GENERAL INFORMATION

Well ID	Site Name		Well Install Date
2MW-26S	West Pasco Landfill Ash Cell A-4		8/27/2010
Facility ID	Alternate ID	FLUWID #	WMD Permit #
			806582
Well Purpose ☐ Background ☐ Intermediate ☐ Compliance ☒ Other (explain) Detection			
Latitude (to nearest 0 1 seconds)		Longitude (to nearest 0 1 seconds)	
28 22' 18 8"		82 33' 52 7"	
Latitude and Longitude collection method ☐ DGPS ☐ AGPS ☐ MAP ☐ ZIPCODE ☐ DPHO ☐ UNKNOWN ☒ OTHER			

PART II WELL CONSTRUCTION DETAILS

Contractor Name	Contractor License #
Cary M Richardson	9371
Company Name	
Mortensen Engineering, Inc	
Construction Method ☒ Hollow Stem Auger ☐ Solid Stem Auger ☐ Water/Mud Rotary ☐ Air Rotary ☐ Cable Tool ☐ Direct Push ☐ Sonic ☐ Other (describe)	Aquifer Monitored Shallow
Top of Casing Elevation (NVGD or NAVD) 54 2 (+/-) NGVD	Ground Surface Elevation (NVGD or NAVD) 51 1 (+/-) NGVD

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To
PVC	2-inch		0	10

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To	Slot Size
PVC	2-inch		10	20	006

Material including additives for sealant	Size of Material	Amount (# of bags)	Depth (ft) From	Depth (ft) To	Installation Method
Silica Sand	30/45	8	8	20	Surface Pore
Silica Sand	30/65	1	7	8	Surface Pore
Portland Cement	-	1	0	7	Tremie

PART III. WELL DEVELOPMENT DETAILS

Well Development Date	Well Development Method ☐ Surge/Pump ☐ Pump ☐ Compressed Air ☒ Other (explain)		
9/1/2010			
Development Duration	DRY		
DRY			
Pumping Rate	Maximum Drawdown	Well Purged Dry	Pumping Condition
DRY	DRY	☐ yes ☐ no	☐ continuous ☐ intermittent

Turbidity (if Measured)		Stabilized Water Level (BLS)
Start	End	DRY

Water appearance (color and odor) at start of development
DRY
Water appearance (color and odor) at end of development
DRY

Report Prepared By	Date
Cary M Richardson	10/13/2010
Title/Company	License #
Project Manager Mortensen Engineering, Inc	9371

PLEASE ATTACH BORING LOG

Remarks
See Attached boring log labeled 2MW-26D

DEP Form # 62-520.900(3)
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Florida Department of Environmental Protection

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

MONITORING WELL COMPLETION REPORT

PART I GENERAL INFORMATION

Well ID	Site Name		Well Install Date
2MW-26D	West Pasco Landfill Ash Cell A-4		8/25 & 8/26/2010
Facility ID	Alternate ID	FLUWID #	WMD Permit #
			806614
Well Purpose ☐ Background ☐ Intermediate ☐ Compliance ☒ Other (explain) Detection			
Latitude (to nearest 0 1 seconds)		Longitude (to nearest 0 1 seconds)	
28 22' 18 9"		82 33' 52 7"	
Latitude and Longitude collection method ☐ DGPS ☐ AGPS ☐ MAP ☐ ZIPCODE ☐ DPHO ☐ UNKNOWN ☒ OTHER			

PART II. WELL CONSTRUCTION DETAILS

Contractor Name					Contractor License #
Cary M Richardson					9371
Company Name					
Mortensen Engineering, Inc					
Construction Method ☐ Hollow Stem Auger ☐ Solid Stem Auger ☒ Water/Mud Rotary ☐ Air Rotary ☐ Cable Tool ☐ Direct Push ☐ Sonic ☐ Other (describe)					Aquifer Monitored Intermediate
Top of Casing Elevation (NVGD or NAVD)			Ground Surface Elevation (NVGD or NAVD)		
54 1 (+/-) NGVD			51 2 (+/-) NGVD		
Casing					
Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To	
PVC	2-inch		0	42	
Screen					
Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To	Slot Size
PVC	2-inch		42	52	006
Annulus					
Material including additives for sealant	Size of Material	Amount (# of bags)	Depth (ft) From	Depth (ft) To	Installation Method
Silica Sand	30/45	4	40	52	Tremie
Bentonite Chips	3/8-inch	1	37	40	Tremie
Portland Cement	-	6	0	37	Tremie

PART III WELL DEVELOPMENT DETAILS

Well Development Date	Well Development Method ☐ Surge/Pump ☒ Pump ☐ Compressed Air ☐ Other (explain)		
9/3/2010			
Development Duration			
68 Minutes			
Pumping Rate	Maximum Drawdown	Well Purged Dry	Pumping Condition
2 5 gal/min	4 9 feet	☐ yes ☒ no	☐ continuous ☒ intermittent

Turbidity (if Measured)		Stabilized Water Level (BLS)
Start 2 18NTU	End 4 35NTU	26 4 feet

Water appearance (color and odor) at start of development
Clear
No odor detected
Water appearance (color and odor) at end of development
Clear
No odor detected

Report Prepared By	Date
Cary M Richardson	10/13/2010
Title/Company	License #
Project Manager Mortensen Engineering, Inc	9371

PLEASE ATTACH BORING LOG

Remarks
See Attached boring log labeled 2MW-26D

DEP Form # 62-520 900(3)
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Effective Date July 12, 2009
DEP Application No _____
(Filled in by DEP)

Florida Department of Environmental Protection

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

MONITORING WELL COMPLETION REPORT

PART I· GENERAL INFORMATION

Well ID	Site Name		Well Install Date
2MW-27S	West Pasco Landfill Ash Cell A-4		6/25/2010
Facility ID	Alternate ID	FLUWID #	WMD Permit #
			805243
Well Purpose ☒ Background ☐ Intermediate ☐ Compliance ☐ Other (explain)			
Latitude (to nearest 0 1 seconds) 28 22' 12 8"		Longitude (to nearest 0 1 seconds) 82 33' 47 4"	
Latitude and Longitude collection method ☐ DGPS ☐ AGPS ☐ MAP ☐ ZIPCODE ☐ DPHO ☐ UNKNOWN ☒ OTHER			

PART II. WELL CONSTRUCTION DETAILS

Contractor Name					Contractor License #
Cary M Richardson					9371
Company Name Mortensen Engineering, Inc					
Construction Method ☒ Hollow Stem Auger ☐ Solid Stem Auger ☐ Water/Mud Rotary ☐ Air Rotary ☐ Cable Tool ☐ Direct Push ☐ Sonic ☐ Other (describe)					Aquifer Monitored Shallow
Top of Casing Elevation (NVGD or NAVD) 50 4 (+/-) NGVD			Ground Surface Elevation (NVGD or NAVD) 47 5 (+/-) NGVD		

Casing

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To
PVC	2-inch		0	8

Screen

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To	Slot Size
PVC	2-inch		8	18	006

Annular

Material including additives for sealant	Size of Material	Amount (# of bags)	Depth (ft) From	Depth (ft) To	Installation Method
Silica Sand	30/45	6	6	18	Surface Pore
Silica Sand	30/65	1	4	6	Surface Pore
Portland Cement	-	1	0	6	Tremie

PART III WELL DEVELOPMENT DETAILS

Well Development Date DRY	Well Development Method ☐ Surge/Pump ☐ Pump ☐ Compressed Air ☒ Other (explain)		
Development Duration DRY	DRY		
Pumping Rate DRY	Maximum Drawdown DRY	Well Purged Dry ☐ yes ☐ no	Pumping Condition ☐ continuous ☐ intermittent
Turbidity (if Measured) Start	End		Stabilized Water Level (BLS) N/A
Water appearance (color and odor) at start of development.			
Water appearance (color and odor) at end of development			

Report Prepared By	Date
Cary M Richardson	10/13/2010
Title/Company	License #
Project Manager Mortensen Engineering, Inc	9371

PLEASE ATTACH BORING LOG

Remarks
See Attached boring log labeled 4MW-27D

DEP Form # 62 520.900(3)
Form Title MONITORING WELL COMPLETION REPORT
Effective Date July 12, 2009
DEP Application No _____
(Filled in by DEP)

Florida Department of Environmental Protection

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

MONITORING WELL COMPLETION REPORT

PART I GENERAL INFORMATION

Well ID	Site Name		Well Install Date
2MW-27D	West Pasco Landfill Ash Cell A-4		6/23 & 6/24/2010
Facility ID	Alternate ID	FLUWID #	WMD Permit #
			805242
Well Purpose ☒ Background ☐ Intermediate ☐ Compliance ☐ Other (explain)			
Latitude (to nearest 0 1 seconds)		Longitude (to nearest 0 1 seconds)	
28 22' 12 7"		82 33' 47 3"	
Latitude and Longitude collection method ☐ DGPS ☐ AGPS ☐ MAP ☐ ZIPCODE ☐ DPHO ☐ UNKNOWN ☒ OTHER			

PART II. WELL CONSTRUCTION DETAILS

Contractor Name					Contractor License #
Cary M Richardson					9371
Company Name					
Mortensen Engineering, Inc					
Construction Method ☐ Hollow Stem Auger ☐ Solid Stem Auger ☒ Water/Mud Rotary ☐ Air Rotary ☐ Cable Tool ☐ Direct Push ☐ Sonic ☐ Other (describe)					Aquifer Monitored Intermediate
Top of Casing Elevation (NVGD or NAVD)			Ground Surface Elevation (NVGD or NAVD)		
50 3 (+/-) NGVD			47 2 (+/-) NGVD		

Casing

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To
PVC	2-inch		0	27

Screen

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To	Slot Size
PVC	2-inch		27	42	006

Annular

Material including additives for sealant	Size of Material	Amount (# of bags)	Depth (ft) From	Depth (ft) To	Installation Method
Silica Sand	30/45	6 5	25	42	Tremie
Bentonite Chips	3/8-inch	0 5	23	25	Tremie
Portland Cement	-	3	0	23	Tremie

PART III WELL DEVELOPMENT DETAILS

Well Development Date	Well Development Method ☐ Surge/Pump ☒ Pump ☐ Compressed Air ☐ Other (explain)		
6/15/2010			
Development Duration			
60 Minutes			
Pumping Rate	Maximum Drawdown	Well Purged Dry	Pumping Condition
1 0 gal/min	2 75 feet	☐ yes ☒ no	☒ continuous ☐ intermittent

Turbidity (if Measured)		Stabilized Water Level (BLS)
Start 133 NTU	End 3 41 NTU	20 8 feet

Water appearance (color and odor) at start of development
Cloudy
No odor detected
Water appearance (color and odor) at end of development
Clear
No odor detected

Report Prepared By	Date
Cary M Richardson	10/13/2010
Title/Company	License #
Project Manager Mortensen Engineering, Inc	9371

PLEASE ATTACH BORING LOG

Remarks
See Attached boring log labeled 4MW-27D

DEP Form # 62-520.900(3)
Form Title MONITORING WELL COMPLETION REPORT
Effective Date July 12, 2009
DEP Application No _____
(Filled in by DEP)

Florida Department of Environmental Protection

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

MONITORING WELL COMPLETION REPORT

PART I GENERAL INFORMATION

Well ID	Site Name		Well Install Date
4MW-27	West Pasco Landfill Ash Cell A-4		6/8, 6/9, 6/10, & 6/11/2010
Facility ID	Alternate ID	FLUWID #	WMD Permit #
			805240
Well Purpose ☒ Background ☐ Intermediate ☐ Compliance ☐ Other (explain)			
Latitude (to nearest 0 1 seconds)		Longitude (to nearest 0 1 seconds)	
28 22' 12 7"		82 33' 47 2"	
Latitude and Longitude collection method ☐ DGPS ☐ AGPS ☐ MAP ☐ ZIPCODE ☐ DPHO ☐ UNKNOWN ☒ OTHER			

PART II WELL CONSTRUCTION DETAILS

Contractor Name					Contractor License #
Cary M Richardson					9371
Company Name					
Mortensen Engineering, Inc					
Construction Method ☐ Hollow Stem Auger ☐ Solid Stem Auger ☒ Water/Mud Rotary ☐ Air Rotary ☐ Cable Tool ☐ Direct Push ☐ Sonic ☐ Other (describe)					Aquifer Monitored Upper Floridan
Top of Casing Elevation (NVGD or NAVD)			Ground Surface Elevation (NVGD or NAVD)		
49 6 (+/-) NGVD			46 8 (+/-) NGVD		
Casing					
Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To	
PVC	4-inch		0	67	
Screen					
Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To	Slot Size
Open Hole	4-inch		67	77	N/A
Annulus					
Material including additives for sealant	Size of Material	Amount (# of bags)	Depth (ft) From	Depth (ft) To	Installation Method
Portland Cement		59 5	0	67	Tremie

PART III WELL DEVELOPMENT DETAILS

Well Development Date	Well Development Method ☐ Surge/Pump ☒ Pump ☐ Compressed Air ☐ Other (explain)		
6/15/2010			
Development Duration			
60 Minutes			
Pumping Rate	Maximum Drawdown	Well Purged Dry	Pumping Condition
2 5 gal/min	No Drawdown	☐ yes ☒ no	☒ continuous ☐ intermittent

Turbidity (if Measured)		Stabilized Water Level (BLS)
Start 14 NTU	End 0 99 NTU	17 4

Water appearance (color and odor) at start of development
Cloudy
No odor detected
Water appearance (color and odor) at end of development
Clear
No odor detected

Report Prepared By	Date
Cary M Richardson	10/13/2010
Title/Company	License #
Project Manager Mortensen Engineering, Inc	9371

PLEASE ATTACH BORING LOG

Remarks
See Attached boring log labeled 4MW-27D

DEP Form # 62-520.900(3)
Form Title MONITORING WELL COMPLETION REPORT
Effective Date July 12, 2009
DEP Application No _____
(Filled in by DEP)

Florida Department of Environmental Protection

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

MONITORING WELL COMPLETION REPORT

PART I GENERAL INFORMATION

Well ID	Site Name		Well Install Date
4MW-27D	West Pasco Landfill Ash Cell A-4		6/1, 6/2, 6/3, 6/4, & 6/7/2010
Facility ID	Alternate ID	FLUWID #	WMD Permit #
			805238

Well Purpose ☒ Background ☐ Intermediate ☐ Compliance ☐ Other (explain)

Latitude (to nearest 0 1 seconds)	Longitude (to nearest 0 1 seconds)
28 22' 12 7"	82 33' 47 1"

Latitude and Longitude collection method ☐ DGPS ☐ AGPS ☐ MAP ☐ ZIPCODE ☐ DPHO ☐ UNKNOWN ☒ OTHER

PART II WELL CONSTRUCTION DETAILS

Contractor Name	Contractor License #
Cary M Richardson	9371

Company Name
Mortensen Engineering, Inc

Construction Method ☐ Hollow Stem Auger ☐ Solid Stem Auger ☒ Water/Mud Rotary ☐ Air Rotary ☐ Cable Tool ☐ Direct Push ☐ Sonic ☐ Other (describe)

Aquifer Monitored: Floridan

Top of Casing Elevation (NVGD or NAVD)	Ground Surface Elevation (NVGD or NAVD)
49 3 (+/-) NGVD	46 3 (+/-) NGVD

Casing

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To
PVC	4-inch		0	146

Screen

Material	Inside Diameter	Outside Diameter	Depth (ft) From	Depth (ft) To	Slot Size
Open Hole	4-inch		146	156	N/A

Annular

Material including additives for sealant	Size of Material	Amount (# of bags)	Depth (ft) From	Depth (ft) To	Installation Method
Portland Cement		40	0	146	Tremie

PART III WELL DEVELOPMENT DETAILS

Well Development Date	Well Development Method ☐ Surge/Pump ☒ Pump ☐ Compressed Air ☐ Other (explain)		
6/14/2010			
Development Duration			
112 Minutes			
Pumping Rate	Maximum Drawdown	Well Purged Dry	Pumping Condition
2 75 gal/min	4 75 feet	☐ yes ☒ no	☐ continuous ☒ intermittent

Turbidity (if Measured)		Stabilized Water Level (BLS)
Start 1299 NTU	End 18 2 NTU	21 5

Water appearance (color and odor) at start of development
Cloudy/milky
No odor detected
Water appearance (color and odor) at end of development
Clear
No odor detected

Report Prepared By	Date
Cary M Richardson	10/13/2010
Title/Company	License #
Project Manager Mortensen Engineering, Inc	9371

PLEASE ATTACH BORING LOG

Remarks
See Attached boring log labeled 4MW-27D

MEI PROJECT NO.: _____

PROJECT NAME: PASCO COUNTY LANDFILL

PROJECT LOCATION: ASH CELL A-4

DRILLED BY: ES/CR START DATE: 3-23-10

LOGGED BY: TRF END DATE: _____

BORING NUMBER: 2MW-24D

GROUND ELEVATION AT STAKE: 47.00

OFFSET DISTANCE AND DIRECTION FROM STAKE: DRILLED AT STAKE

CHANGE IN GROUND ELEVATION: _____

▽ _____ AT TIME OF DRILLING IN OFFSET HA ▽ _____ DELAYED ____ HRS.

MEI MORTENSEN ENGINEERING INC
SPT LOG

DEPTH	N PER 6"	N ASTM	N CONT'S	SAMPLE #	DESCRIPTION OF SOIL	REMARKS / OBSERVATIONS
0.0					GY. TO BN-GY. F. SAND (0.0 - 0.5)	
					LT. BN. F SAND (0.5 -	
3.5	6	15		1	LT. BN. F SAND	
5.0	7 8					
6.0	3					
	5	12		2	LT. BN. F SAND	
7.5	7					
8.5	6				INTERBEDDED, F. LAM. LT. BN. F SAND	
	8			3	AND BN. SLI. SI. F SAND	
10.0	11	19				
11.0						
	10 12	26		4	same as # 3	
12.5	14					
13.5	9				- same as # 3 (TOP 0.5)	
	13 16	29		5	- LT. BN/MOTTLED SI. F SAND (BOTTOM)	
15.0						
16.0	9					
	13			6	LT. BN/MOTTLED SILTY F. SAND	
17.5	15	28				
18.5	10					
	19	37		7	BN. SLI. SI. F. SAND	
20.0	18					
21.0						
	10 12				- MOTTLED SILTY F. SAND (TOP 0.5)	
		23		8	- MOTTLED SANDY CLAY (BOTTOM)	21.5-23.5
22.5	11					
23.5	16					
	21 23			9	BN. SLI. SI. TO SI. F SAND	
25.0		44				
26.0						
	10 7	13		10	MOTTLED SA. CLAY	26-28.5
27.5	6					
28.5	6				- T. BN/MOTTLED SI. F. SAND	
	6 5	11		11	W/ SMALL SEAMS of MOTTLED SA. CLAY	
30.0						

T.O B. DEPTH: _____ L.O.C.: _____

BAGS CEMENT/BENTONITE: _____

GROUTED BOREHOLE: _____

MEI PROJECT NO.: _____

PROJECT NAME: PASCO COUNTY LANDFILL

PROJECT LOCATION: ASH CELL A-4

DRILLED BY: ES / CR START DATE: 3-23-10

LOGGED BY: TRF END DATE: _____

BORING NUMBER: 2MW24D

GROUND ELEVATION AT STAKE: _____

OFFSET DISTANCE AND DIRECTION FROM STAKE: _____

CHANGE IN GROUND ELEVATION: _____

▽ _____ AT TIME OF DRILLING IN OFFSET HA ▽ _____ DELAYED ____ HRS.

MEI MORTENSEN ENGINEERING, INC
SPT LOG

DEPTH	N PER 6"	N ASTM	N CONT'S	SAMPLE #	DESCRIPTION OF SOIL	REMARKS / OBSERVATIONS
31.0	5/3			12	F. LAM, INTERBEDDED SI. F. SAND AND MOTTLED SA. CLAY	31 - 32.5
32.5	2/	5				← ABRUPT 100% L.O.C. @ 32.5'
33.5	/12	19				- SET 35' OF 3" CASING TO 33.5' DEEP - 100% L.O.C. AGAIN AT BOTTOM OF CASING
35.0	10/9			13	HIGHLY WEATHERED LS	
36.0	5/3	7		14	HIGHLY WEATHERED LS w/ some pockets of CLAY	
37.5	4/					← Set 5' more casing to 38.5' - Still Losing 50-60% Below CASING bottom
38.5	/9					
40.0	5/2	7		15	HIGHLY WEATHERED LS	40'
41.0	9/9	18		16	HIGHLY WEATHERED LS	
42.5	9/					← Regained some circ during 41.0 - 43.5' run losing only 30% ±
43.5	/7			17	HIGHLY WEATHERED LS	
45.0	7/5	12				
46.0	/19					← LOST 100% again @ 46.0'
47.5	10/11	21		18	HIGHLY WEATHERED LS	← Regained 50% again @ 47.5'
48.5	/5	17				
50.0	6/11			19	HIGHLY WEATHERED LS	← 100% L.O.C. after the spoon
					T.O.B. 50.0' GROUTED HOLE	

T.O.B. DEPTH: _____ L.O.C.: _____

BAGS CEMENT/BENTONITE: _____

GROUTED BOREHOLE: _____

MEI PROJECT NO : _____

PROJECT NAME: PASCO COUNTY LANDFILL

PROJECT LOCATION: ASH CELL A-4

DRILLED BY ES/CR START DATE: 3-25-10

LOGGED BY: TRF END DATE: _____

BORING NUMBER: 2MW25D

GROUND ELEVATION AT STAKE: 45.00

OFFSET DISTANCE AND DIRECTION FROM STAKE: DRILLED AT STAKE

CHANGE IN GROUND ELEVATION: 6"-8" LOWER AFTER SLOPE WAS CUT

▽ _____ AT TIME OF DRILLING IN OFFSET HA ▽ _____ DELAYED ____ HRS

MEI MORTENSEN ENGINEERING, INC SPT LOG

DEPTH	N PER 6"	N ASTM	N CONTS	SAMPLE #	DESCRIPTION OF SOIL	REMARKS / OBSERVATIONS
0.0					F. LAM. / MOTTLED FILL SAND @ 0.0	
3.5	16/16/19	35		1	F. LAMINATED LT. BN, BN AND DK. BN. F. SAND FILL	
5.0						
6.0	7/9/10	19		2	LT. BN. F SAND	
7.5						
8.5	9/14/19	33		3	LT. BN. TO WHITE F. SAND	
10.0						
11.0	14/22/23	45		4	LT. BN. TO WHITE F. SAND	
12.5						
13.5	6/8/6	14		5	MOTTLED SANDY CLAY	H_2O dropped in hole when sample # 6 was pulled out
15.0						
16.0	5/6/50	56		6	5-6-50 FOR 6" — GN-GY/MOTTLED CLAY (TOP 1.0) --- 6A — WEATHERED LIMESTONE (BOTTOM) --- 6B	
17.5						
18.5	8/9/13	22		7	HIGHLY WEATHERED LIMESTONE	SET 20' OF CASING TO 18.5' BGS
20.0						ABRUPT 100% L.O.C. AT 20.0'
21.0	10/20/14	34		8	HIGHLY WEATHERED LIMESTONE	
22.5						
23.5	5/17/29	46		9	HIGHLY WEATHERED LIMESTONE	PT - 24 LS
25.0						
26.0	5/4/3	7		10	MOTTLED CLAY (TOP 0.4) — HIGHLY WEATHERED LIMESTONE (Middle 0.5) --- 10A — WHITE F. SAND (BOTTOM) --- 10B	27-28' SAND
27.5						
28.5	6/9/19	28		11	TRACE OF SAND (TOP) — MOTTLED CLAY (Middle 0.1) — HIGHLY WEATHERED LIMESTONE (BOTTOM)	DRILLED LIKE SAND OR CLAY 27.5-28.5; 28.5' 3/4" LS
30.0						

BAGS CEMENT/BENTONITE: _____

T.O.B. DEPTH: _____ L.O.C.: _____ GROUTED BOREHOLE: _____

MEI PROJECT NO.: _____

PROJECT NAME: PASCO COUNTY LANDFILL

PROJECT LOCATION: ASH CELL A-4

DRILLED BY: ES/CR START DATE: 3-25-10

LOGGED BY: TRE END DATE: _____

BORING NUMBER: 2MW25D

GROUND ELEVATION AT STAKE: _____

OFFSET DISTANCE AND DIRECTION FROM STAKE: _____

CHANGE IN GROUND ELEVATION: _____

▽ _____ AT TIME OF DRILLING IN OFFSET HA ▽ _____ DELAYED ____ HRS.

MEI MORTENSEN ENGINEERING, INC
SPT LOG

DEPTH	N PER 6"	N ASTM	N CONT'S	SAMPLE #	DESCRIPTION OF SOIL	REMARKS / OBSERVATIONS
31.0	31/33			12	HIGHLY WEATHERED LIMESTONE	
32.5	13	46				
33.5	7/9	17		13	HIGHLY WEATHERED LIMESTONE	
35.0	8					
36.0	11/9	22		14	HIGHLY WEATHERED LIMESTONE	
37.5	13					
					T.O.B. 37.5'	
					GROUTED HOLE	

T.O.B. DEPTH: _____ L.O.C.: _____

BAGS CEMENT/BENTONITE: _____

GROUTED BOREHOLE: _____

MEI PROJECT NO : _____

PROJECT NAME: PASCO COUNTY LANDFILL

PROJECT LOCATION: ASH CELL A-4

DRILLED BY: ES/CR START DATE: 3-24-10

LOGGED BY: TRF END DATE: _____

BORING NUMBER: 2MW26D

GROUND ELEVATION AT STAKE: 47.00'

OFFSET DISTANCE AND DIRECTION FROM STAKE: DRILLED AT STAKE

CHANGE IN GROUND ELEVATION: _____

▽ _____ AT TIME OF DRILLING IN OFFSET HA ▽ _____ DELAYED _____ HRS

MEI MORTENSEN ENGINEERING, INC
SPT LOG

DEPTH	N PER 6"	N ASTM	N CONT'S	SAMPLE #	DESCRIPTION OF SOIL	REMARKS / OBSERVATIONS
					GY. TO BN-GY. F SAND (0.0-0.5)	
					LT. BN. F SAND (0.5—	
3.5	3	8		1	LT. BN. F SAND	
5.0	4 4					
6.0						
	3 4	9		2	LT. BN. F. SAND	
7.5	5					
8.5	4					
	5 8	13		3	LT. BN. F. SAND	
10.0						
11.0						
	5 8	16		4	WHITE F. SAND	
12.5	8					
13.5	8					
	9 11	20		5	WHITE F. SAND	
15.0						
16.0						
	7 8			6	BN/MOTTLED SI. TO SLI. CL. F SAND	
17.5	8	16				
18.5	9				BN/MOTTLED SLI. SI. TO SI. F. SAND (TOP 0.5)	
	7 5	12		7	BN-GY. CL. F SAND (Middle 0.3)	
20.0					GN-GY/MOTTLED SA. CLAY (BOTTOM)	195 - 36 S. CLAY
21.0						
	5 5	12		8	MOTTLED SANDY CLAY	
22.5	7					
23.5	4					← SET 25' of 3" FJ CASING TO 23.5' BGS
	3 5	8		9	GN-GY/MOTTLED SA. CLAY	
25.0						25'
26.0						
	2 3	7		10	GN-GY/MOTTLED SA. CLAY	
27.5	4					
28.5	3					
	3 8	11		11	GN-GY/MOTTLED SA. CLAY W/ some seams of SI. F. SAND IN bottom 0.5' of sample	
30.0						

T.O.B. DEPTH: _____ L.O.C.: _____

BAGS CEMENT/BENTONITE: _____

GROUTED BOREHOLE: _____

MEI PROJECT NO.: _____

PROJECT NAME: PASCO COUNTY LANDFILL

PROJECT LOCATION: ASH CELL A-4

DRILLED BY: ES/CR START DATE: 3-24-10

LOGGED BY: TRF END DATE: _____

BORING NUMBER: 2MW26D

GROUND ELEVATION AT STAKE. _____

OFFSET DISTANCE AND DIRECTION FROM STAKE: _____

CHANGE IN GROUND ELEVATION: _____

▽ _____ AT TIME OF DRILLING IN OFFSET HA ▽ _____ DELAYED _____ HRS.

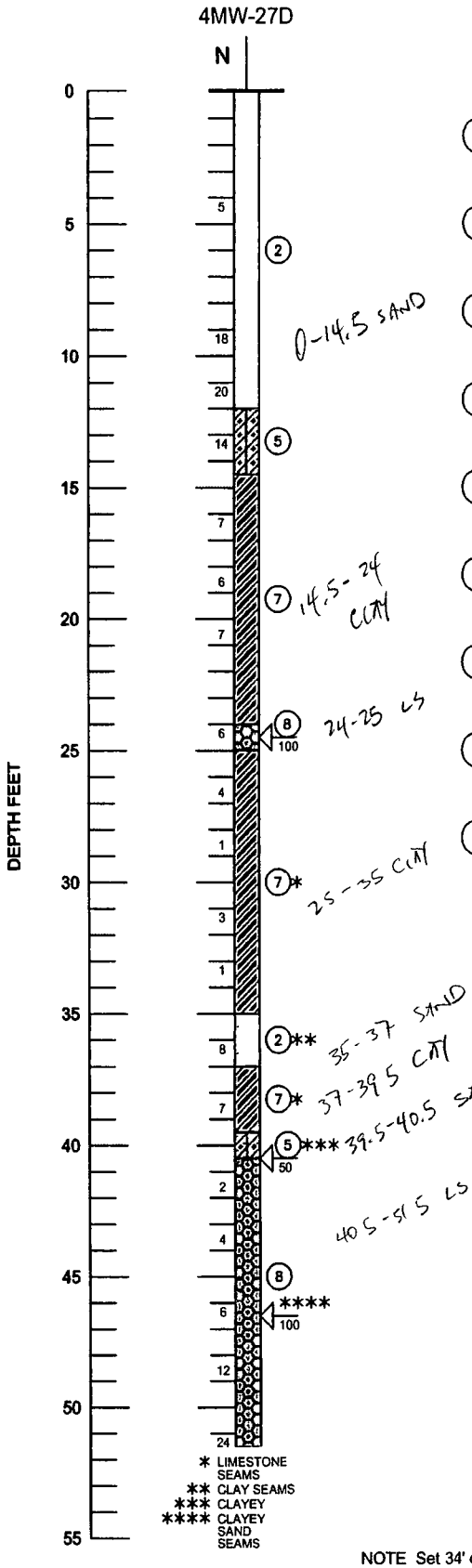
MEI MORTENSEN ENGINEERING INC
SPT LOG

DEPTH	N PER 6"	N ASTM	N CONTS	SAMPLE #	DESCRIPTION OF SOIL	REMARKS / OBSERVATIONS
31.0	7/11			12	INTERBEDDED/F. LAM. CLAY - CLAYEY SAND - SILTY SAND - AND F. SAND	
32.5	11/	22				
33.5	7/	21		13	Same as # 12 - thicker sand seams	
35.0	8/13					
36.0	12/13	40		14	LT. BN. TO BN. F SAND - SLI. SI. F SAND w/ some small seams of MOTTLED CLAY	36-38.5 SAND
37.5	27/					38.5-41 S CLAY
38.5	5/				MOTTLED SA-CLAY w/ some thin sand seams	41-43 SAND
40.0	8/17	25		15		
41.0	6/5	11		16	SI. F. SAND w/ some CLAY seams and tr. of WEA. LIMESTONE IN TIP of spoon	43-55 LS
42.5	6/					← STIFFENED W/ CHATTER AT 43.0'
43.5	15/					
45.0	9/10	19		17	HIGHLY WEATHERED LS	Began to Lose some circulation (50% ±) AT 45.5' ←
46.0	6/6			18	HIGHLY WEATHERED LS	
47.5	7/	13				100% L.O.C. AT 48.5' ←
48.5	0/	30			W.O.R. 48.5 - 49.2'	
	10/20			19	HIGHLY WEATHERED LS	
50.5	21/					
51.0	24/50			20	24-50 FOR 6" HIGHLY WEATHERED LS	
52.0						
53.5	10/					
	10/12			21	HIGHLY WEATHERED LS	
55.0		22				
					T.O.B 55.0' GROUTED HOLE	

T.O.B. DEPTH: _____ L.O.C.: _____

BAGS CEMENT/BENTONITE: _____

GROUTED BOREHOLE: _____



LEGEND

1. Gray to dark gray fine SAND to slightly silty fine SAND, trace organics (SP/SP-SM)
2. White to light brown fine SAND to silty fine SAND (SP/SP-SM/SM)
3. Brown or gray to orange-brown fine SAND to silty fine SAND (SP/SP-SM/SM)
4. Dark brown to reddish brown or black slightly silty fine SAND to silty fine SAND (SP-SM/SM)
5. Gray or brown silty to slightly clayey fine SAND (SM/SM-SC)
6. Gray or brown clayey SAND (SC)
7. Gray or brown to gray-green sandy CLAY to CLAY (CL/CH)
8. White or light gray weathered LIMESTONE
9. Light gray to gray or tan cemented SILT to clayey SILT (ML/MH)

SP — Unified Soil Classification group symbol as determined by visual review

N — SPT "N" value in blows/foot

Loss of circulation (%)

THE TEST BORING RESULTS HEREON ARE REPRESENTATIVE OF THE SUBSURFACE CONDITIONS AT THE NOTED APPROXIMATE BORING LOCATIONS, AND FOR THEIR NOTED DEPTHS. LOCAL VARIATIONS CHARACTERISTIC OF THE SUBSURFACE MATERIALS OF THE REGION SHOULD BE ANTICIPATED AND MAY BE ENCOUNTERED PARTICULARLY IN AREAS PREVIOUSLY DISTURBED. THE SOIL PROFILES AND THE OTHER FIELD TEST DATA HEREON ARE BASED ON THE DRILLER'S LOGS AND VISUAL REVIEW OF SELECTED SOIL SAMPLES IN THE LABORATORY. THE DELINEATIONS BETWEEN DIFFERENT SOIL MATERIAL TYPES SHOWN HEREON SHOULD BE CONSIDERED APPROXIMATE. THE GENERALIZED SOIL DESCRIPTIONS HEREON REPRESENT OUR INTERPRETATION OF THE SUBSURFACE SOIL CONDITIONS AT THE NOTED BORING LOCATIONS AND ON THE DATES DRILLED.

THE GROUNDWATER LEVEL DATA SHOWN HEREON ALONGSIDE THE SOIL BORING PROFILES REPRESENT SHORT TERM (NOT NECESSARILY STABILIZED) GROUNDWATER LEVELS, MEASURED IN THE BOREHOLES OR IN AN OFFSET BOREHOLE ON THE DATE DRILLED. UNLESS OTHERWISE NOTED, FLUCTUATIONS IN THE SHALLOW GROUNDWATER LEVEL FROM THE LEVELS SHOWN HEREON WILL OCCUR AND SHOULD BE ANTICIPATED THROUGHOUT THE YEAR; LOCAL VARIATIONS FROM THE LEVELS SHOWN HEREON SHOULD ALSO BE ANTICIPATED.

NOTE Set 34' of temporary surface casing

MORTENSEN ENGINEERING, INC

GENERAL GEOTECHNICAL SERVICES
WEST PASCO COUNTY LANDFILL - ASH CELL A-4
PASCO COUNTY, FLORIDA

SPT BORING SOIL PROFILE AND SOILS LEGEND

CREATED BY DNH
CHECKED BY MTG
DATE FEB 2010
PROJECT NO 10-10-07289

QORE

PROPERTY SCIENCES

D.E.P.
MAY 0 4 2001
Southwest District Tampa

May 3, 2001

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

Re: Well Construction Information
Monitor Wells 2MW-17S and 2MW-18D
Resource Recovery Facility
Pasco County, Florida
PA 87-23
OGC File No. 99-1346

Dear Mr Morris

This letter transmits the well construction information for the two ground water monitor wells installed to monitor ground water downgradient of cell SW-1 at the Resource Recover Facility in Pasco County, Florida These wells were installed in accordance with the Ground Water Monitoring Plan (GWMP) prepared by QORE, Inc (QORE), dated July 25, 2000 and the conditions contained in the Department of Environmental Protection's (DEP's) letter dated December 4, 2000, approving the GWMP

Attached to this letter are the following

- Site drawing showing the location of the wells
- Monitor Well Completion Report (DEP Form 62-522 900(3)) with a soil boring log attached
- Copy of the Southwest Florida Water Management District (SWFWMD) Application to Construct a Well
- Copy of the SWFWMD Well Completion Report
- Drawing presenting the surveyed location of the monitor wells

In summary, ground water monitoring wells 2MW-17S and 2MW-18D were installed to a depth of approximately 38 feet and 40 feet below ground surface (bgs), respectively The wells were installed utilizing hollow-stem auger drilling techniques and constructed of 2-inch diameter Schedule 40, flush-jointed, threaded PVC screen and casing The wells were constructed with 15 feet of screen with 0 010-inch slots The annular space around the well screen of each well was filled with 20/30-grade silica sand to approximately one foot above the top of the well screen A fine sand seal, approximately 1 foot thick, was placed on top of the filter sand and the remainder of each well bore was filled with neat cement grout to ground surface Well 2MW-17S was completed with a concrete pad and flush mounted manhole Well 2MW-18D was completed with an aboveground locking steel protective cover and surrounded by four protective concrete bumpers After installation, each well was developed, by pumping, until the discharge water was visually free of fine-grained sediments

1211 Tech Blvd Suite 200 Tampa, Florida 33169 (813) 623-6646 fax (813) 623-3795

D.E.P.
MAY 0 4 2001
Southwest District Tampa

Prior to installation of each well, a soil boring was drilled to identify the subsurface soil conditions and to finalize the well construction design Soil samples were collected at approximately 5 foot intervals to the depth of the boring The soils encountered during this drilling are shown on the attached well construction logs

* * * *

If you have any questions pertaining to this matter, please do not hesitate to contact us

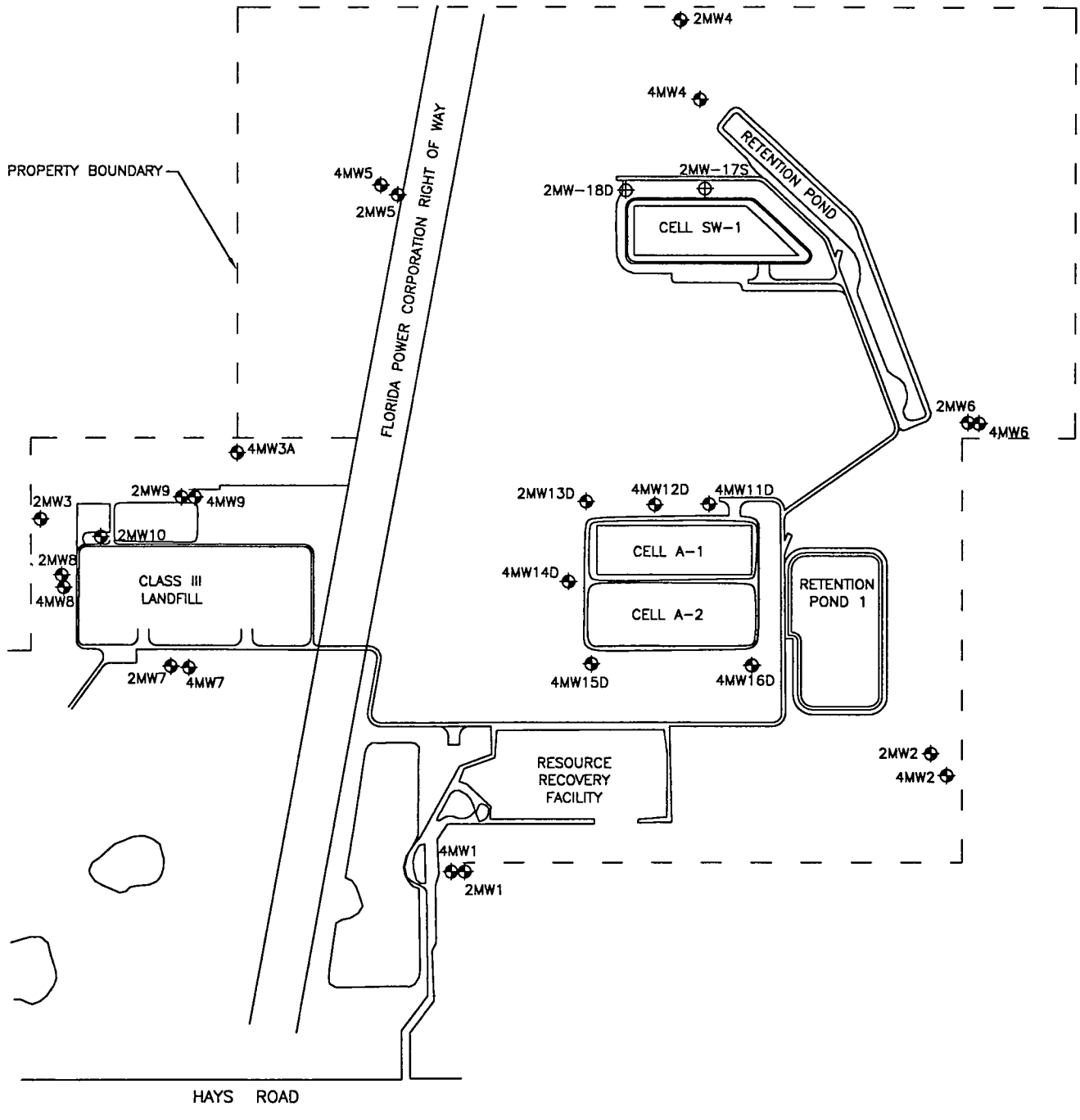
Yours Very Truly,

QORE, Inc

Lawrence J Maron, P E
Senior Engineer

Attachments

cc Vince Mannella – Pasco County
Candia Mulhern – Pasco County
Bruce Kennedy – Pasco County



LEGEND

4MW7 ⊕ EXISTING MONITOR WELL LOCATION & IDENTIFICATION

⊕ LOCATION OF NEWLY-INSTALLED MONITOR WELL

SCALE

0 1,000 FT

PASCO COUNTY	DATE 2/9/01	JOB NO 27-2440R	PLATE NO 1
QORE™ PROPERTY SCIENCES 1211 Tech Blvd Suite 200 Tampa, Florida 33619 (813) 623-6646	MONITOR WELL LOCATIONS WEST PASCO CLASS I LANDFILL		

2440R\MW-NEWLOC

DEP Form # 62 522 900(3)
Form Title MONITOR WELL COMPLETION REPORT
Effective Date
DEP Application No
(Filled in by DEP)

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

D.E.R.
MAY 04 2001
Southwest District Tampa

MONITOR WELL COMPLETION REPORT

DATE April 12, 2001

INSTALLATION NAME West Pasco Class I Landfill, Cell SW-1

DEP PERMIT NUMBER PA 87-23 GMS NUMBER

WELL NUMBER 2MW-17S WELL NAME

DESIGNATION Background Immediate Compliance X

LATITUDE/LONGITUDE 28° 22' 47.80"/82° 33' 30.49"

AQUIFER MONITORED Surficial/Floridan

INSTALLATION METHOD Hollow stem auger

INSTALLED BY Huss Drilling/QORE, Inc.

TOTAL DEPTH (bls) 38 ft. DEPTH OF SCREEN 23 - 38 ft. (bls)

SCREEN LENGTH 15 ft. SCREEN SLOT SIZE 0.010 in. SCREEN TYPE PVC

CASING DIAMETER 2 inch CASING TYPE PVC

LENGTH OF CASING 23 ft. FILTER PACK MATERIAL 20/30 sand

TOP OF CASING ELEVATION (MSL) 53.42

GROUND SURFACE ELEVATION (MSL) 53.8

COMPLETION DATE January 23, 2001

DESCRIBE WELL DEVELOPMENT Pumped and surged until visually free of suspended sediments

POST DEVELOPMENT WATER LEVER ELEVATION (MSL)

DATE AND TIME MEASURED

REMARKS (soils information stratigraphy etc.) Soils log/well construction diagram attached

REPORT PREPARED BY Lawrence J. Maron, PE, QORE Inc., 813-623-6646
(name company, phone number)

NOTE PLEASE ATTACH BORING LOG

(bls)= Below Land Surface

Monitoring Well No. 2MW-17S

PROJECT: PASCO COUNTY
LOGGED BY: J COUGHLIN
DRILLER: HUSS DRILLING, INC
DATE INSTALLED: 1/23/01

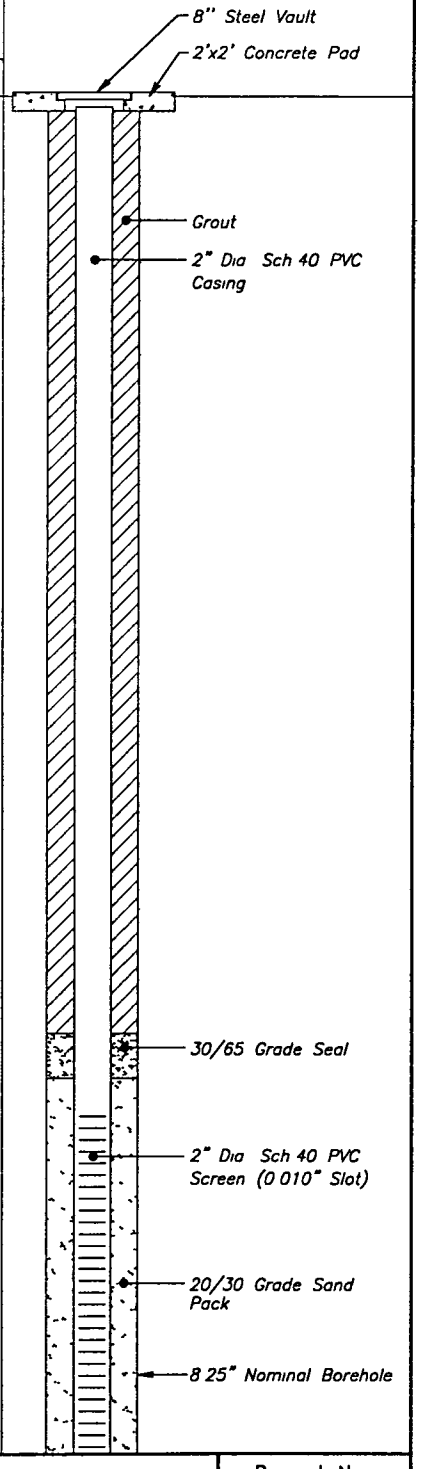
DRILL METHOD: HSA
SAMPLE TYPE: Split Spoon
HOLE DIA.: 8 25"
STATIC WL:

TOC ELEV: 53 42 FT NGVD
GROUND ELEV: 53 8 FT NGVD
STICK-UP: N/A
SURVEYOR: PASCO COUNTY

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	BLOWS/FT
SAND, very pale orange, fine-grained	SP		0		
SAND, dark yellowish brown, fine-grained	SP		1		
			2		
			3		
			4		
			5		
			6		
			7		
			8		
SAND, mottled-dark yellowish brown and very light gray, fine-grained, dense	SP		9		
			10		
			11		
			12		
			13		
			14		
			15		
SAND, dark yellowish brown, fine-grained, loose	SP		16		
			17		
			18		
			19		
SAND, very pale orange, fine-grained, loose	SP		20		
			21		
			22		
			23		
			24		
			25		
			26		
			27		
			28		
			29		
SAND, dusky yellow brown, fine-grained, loose	SP		30		

Continued

WELL CONSTRUCTION DETAIL



QORE™ PROPERTY SCIENCES
1211 Tech Blvd Suite 200 Tampa Florida 33619 (813) 623-6646

Notes:

Project No 27-2440R

Monitoring Well No. 2MW-17S

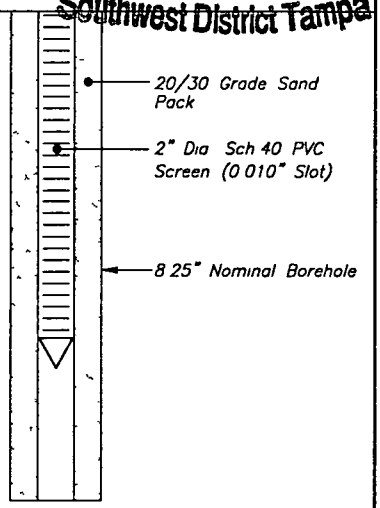
PROJECT: PASCO COUNTY
LOGGED BY: J COUGHLIN
DRILLER: HUSS DRILLING, INC
DATE INSTALLED: 1/23/01

DRILL METHOD: HSA
SAMPLE TYPE: Split Spoon
HOLE DIA.: 8 25"
STATIC WL:

TOC ELEV: 53 42 FT NGVD
GROUND ELEV: 53 8 FT NGVD
STICK-UP: N/A
SURVEYOR: PASCO COUNTY

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	BLOWS/FT
			30		
SAND, dusky yellow brown, fine-grained, loose	SP		31		
			32		
			33		
			34		
SAND, moderate yellow brown, fine-grained, loose	SP		35		
			36		
			37		
			38		
			39		
CLAY, brownish yellow, soft, some limestone fragments, fine-grained	CL		40		
			41		
Boring terminated at 41' BGS			42		
			43		
			44		
			45		
			46		
			47		
			48		
			49		
			50		
			51		
			52		
			53		
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			56		
			57		
			58		
			59		
			60		

WELL CONSTRUCTION DETAIL



D.E.P.
MAY 0 4 2001
Southwest District Tampa

QORE™ PROPERTY SCIENCES
1211 Tech Blvd Suite 200 Tampa Florida 33619 (813) 623-6646

Notes:

Project No 27-2440R

D.E.P.
MAY 0 4 2001
Southwest District Tampa

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

DEP Form # 62-522.900(3)
Form Title MONITOR WELL COMPLETION REPORT
Effective Date
DEP Application No
(Filled in by DEP)

MONITOR WELL COMPLETION REPORT

DATE April 12, 2001

INSTALLATION NAME West Pasco Class I Landfill, Cell SW-1

DEP PERMIT NUMBER PA 87-23 GMS NUMBER

WELL NUMBER 2MW-18D WELL NAME

DESIGNATION Background Immediate Compliance X

LATITUDE/LONGITUDE 28° 22' 47.16"/82° 33' 36.07"

AQUIFER MONITORED Surficial/Floridan

INSTALLATION METHOD Hollow stem auger

INSTALLED BY Huss Drilling/QORE, Inc.

TOTAL DEPTH (bls) 40 ft. DEPTH OF SCREEN 25 - 40 ft. (bls)

SCREEN LENGTH 15 ft. SCREEN SLOT SIZE 0.010 in SCREEN TYPE PVC

CASING DIAMETER 2 in CASING TYPE PVC

LENGTH OF CASING 28 FILTER PACK MATERIAL 20/30 sand

TOP OF CASING ELEVATION (MSL) 52.75

GROUND SURFACE ELEVATION (MSL) 50.0

COMPLETION DATE January 23, 2001

DESCRIBE WELL DEVELOPMENT Pumped and surged until visually free of suspended sediments

POST DEVELOPMENT WATER LEVER ELEVATION (MSL)

DATE AND TIME MEASURED

REMARKS (soils information stratigraphy etc.) Soils log/well construction diagram attached

REPORT PREPARED BY Lawrence J. Maron, PE, QORE, Inc., 813-623-6646
(name, company phone number)

NOTE PLEASE ATTACH BORING LOG

(bls)= Below Land Surface

Monitoring Well No. 2MW-18D

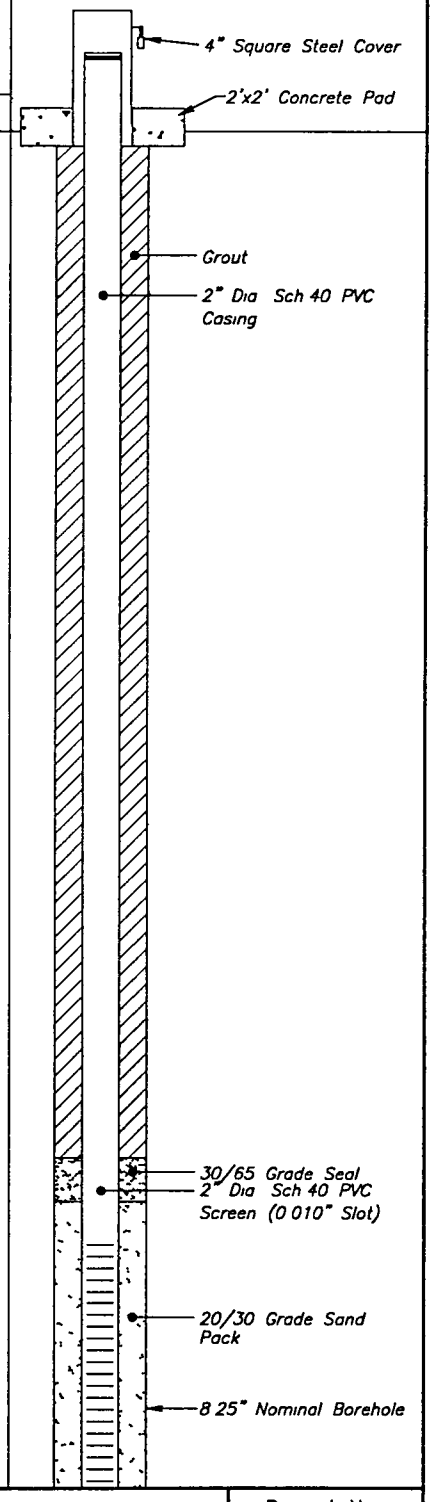
PROJECT: PASCO COUNTY
LOGGED BY: J COUGHLIN
DRILLER: HUSS DRILLING, INC
DATE INSTALLED: 1/23/01

DRILL METHOD: HSA
SAMPLE TYPE: Split Spoon
HOLE DIA.: 8 25"
STATIC WL:

TOC ELEV: 52 75 FT NGVD
GROUND ELEV: 50 0 FT NGVD
STICK-UP: 2 75 FT
SURVEYOR: PASCO COUNTY

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	BLOWS/FT
SAND, very pale orange, fine-grained	SP		0		
SAND, pale yellowish orange, fine-grained	SP		1		
			2		
			3		
SAND, pale yellowish brown, fine-grained	SP		4		
			5		
			6		
			7		
			8		
			9		
CLAYEY SAND, pale greenish yellow, fine-grained, dense	SC		10		
			11		
Clay content increases with depth			12		
			13		
Grades to			14		
CLAY, pale greenish yellow w/red mottling, stiff	SP		15		
			16		
			17		
			18		
			19		
Grades in some sand			20		
			21		
			22		
			23		
			24		
CLAY, pale greenish yellow, w/sandy lenses and pieces of weathered limestone, soft	SC/ CL		25		
			26		
			27		
			28		
WEATHERED LIMESTONE, white, - sand to gravel-sized limestone in clayey matrix, loose	LS		29		
			30		

Continued



QORE™ PROPERTY SCIENCES
1211 Tech Blvd Suite 200 Tampa Florida 33619 (813) 623-6646

Notes:

Project No. 27-2440R

Monitoring Well No. 2MW-18D

PROJECT: PASCO COUNTY
LOGGED BY: J COUGHLIN
DRILLER: HUSS DRILLING, INC
DATE INSTALLED: 1/23/01

DRILL METHOD: HSA
SAMPLE TYPE: Split Spoon
HOLE DIA.: 8 25"
STATIC WL:

TOC ELEV: 52 75 FT NGVD
GROUND ELEV: 50 0 FT NGVD
STICK-UP: 2 75 FT
SURVEYOR: PASCO COUNTY

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	BLOWS/FT	WELL CONSTRUCTION DETAIL
WEATHERED LIMESTONE, white, – sand to gravel–sized limestone in clayey matrix, loose	LS		30–41			20/30 Grade Sand Pack; 2" Dia Sch 40 PVC Screen (0 010" Slot); 8 25" Nominal Borehole
Limestone harder and in larger pieces, less clay, medium dense						
More clayey sand						
Boring terminated at 41' BGS			42–60			

QORE™ PROPERTY SCIENCES
1211 Tech Blvd Suite 200 Tampa Florida 33619 (813) 623-6646

Notes:

Project No. 27–2440R

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

- [X] Southwest
- [ ] Northwest
- [ ] St Johns River
- [ ] South Florida
- [ ] Suwannee River

CHECK BOX FOR APPROPRIATE DISTRICT ADDRESS ON BACK OF PERMIT FORM

THIS FORM *MUST* BE FILLED OUT COMPLETELY

The water well contractor is responsible for completing this form and forwarding the permit to the appropriate delegated county where applicable

Permit No 446708.02

Florida Unique I D

Permit Stipulations Required (See attached) 8 39

62-524 well ☐

CUP/WUP Application No

ABOVE THIS LINE FOR OFFICIAL USE ONLY

1 Pasco Co. Board of County Commissioners 7536 State St. N P R. 34654 (813) 603-6646
Owner, Legal Name of Entity if Corporation — Address — City — Zip — Telephone Number

2 Pasco Co. Resource Recovery 14230 Hays Rd. Spring Hill 34610
Well Location — Address, Road Name or Number, City

3 Robert P. Huss 2879 352-567 9500
Well Drilling Contractor — License No — Telephone No

PO Box 1158
Address

San Antonio FL 33576
City — State — Zip

4 NW 1/4 of SE 1/4 of Section 24
(smallest) (biggest)

(Indicate Well on Chart)

5 Township 24S Range 17E

NW NE SW SE

6 Pasco
County — Subdivision Name — Lot — Block — Unit

7 **Number of proposed wells** 2 **Check the use of well** (See back of permit for additional choices) ____ Domestic X Monitor (type) H2o Quality

____ Irrigation (type) (See Back) Public Water Supply (type) ____ (See Back) List Other ____

Distance from septic system ____ ft **Description of facility** ____ **Estimated start of construction date** 1/23/01

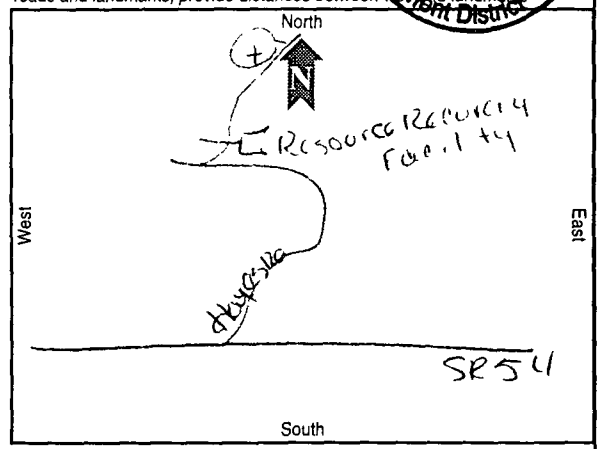
8 **Application for** X New Construction ____ Repair/Modify ____ Abandonment ____ (Reason for Abandonment)

9 **Estimated** Well Depth 40' Casing Depth 25' Screen Interval from 25' to 40'
Casing Material Blk-Steel / Gal / PVC Casing Diameter 2" Seal Material Bent/Grout

10 **If applicable Proposed Grouting Interval** From ____ to ____ Seal Material ____
From ____ to ____ Seal Material ____
From ____ to ____ Seal Material ____

Date Stamp: Southwest Florida Water Management District Received JAN 0 2001 RRD - TAMPA

Draw a map of well location and indicate well site with an "X" Identify known roads and landmarks, provide distances between well and landmarks



11 **Telescope Casing** ____ **or Liner** ____ (check one) Diameter ____
Blk-Steel / Galvanized / PVC Other (specify ____

12 **Method of Construction** ____ Rotary ____ Cable Tool ____ Combination
X Auger ____ Other (specify) ____)

13 **Indicate total No of wells on site** ____ **List number of unused wells on site** ____

14 **Is this well or any other well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application?** ___No ___Yes
(If yes, complete the following) CUP/WUP No ____
District well I D No ____
Latitude ____ Longitude ____
Data obtained from GPS ___ or map ___ or survey ___ (*map datum NAD 27*___ *NAD 83*___)

15 I hereby certify that I will comply with the applicable rules of Title 40 Florida Administrative Code and that a water use permit or artificial recharge permit if needed has been or will be obtained prior to commencement of well construction I further certify that all information provided on this application is accurate and that I will obtain necessary approval from other federal state or local governments if applicable I agree to provide a well completion report to the District within 30 days after drilling or the permit expiration whichever occurs first

Robert P Huss Jr. 2879
Signature of Contractor — License No

I certify that I am the owner of the property that the information provided is accurate and that I am aware of my responsibilities under Chapter 373 Florida Statutes to maintain or properly abandon this well or I certify that I am the agent for the owner that the information provided is accurate and that I have informed the owner of his responsibilities as stated above Owner consents to personnel of the WMD or a representative access to the well site

[signature] 1/8/01
Owner's or Agent's Signature — Date

DO NOT WRITE BELOW THIS LINE — FOR OFFICIAL USE ONLY

Approval Granted By [signature] Issue Date 1/10/01 Hydrologist Approval ____ Initials

Owner Number 186196 Fee Received $50.00 Receipt No D0709A Check No 7637

Enter numerical month, day and full, four-digit year

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD IT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL DRILLING OPERATIONS ***This permit is valid for 90 days from date of issue***

WHITE ORIGINAL FILE
YELLOW DRILLING CONTRACTOR
PINK OWNER

FORM 41 10 – 410 (1) REV 4/95

WELL COMPLETION REPORT (Please complete in black ink or type)

PERMIT # 1646708 02 CUP/WUP # _____ DID # _____
If permit is for multiple wells indicate the number of wells drilled 1
Indicate remaining wells to be cancelled Ø
WATER WELL CONTRACTOR'S
SIGNATURE Robert B Hunsicker License # 2879
I certify that the information provided in this report is accurate and true

Grout	No of Bags	From (Ft)	To (Ft)
Neat Cement	5 Bags	0	23'
Bentonite			

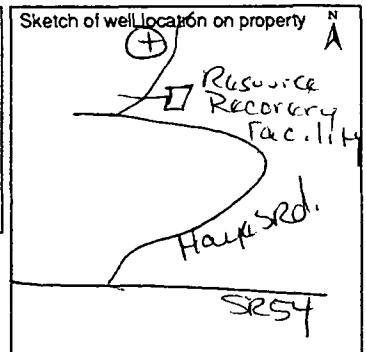
WELL LOCATION County Pasco
NW 1/4 of SE 1/4 of Section 24 Twp 24s Rge 17E
Latitude _____ Longitude _____

DATE STAMP

Official Use Only

CHEMICAL ANALYSIS WHEN REQUIRED
Iron ____ ppm Sulfate ____ ppm
Chloride ____ ppm
[ ] Lab Test [ ] Field Test Kit
Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower _____ Capacity _____ G P M _____
Pump Depth _____ Ft Intake Depth _____ Ft.

Sketch of well location on property



Give distances from septic tank and house or other reference points

Form 41 10-410(2) Rev 6/95

OWNER'S NAME Pasco Resource Recovery
COMPLETION DATE 1-24-01 Florida Unique I D _____
WELL USE DEP/Public ____ Irrigation ____ Domestic ____ Monitor ✓
HRS Limited ____ 62-524 ____ Other _____
DRILL METHOD [ ] Rotary [ ] Cable Tool [ ] Combination
[ ] Jet [~~✓~~ Auger] Other _____

Measured Static Water Level _____ Measured Pumping Water Level _____
After ____ Hours at ____ G P M. Measuring Pt (Describe) _____
Which is ____ Ft [ ] Above [ ] Below Land Surface
Casing [ ] Black Steel [ ] Galv [~~✓~~ PVC] Other _____

[ ] Open Hole [~~✓~~ Screen]	Depth (Ft)		DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes. Note cavities, depth to producing zones. Color | Grain Size | Type of Material
Casing Diameter & Depth (Ft)	From	To	
Diameter 2" From 0 To 40'	0		Brown Fine Sand
		15'	
	15'		lt green Clayey F.S
.01-15		30'	
Diameter ____ From ____ To ____	30'		Limestone
		40'	
Liner [ ] or Casing [ ] Diameter ____ From ____ To ____			

Driller's Name (print or type) Edwin Brooks

WELL COMPLETION REPORT (Please complete in black ink or type)

PERMIT # 1646708 02 CUP/WUP # _____ DID # 1
If permit is for multiple wells indicate the number of wells drilled 1
Indicate remaining wells to be cancelled Ø
WATER WELL CONTRACTOR'S
SIGNATURE Robert B Hunsicker License # 2879
I certify that the information provided in this report is accurate and true

Grout	No of Bags	From (Ft.)	To (Ft)
Neat Cement	5 Bags	0	24'
Bentonite			

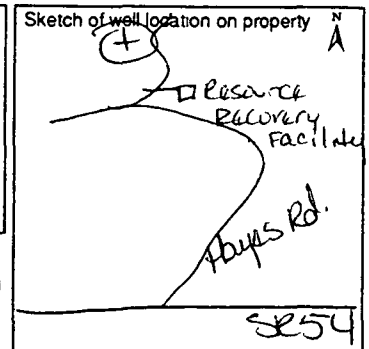
WELL LOCATION County Pasco
NW 1/4 of SE 1/4 of Section 24 Twp 24s Rge 17E
Latitude _____ Longitude _____

DATE STAMP

Official Use Only

CHEMICAL ANALYSIS WHEN REQUIRED
Iron ____ ppm Sulfate ____ ppm
Chloride ____ ppm
[ ] Lab Test [ ] Field Test Kit
Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible [ ] Turbine
Horsepower _____ Capacity _____ G P.M _____
Pump Depth _____ Ft Intake Depth _____ Ft

Sketch of well location on property



Give distances from septic tank and house or other reference points

Form 41 10-410(2) Rev 6/95

OWNER'S NAME Pasco Co. Board Co. Commissioners
COMPLETION DATE 1-24-01 Florida Unique I D _____
WELL USE DEP/Public ____ Irrigation ____ Domestic ____ Monitor ✓
HRS Limited ____ 62-524 ____ Other _____
DRILL METHOD [~~✓~~ Rotary] [ ] Cable Tool [ ] Combination
[ ] Jet [ ] Auger Other _____

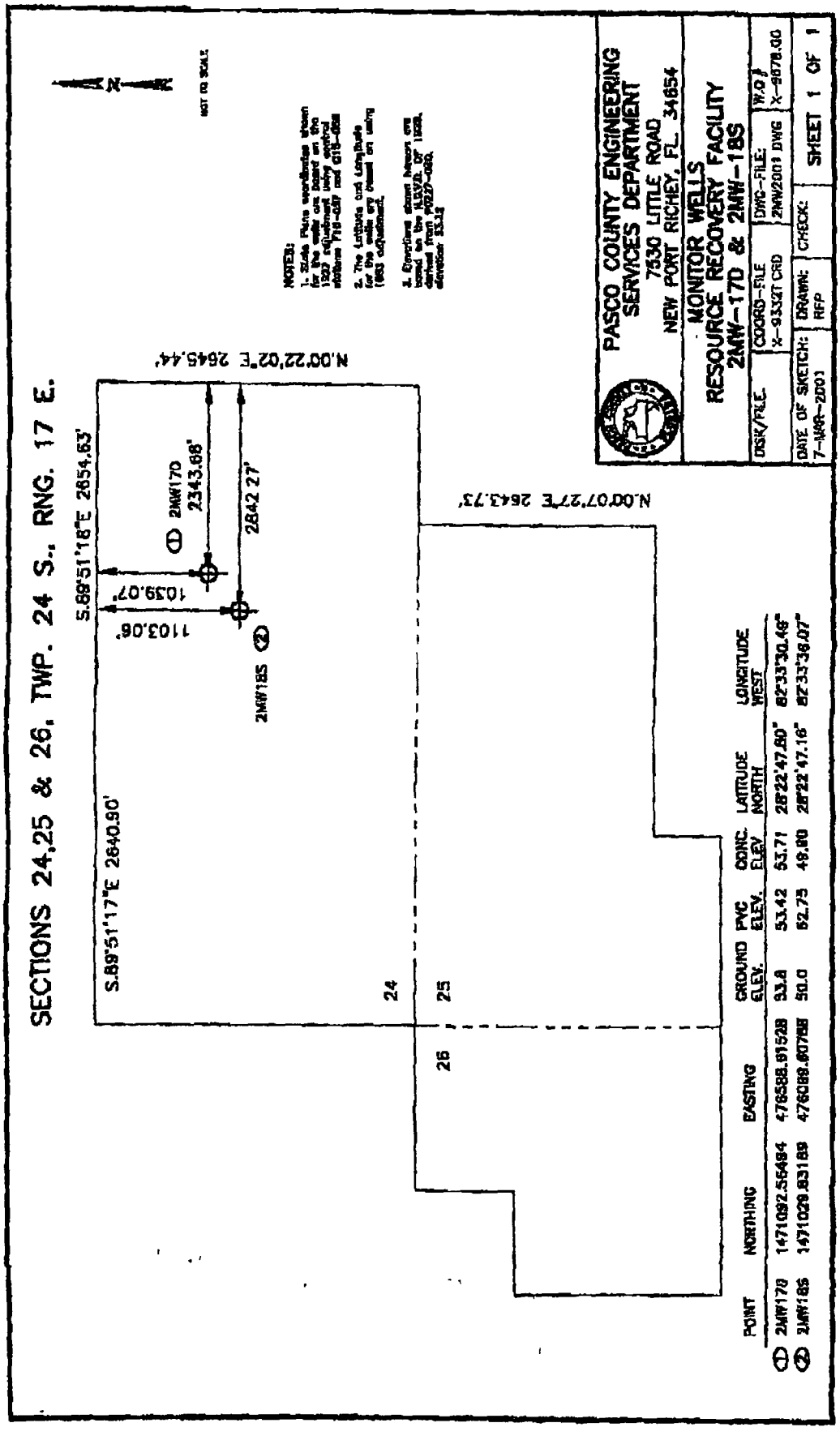
Measured Static Water Level _____ Measured Pumping Water Level _____
After ____ Hours at ____ G P M. Measuring Pt (Describe) _____
Which is ____ Ft [ ] Above [ ] Below Land Surface
Casing [ ] Black Steel [ ] Galv [~~✓~~ PVC] Other _____

[ ] Open Hole [~~✓~~ Screen]	Depth (Ft)		DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes. Note cavities, depth to producing zones. Color | Grain Size | Type of Material
Casing Diameter & Depth (Ft)	From	To	
Diameter 2" From 0 To 39'	0		Brown Fine Sand
		20'	
	20'		Brown Fine Sand
15'-.01		39'	
Diameter ____ From ____ To ____			
Liner [ ] or Casing [ ] Diameter ____ From ____ To ____			

Driller's Name (print or type) Edwin Brooks

APR 12 2001 2 11PM PASCO CNTY SOLID WASTE NO 900 P 1/1
FROM PASCO COUNTY GUR r. 12 2001 12:44PM P2

Date 4/12	# of pages 2		
To Larry Maron	From Vincent Na		
Co./Dept. DOE	Co. Pasco County		
Phone # 813-623-6676	Phone # 856-0119		
Fax # 813-623-3795	Fax # 861-3099		



POINT	NORTHING	EASTING	GROUND ELEV.	PVC ELEV.	CONC. ELEV.	LATITUDE NORTH	LONGITUDE WEST
① 2MW17D	1471092.55484	478588.81528	53.8	53.42	53.71	28°22'47.80"	82°33'30.48"
② 2MW18S	1471029.83189	476088.60788	50.0	52.75	49.80	28°22'47.16"	82°33'36.07"

RECEIVED
MAR 30 2001
Department of Environmental Protection
BY SOUTHWEST DISTRICT

Pasco County, Florida

Water Quality Monitoring Plan
For The West Pasco County Class I Landfill

March 29, 2001

GW MON. DETAILS EXCERPTED FROM THIS DOCUMENT, REFLECTS NEW WELLS RELATED TO CELLS A-3/SW-2

Water Quality Monitoring Plan For the West Pasco County Class I Landfill

1.0 General Aspects of the Plan

This water quality monitoring plan is a revision to the original plan that was submitted for the West Pasco County Class I Landfill in 1994 The original plan was presented in Section 9 0 of a submittal entitled Engineering Report and Application to Construct Disposal Unit A-2, prepared by Law Environmental, revised January 5, 1995 The primary revisions to the original plan include the addition of new and proposed monitor wells and leachate collection systems

The following plan is designed to meet the current rule requirements in Chapter 62-701 510, F A C by upgrading the existing groundwater monitoring plan as discussed in the review comments associated with the Engineering Report for the Resource Recovery Landfill Cell Construction Submittal, dated December 2000 The revised plan is based on the hydrogeological investigation provided with the original plan, historical water quality sampling and laboratory analytical results, and information obtained from recent investigations including data presented in the Ground Water Monitoring Corrective Action Plan for Cell SW-1 prepared by Qore Property Sciences and dated July 25, 2000

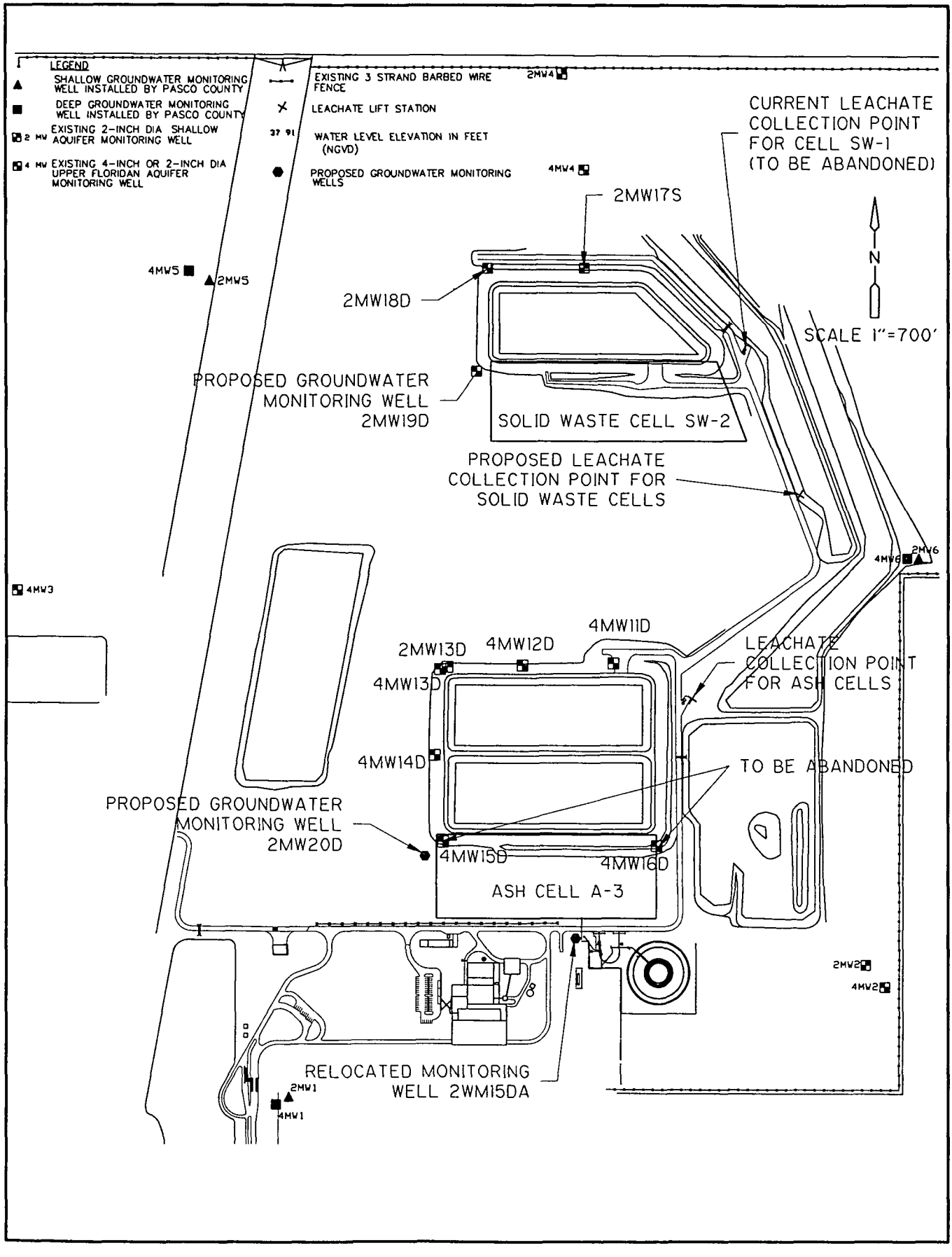
2.0 Water Quality Monitoring Systems

The water quality monitoring systems currently include sampling of groundwater and leachate Because there are no surface water discharges, no surface water monitoring points are proposed The following subsections describe the details of the existing and proposed monitoring systems

2.1 Groundwater Monitoring System

The groundwater monitoring system has been designed to meet the current rule requirements in Chapter 62-701 510(3), F A C The existing and proposed monitor wells of the groundwater monitoring system are presented in **Figure 1**

The existing and proposed detection wells are located downgradient from disposal units A-1, A-2, and A-3, and the solid waste units SW-1 and SW-2 They are within 50 feet of the respective disposal unit that they border and are located no more than 500 feet apart The existing detection wells include 4MW-11D through 4MW-14D, 2MW-13D, 2MW-17S and 2MW-18D The currently proposed detection wells include 2MW-19D and 2MW-20D All of these wells, with the exception of 2MW-13D and 2MW-17S, monitor groundwater in the upper Floridan Aquifer Detection wells 2MW-13D and 2MW-17S are completed in the base of the permeable sand unit within the clastic surficial deposits above the upper Floridan Groundwater monitoring data accumulated to date from 2MW-13D indicate the surficial aquifer to be dry in the immediate vicinity of disposal units A-1, A-2, and A-3



L:\6104\28936\Dep\Figure\ figure 1 03/27/01 13:46:00 Petermanr 14:46:18

CDM Camp Dresser & McKee

Figure No. 1
Water Quality Monitoring Plan

However, based on preliminary groundwater data accumulated from 2MW-17S, there may be an isolated perched water table aquifer in the shallow sand stratum north of the solid waste unit SW-1 Currently, a study is being performed to evaluate the water level elevations of the wells completed in the upper Floridan Aquifer in the vicinity of 2MW-17S to determine if there is a perched water table aquifer in this area or if the confining unit between the shallow sand stratum and the Upper Floridan Aquifer is compromised in this area Although there are no additional surficial aquifer monitor wells proposed at this time, this decision will be reconsidered if a local depression of the top of the confining unit below the surficial sand interval results in the development of a saturated sand condition at future drilling locations However, because the shallow sand stratum generally is dry, the site specific conditions do not justify the installation of detection wells in the surficial aquifer on 500 foot and 1500 foot spacings

The existing downgradient compliance monitoring wells are located to the north, northwest, and west of the landfill footprint The compliance monitoring wells include 2MW-3 through 2MW-5, which are completed in the surficial aquifer, and 4MW-3A, 4MW-4, and 4MW-5, which are completed in the Upper Floridan Aquifer

There are six existing background monitor wells located upgradient of the disposal units, three completed in the surficial aquifer (2MW-1, 2MW-2, and 2MW-6) and five in the Floridan Aquifer (4MW-1, 4MW-2, 4MW-6, 4MW-15, and 4-MW-16) Although monitor wells 4MW-15D and 4MW-16D will be plugged and abandoned during the construction of disposal unit A-3, a new background monitor well (2MW-15DA) will be installed to replace 4MW-15D The requirements outlined in Chapter 62-701 510(3)d3, F A C stipulate that upgradient wells are to be spaced no greater than 1500 feet apart unless site specific conditions justify alternate well spacing Although the two upgradient monitor wells 4MW-2 and 4MW-6 are 2200 feet apart and located 2200 feet from the nearest detection wells of the disposal units and solid waste units, respectively, it is CDM's opinion that the pattern of the existing upgradient wells (including replacement monitor well 2MW-15DA) achieves the same results as the objective of the requirement As additional disposal and solid waste units are proposed, the pattern of the upgradient wells will be reviewed and it shall be determined in coordination with the Florida Department of Environmental Protection (FDEP) whether additional upgradient monitor wells are required.

The alphanumeric well numbering system was originally established so that wells with the "4MW" designation were 4-inch diameter PVC Type II monitoring wells with open-hole completions in the Floridan aquifer and wells with the "2MW" designation were 2-inch diameter PVC Type II wells screened in the base of the permeable sand unit within the clastic surficial aquifer. However, due to the loss of integrity of the open-holes of the detection wells 4MW-11D, 4MW-12D, and 4MW-14 through 4MW-16D, 2-inch diameter PVC casing sleeves with 25-foot well screens were installed in these wells These wells were originally completed in 1998 with 25-foot long 3 7/8-inch diameter openholes in the Upper Floridan Aquifer

In addition, monitor well 4MW-13D, which was not successfully installed until April 31, 2000, was constructed using a 2-inch diameter PVC casing with 10 feet of 0 01-inch slotted screen from 26'-36' below land surface (bls) within the Upper Floridan Aquifer

Therefore, although monitor wells 4MW-11D through 4MW-16D have the "4MW" designation, they are actually 2-inch diameter wells completed within the Upper Floridan Aquifer

The location and completion data of the existing monitor wells is presented in **Table 1** Any additional monitor wells to be installed and included in this monitoring plan will be constructed in compliance with the requirements outlined in Chapter 62-701 510(3), F A C or in compliance with modifications to the requirements as coordinated with the FDEP The construction details for the proposed wells are presented in **Figure 2** A standard penetration test boring shall be conducted at each proposed well location to verify the location of aquifer and confining units, and the well screen slot and sand pack shall be sized to the formation of the targeted monitoring zone The expected lithologic sequence down to the Upper Floridan Aquifer for the area in the vicinity of proposed cell SW-2 is addressed in a groundwater monitoring corrective action plan prepared by QORE, Inc , dated July 25, 2000 Two cross-sections containing soil borings, existing monitor wells, and proposed monitor wells in the vicinity of proposed cell A-3 are presented along with a cross-section location map in **Figures 3, 4, and 5** to illustrate the anticipated lithologic sequence and water levels in the vicinity of cell A-3

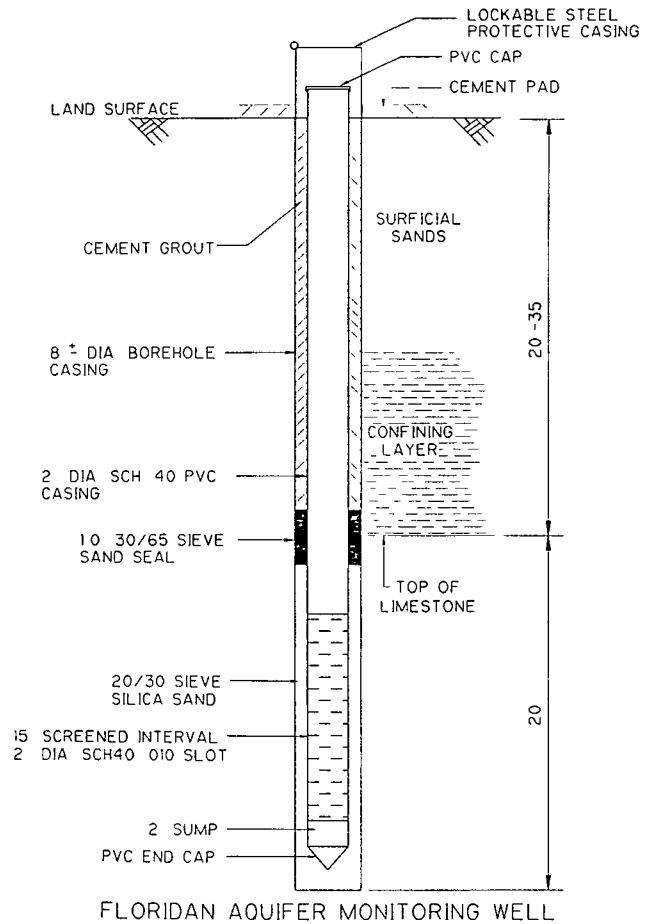
The existing surficial aquifer groundwater monitoring wells have been constructed with screened intervals of 15 feet or less in the base of the permeable sand unit above the impermeable clayey sand unit that overlies the Upper Floridan Aquifer Although there are no additional surficial aquifer monitor wells proposed at this time, this decision will be reconsidered if at future drilling locations a local depression of the top of the confining unit below the surficial sand interval results in the development of a saturated sand condition The construction of any such wells in the future will conform to the construction requirements stipulated in Chapter 62-701 510(3)d, F A C. including the following conditions. Additional surficial aquifer groundwater monitoring wells will be screened in the base of the permeable sand unit The impermeable clayey sands below this unit appear to provide a confining layer between the surficial aquifer and the Upper Floridan Aquifer and are not to be included in the screened interval The screened interval will be no more than 15 feet in length The grain size of the sand pack will be adjusted in the field during installation, depending on the grain size of the formation sand in the screened interval However, unless the grain size of the formation sand differs from that already observed in cuttings collected from previous borings performed at the facility, a 0 01-inch slotted screen and a sand pack of 20/30 silica sand will be used.

Most of the existing Upper Floridan Aquifer groundwater monitoring wells have been drilled and cased from 3 to 5 feet into the competent limestone unit

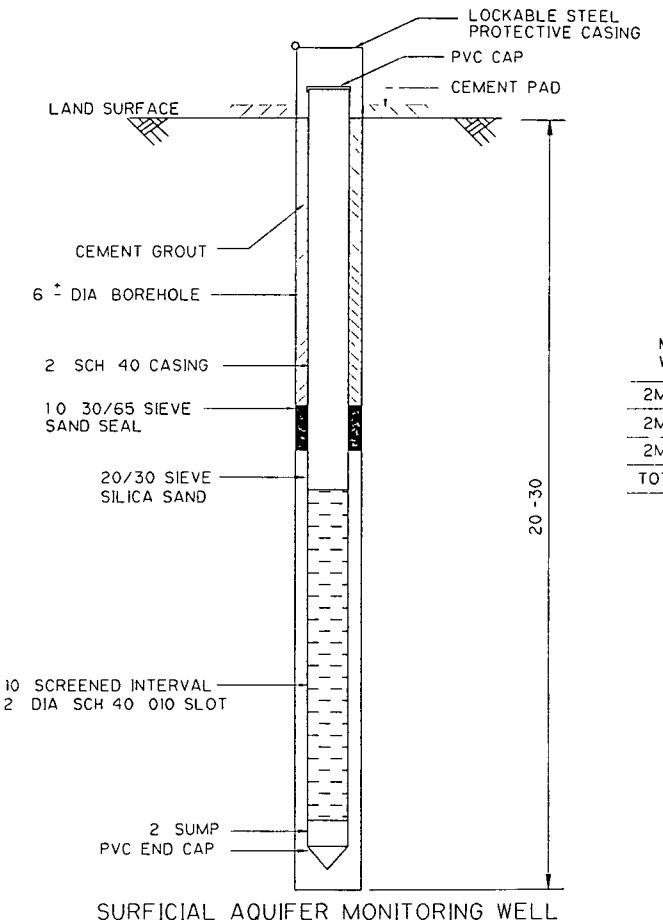
Table 1

Construction Summary of Existing Monitor Wells
in the Water Quality Monitoring Plan for the
West Pasco Class I Landfill

Well I D	Location		Ground Elevation (ft NGVD)	Top of Casing (ft NGVD)	Screened/Open Hole Section			Total Depth (ft bls)	
	Latitude North	Longitude West			Well Type (dia)	Depth (ft bls)	Elevation (ft NGVD)		
Surficial Aquifer									
2MW-1	28 22' 05 8"	82 33' 48 1"	46 7	49 97	Screened (2")	8 5 - 18 5	38 2 - 28 2	18 5	✓
2MW-2	28 22' 12 3"	82 33' 11 9"	52 8	56 26	Screened (2")	29 5 - 34 5	23 3 - 18 3	34 5	✓
2MW-3	28 22' 26 7"	82 34' 17 8"	41 7	49 94	Screened (2")	10 5 - 15 5	31 2 - 26 2	15 5	
2MW-4	28 22' 57 7"	82 33' 31 4"	51 3	54 31	Screened (2")	10 5 - 15 5	40 8 - 35 8	15 5	✓
2MW-5	28 22' 46 7"	82 33' 52 2"	45 3	48 13	Screened (2")	4 0 - 8 0	41 3 - 37 3	8 0	✓
2MW-6	28 22' 32 7"	82 33' 11 1"	53 0	55 64	Screened (2")	20 0 - 30 0	33 0 - 23 0	30 0	✓
2MW-13D	28 22' 27 2"	82 33' 38 7"	49 1	52 39	Screened (2")	7 8 - 17 3	41 3 - 31 8	18 0	✓
2MW-17S					Screened (2")	23 0 - 38 0		41 0	
Floridan Aquifer									
4MW-1	28 22' 05 5"	82 33' 48 1"	46 5	49 61	Open Hole (3 7/8")	32 0 - 60 0	14 5 - -13 5	60 0	✓
4MW-2	28 22' 12 2"	82 33' 11 9"	53 0	55 76	Open Hole (3 7/8")	42 0 - 70 0	11 0 - -17 0	70 0	✓
4MW-3A	28 22' 31 5"	82 34' 03 3"	50 6	52 84	Open Hole (3 7/8")	22 0 - 50 0	28 6 - 0 6	50 0	
4MW-4	28 22' 52 5"	82 33' 30 3"	48 1	50 52	Open Hole (3 7/8")	22 0 - 50 0	26 1 - 0 5	50 0	✓
4MW-5	28 22' 47 2"	82 33' 53 4"	45 4	48 26	Open Hole (3 7/8")	68 0 - 100 0	-22 6 - -47 6	100 0	✓
4MW-6	28 22' 32 7"	82 33' 11 3"	52 4	55 03	Open Hole (3 7/8")	73 0 - 100 0	-20 6 - -47 6	100 0	✓
4MW-11D	28 22' 27 5"	82 33' 28 5"	61 9	65 00	Screened (2")	27 0 - 52 0	34 9 - 9 9	52 0	✓
4MW-12D	28 22' 27 4"	82 33' 33 9"	51 8	55 03	Screened (2")	30 0 - 55 0	21 8 - -3 2	55 0	✓
4MW-13D	28 22' 27 3"	82 33' 38 1"	51 2	54 04	Screened (2")	26 0 - 36 0	25 2 - 15 2	36 0	✓
4MW-14D	28 22' 22 8"	82 33' 39 0"	49 0	52 00	Screened (2")	25 0 - 50 0	24 0 - -1 0	50 0	
4MW-15D	28 22' 18 5"	82 33' 38 5"	51 7	54 53	Screened (2")	36 0 - 61 0	15 7 - -9 3	61 0	✓
4MW-16D	28 22' 18 3"	82 33' 26 1"	48 6	52 47	Screened (2")	16 0 - 41 0	32 6 - 7 6	41 0	✓
4MW-18D					Screened (2")	25 0 - 40 0		40 0	



FLORIDAN AQUIFER MONITORING WELL



SURFICIAL AQUIFER MONITORING WELL

PROPOSED GROUNDWATER MONITORING WELL

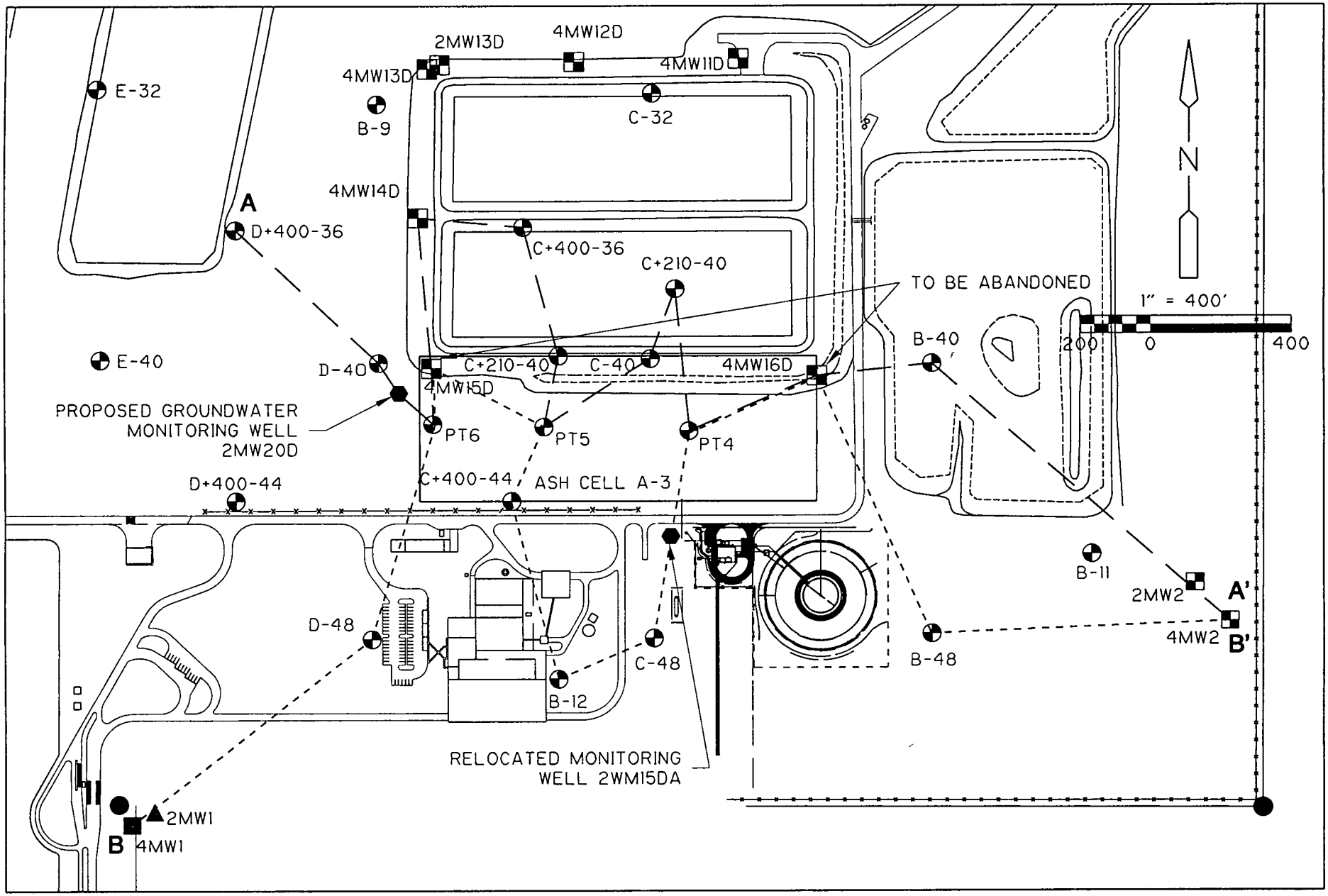
MONITOR WELL NO	DEPTH BELOW GRADE (FT)	EXPECTED TOP OF LIMESTONE (FT)	EXPECTED SCREENED INTERVAL (FT)
2MW-19D	53 0	35 0	38 0 - 53 0
2MW-20D	50 0	33 0	35 0 - 50 0
2MW-15AD	41 0	24 0	26 0 - 41 0
TOTAL	144 0		

NOT TO SCALE

CDM Camp Dresser & McKee

Figure No 2
Groundwater Monitoring Well Construction Detail

L \6104\28936\Dep\Figure\ figure 3 03/27/01 13 52 25 4 59 20 Petermanrr



CDM Camp Dresser & McKee

Figure No. 3
Cross Section Location Map

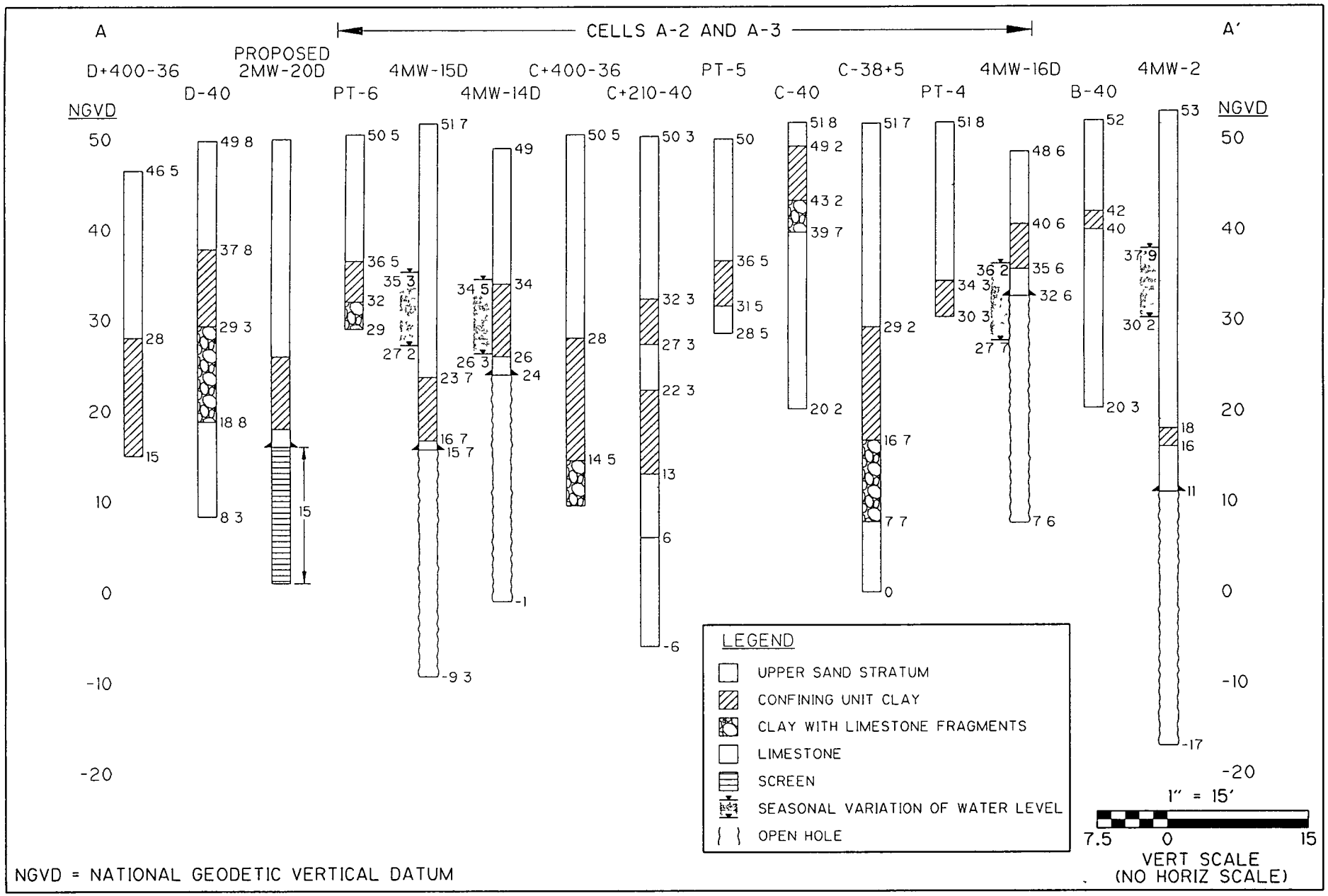


Figure No. 4
Geological Cross-Section of Wells and Borings In and Around Disposal Cells A-2 and A-3 of the Pasco County Class I Landfill

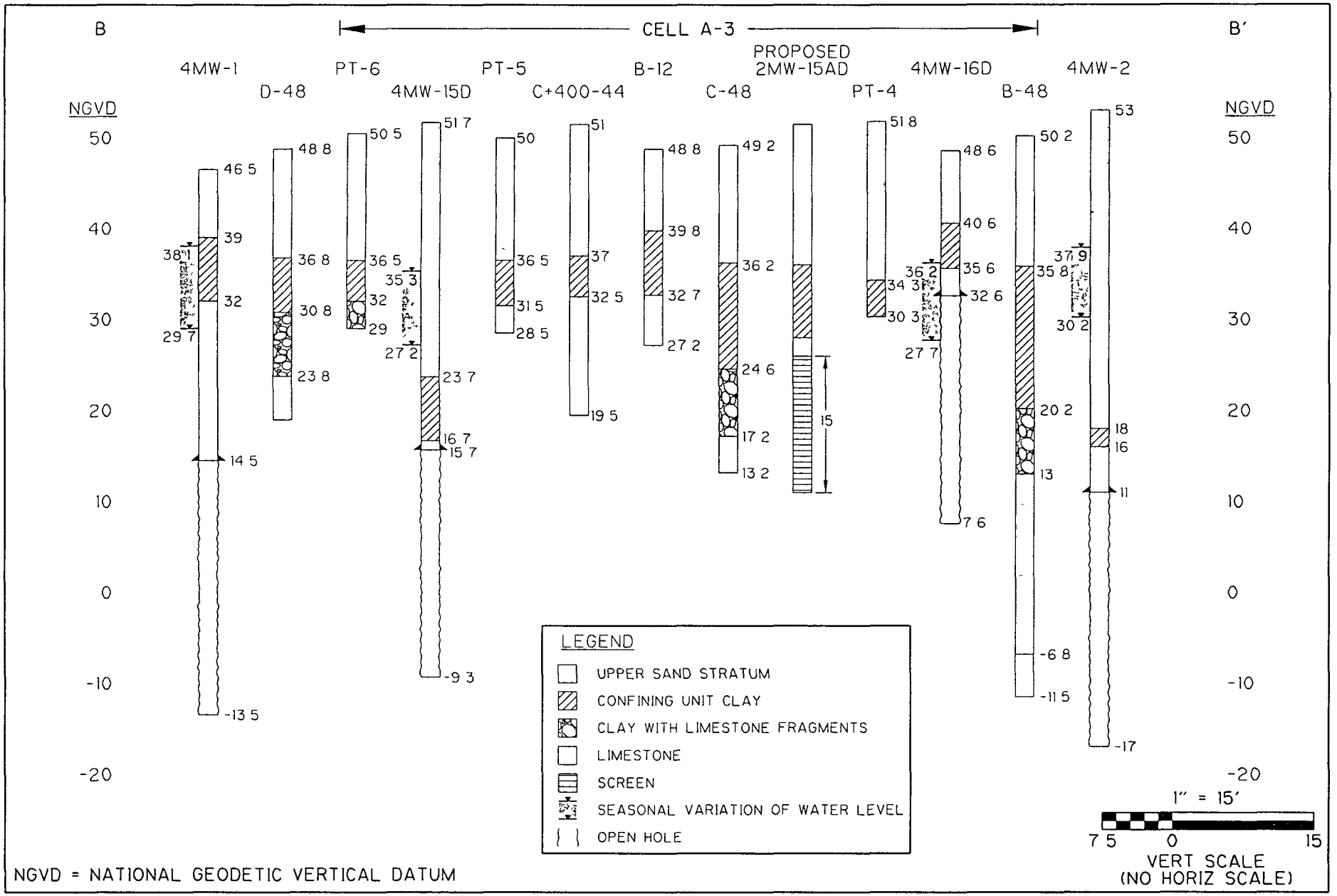


Figure No. 5
Geological Cross-Section of Wells and Borings In and Around Proposed Disposal Cell A-3 of the Pasco County Class I Landfill

The open hole or screened interval of each of these wells is from 25' to 32' in length Some of the recently installed Upper Floridan Aquifer groundwater monitoring wells (4MW-13D and 2MW-18D) have been drilled using hollow-stem augering techniques to depths of up to 15' into the competent limestone unit All future wells to be completed in the Upper Floridan Aquifer will adhere to the construction requirements stipulated in Chapter 62-701 510(3)d, F A C including the following conditions.

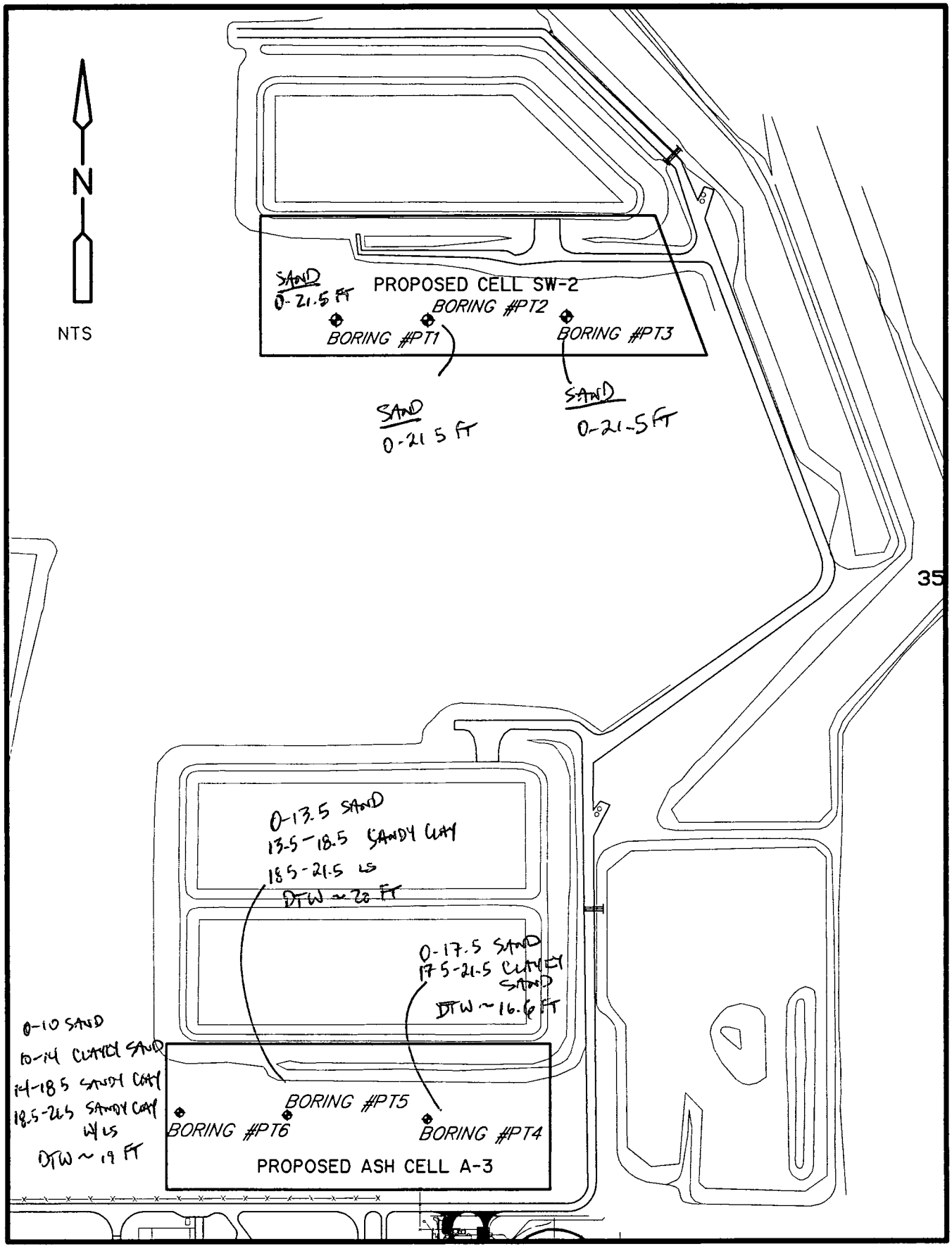
The Floridan Aquifer monitoring wells will be drilled to a depth of approximately 18 feet below the top of the first competent limestone positioned beneath the clayey sand of the confining unit A 2-inch diameter PVC Type II well will be constructed with a 15-foot screened interval that extends to within approximately 3 feet of the top of the competent limestone unit However, if the seasonal fluctuation of the top of the groundwater surface is expected to drop below 10 feet below the top of the limestone, the well will be constructed with a screened interval that extends approximately 5' below the lowest expected groundwater surface Unless the competent limestone of the Upper Floridan Aquifer exhibits a different lithology from that already observed in cuttings collected from previous borings performed at the facility, a 0 01-inch slotted screen and a sand pack of 20/30 silica sand with at least one foot of 30/65 fine sand seal will be used The proposed wells will either be constructed with surface casing set into the top of the Upper Floridan Aquifer or neat cement grout in the annulus between the production casing and the borehole above the fine sand seal

Any monitoring wells which are abandoned or which will be lost due to lateral expansions of the landfill or the construction of new solid waste disposal units will be plugged as necessary so that they do not act as a conduit for any leachate release to the groundwater All such wells will be filled and sealed in accordance with Chapter 62-701 510(3)d5, F A C and with the rules of the Southwest Florida Water Management District (SWFWMD), from bottom to top with neat cement grout The Department will be notified in writing before any monitoring wells are abandoned or plugged and will be given access, at reasonable times, to witness or inspect the plugging

There are no groundwater quality detection sensors currently installed or proposed for installation at the facility The landfill design includes a leak detection system between the primary and secondary 60-mil thick HDPE liners In addition, a geosynthetic clay liner (GCL) is placed immediately underneath the secondary liner to provide an added barrier of protection The GCL provides a sealing capability to potential leaks at the hydraulic low points in the secondary leachate collection system

2.2 Leachate Monitoring System

The existing and proposed disposal and solid waste cells at the facility are all constructed with a double liner system The double liner system, in addition to consisting of an upper and lower 60-mil thick HDPE geomembrane, also includes a primary leachate collection and removal system lying above the upper geomembrane and a leak detection and secondary leachate collection system between the upper and lower liners



CDM Camp Dresser & McKee

APPROXIMATE SOIL BORING LOCATIONS

STANDARD PENETRATION TEST BORING LOGS

DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 002716 **BORING NO. PT-1**

Project West Pasco Landfill Cell Expansion, Pasco County, Florida

Location See Plate I Foreman T.T.

Completion Depth 21.5' Date 6/2/00 Depth To Water > 20.0' * Time Date 6/2/00

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP
			SURF. EL:		10 20 40 60 80
0			Gray Fine SAND with roots (SP)		
			Very loose to loose tan Fine SAND (SP)	2/2/3	
				2/2/2	
5				2/3/4	
			Loose light brown to brown Fine SAND (SP)	4/5/5	
10				2/4/5	
			Medium dense to dense light gray Fine SAND (SP)	4/5/8	
15				5/7/12	
20				11/15/19	
25					
30					

Remarks * Water Table recorded in washed borehole

Casing Length

DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 002716 **BORING NO.** PT-2

Project West Pasco Landfill Cell Expansion, Pasco County, Florida

Location See Plate I Foreman T.T.

Completion Depth 21.5' Date 6/2/00 Depth To Water > 20.0' * Time _____ Date 6/2/00

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP
			SURF. EL:		10 20 40 60 80
0			Gray Fine SAND with roots (SP)		
			Loose tan Fine SAND (SP)	3/4/4	
5				3/4/4	
				3/2/3	
			Medium dense to loose brown Fine SAND (SP)	4/5/6	
10				3/4/5	
			Medium dense dark brown Fine SAND (SP)	4/5/6	
15				4/6/12	
20				4/7/6	
25					
30					

Remarks * Water Table recorded in washed borehole

Casing Length _____

DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 002716 **BORING NO. PT-3**

Project West Pasco Landfill Cell Expansion, Pasco County, Florida

Location See Plate I Foreman T T.

Completion Depth 21.5' Date 6/2/00 Depth To Water > 20.0' * Time _____ Date 6/2/00

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP
			SURF. EL:		10 20 40 60 80
0			Gray Fine SAND with roots (SP)		
			Loose to medium dense tan Fine SAND (SP)		
				6/9/10	
5				4/5/6	
				3/3/6	
				4/4/5	
10				3/5/6	
				4/6/9	
15				5/9/13	
20				7/13/7	
25					
30					

Remarks * Water Table recorded in washed borehole

Casing Length _____

DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 002716 **BORING NO.** PT-4

Project West Pasco Landfill Cell Expansion, Pasco County, Florida

Location See Plate I Foreman T T.

Completion Depth 21.5' Date 6/2/00 Depth To Water 16 6' * Time _____ Date 6/2/00

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.	STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP
			SURF. EL:		10 20 40 60 80
0			Grayish-brown Fine SAND with roots (SP)		
			Loose tan Fine SAND (SP)	3/3/4	
5				4/4/5	
				3/3/5	
				4/4/6	
10			Loose to medium dense brown Fine SAND (SP)	3/4/6	
				5/8/8	
15				5/6/8	
			Medium dense grayish-brown clayey Fine SAND (SC)		
20				4/5/7	
25					
30					

Remarks Borehole Grouted

* Water Table recorded in washed borehole Casing Length _____

DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 002716 **BORING NO. PT-5**

Project West Pasco Landfill Cell Expansion, Pasco County, Florida

Location See Plate I Foreman T.T.

Completion Depth 21 5' Date 6/2/00 Depth To Water 20.0' * Time _____ Date 6/2/00

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.
			SURF. EL:	
0			Grayish-brown Fine SAND with roots (SP)	
			Loose tan Fine SAND (SP)	4/4/6
5				3/3/4
				2/4/5
			Medium dense light gray to grayish-brown Fine SAND (SP)	6/6/8
10				5/7/8
				7/7/7
15			Firm green sandy CLAY (CH)	3/3/4
			- 100% loss of circulation at depth 18.5'	
20			Cream colored LIMESTONE	4/4/4
25				
30				

STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP

10 20 40 60 80

Remarks Borehole Grouted

* Water Table recorded in washed borehole Casing Length _____

DRIGGERS ENGINEERING SERVICES INCORPORATED

Project No. DES 002716 **BORING NO. PT-6**

Project West Pasco Landfill Cell Expansion, Pasco County, Florida

Location See Plate I Foreman T.T.

Completion Depth 21.5' Date 6/2/00 Depth To Water 19.0' * Time ____ Date 6/2/00

DEPTH, FT	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS ON SAMPLER PER 6" OR PEN. STR.
			SURF. EL:	
0			Grayish-brown Fine SAND with roots (SP)	
			Loose tan Fine SAND (SP)	4/4/4
5				3/4/7
			Medium dense grayish-brown Fine SAND (SP)	5/7/7
			Medium dense grayish-brown silty Fine SAND (SM)	7/12/18
10			Medium dense gray slightly clayey Fine SAND (SP-SM)	10/9/7
			Medium dense gray clayey Fine SAND (SC)	4/6/6
15			Firm green sandy CLAY (CH)	2/3/3
			- 30% loss of circulation at depth 18 5'	
20			Soft green sandy CLAY with limerock fragments (CH)	2/1/2
25				
30				

STANDARD PENETRATION TEST BLOWS/FT. ON 2" O.D. SAMPLER-140 LB. HAMMER, 30" DROP

10 20 40 60 80

Remarks Borehole Grouted

* Water Table recorded in washed borehole Casing Length ____

(1)  Black organic debris - MUCK (PT)

(2)  Dark gray to black silty to sandy CLAY (CL/CH)

(3)  Gray slightly silty fine SAND, trace roots (SP-SM)

(4)  Light brown to brown fine SAND to slightly silty fine SAND (SP/SP-SM)

(5)  Dark brown slightly silty fine SAND to silty fine SAND (SP-SM/SM)

(6)  Brown to orange-brown silty fine SAND to slightly clayey fine SAND (SM/SP-SC)

(7)  Gray clayey SAND (SC)

(8)  Light gray and reddish-brown mottled sandy CLAY to CLAY (CL/CH)

(9)  Light brown or greenish-gray to green sandy CLAY to CLAY (CL/CH)

(10)  White to light brown calcareous silty CLAY, with limestone fragments and traces of green clay

(11)  White to light gray weathered LIMESTONE

SP Unified Soil Classification group symbol as determined by visual examination

N "N" value in blows/foot

50/4" Fifty blows for four inches

 Loss of circulation (%)

WK Fell under weight of rod & kelly

WH Fell under weight of rod & hammer

WR Fell under weight of rod

-200 Fines passing No. 200 sieve (%)

NMC Natural Moisture Content (%)

LL Liquid Limit (%)

PL Plastic Limit (%)

© Consolidation test performed

k_v Coefficient of Vertical Permeability (cm/sec)

 Shelby tube sample location

 Grain Size Analysis performed, see appendices

RW Rotary Wash

PASCO COUNTY	DATE 7/19/00	JOB NO 2440R	PLATE NO 7

QORE PROPERTY SCIENCES
1211 Tech Blvd. Suite 200 Tampa, Florida 33619 (813) 623-6646

SOIL BORING LEGEND

WEST PASCO CLASS I LANDFILL

2440FLEGEND

TABLE 1

SUMMARY OF MONITOR WELL CONSTRUCTION

WEST PASCO CLASS I LANDFILL

	Screened/Open Hole Section			
Well No	Well Type	Depth, ft bgs	Elevation, ft NGVD	Total Depth, feet
2MW-1	Screened	8 5 – 18 5	38 2 – 28 2	18 5
4MW-1	Open Hole	32 – 60	14 5 - -13 5	60
2MW-2	Screened	29 5 – 34 5	23 3 – 18 3	34 5
4MW-2	Open Hole	42 – 70	11 0 - -17 0	70
4MW-3 A	Open Hole	22 – 50	28 6 – 0 6	50
2MW-4	Screened	10 5 – 15 5	40 8 – 35 8	15 5
4MW-4	Open Hole	22 – 50	26 1 – 0 5	50
2MW-5	Screened	4 – 8	41 3 – 37 3	8
4MW-5	Open Hole	68 – 100	-22 6 - -54 6	100
2MW-6	Screened	20 – 30	33 0 – 23 0	30
4MW-6	Open Hole	73 – 100	-20 6 - -47 6	100
4MW-7	Open Hole	20 - 50	27 3 - -2 7	50
4MW-9	Open Hole	30 - 60	18 8 - -11 2	60
4MW-11D	Open Hole	27 - 52	38 0 – 13 0	52
4MW-12D	Open Hole	30 - 55	25 0 – 0 0	55
4MW-14D	Open Hole	25 - 50	27 0 – 2 0	50
4MW-15D	Open Hole	36 - 61	18 5 - -6 5	61
4MW-16D	Open Hole	16 - 41	36 5 – 11 5	41

Notes ft bgs = feet below ground surface

Monitoring Well No. 4MW-13D

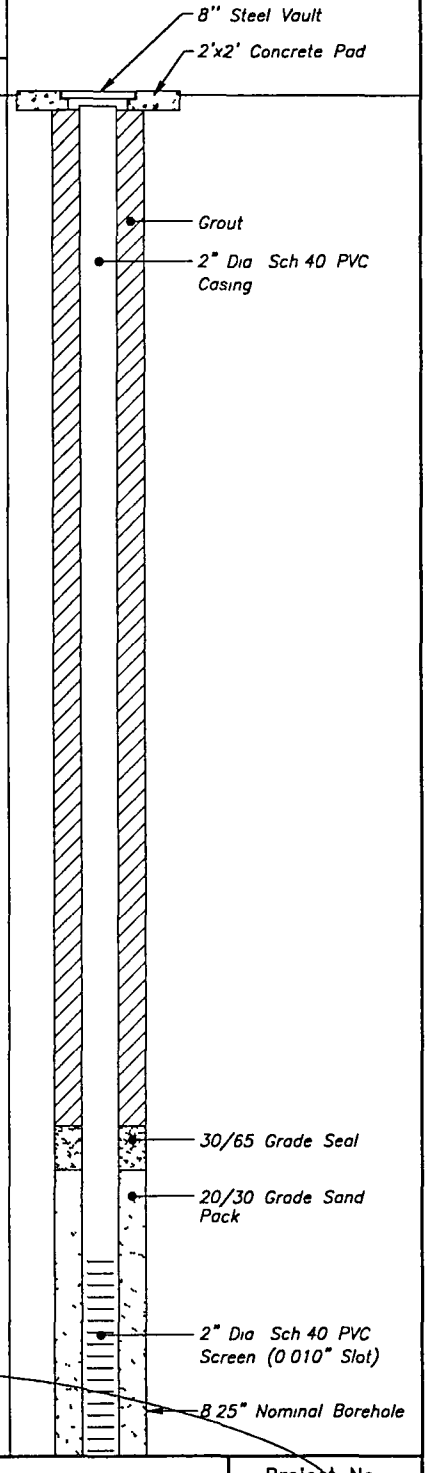
PROJECT: Pasco County Utilities
LOGGED BY: S Kinnaman
DRILLER: Huss
DATE INSTALLED: 4/31/00

DRILL METHOD: HSA
SAMPLE TYPE: Grab
HOLE DIA.: 8 25"
STATIC WL:

TOC ELEV: 54 04 ft NGVD
GROUND ELEV: 51 2 ft NGVD
STICK-UP: 2 84 ft
SURVEYOR: Pasco County

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	BLOWS/FT
SAND, pale yellowish brown, fine-grained	SP		0-8		
SAND, dark yellowish brown, fine-grained	SP		8-14		
SAND, grayish orange, fine-grained	SP		14-21		
SAND, pale yellowish brown, fine-grained, little clay	SP		21-25		
LIMESTONE	LS		25-30		
LIMESTONE, some dark yellowish orange clay	LS		26-30		

WELL CONSTRUCTION DETAIL



QORE™ PROPERTY SCIENCES
1211 Tech Blvd Suite 200 Tampa Florida 33619 (813) 623 6646

Notes:
REC'D 7/25/00, ATTACHED TO LETTER FROM QORE, INC.

Project No. 27-2440Q

2440q\4mw13d-1log

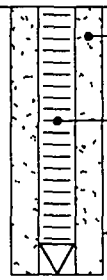
Monitoring Well No. 4MW-13D

PROJECT: Pasco County Utilities
LOGGED BY: S Kinnaman
DRILLER: Huss
DATE INSTALLED: 4/31/00

DRILL METHOD: HSA
SAMPLE TYPE: Grab
HOLE DIA.: 8 25"
STATIC WL:

TOC ELEV: 54 04 ft NGVD
GROUND ELEV: 51 2 ft NGVD
STICK-UP: 2 84 ft
SURVEYOR: Pasco County

DESCRIPTION	USCS CLASS	GRAPHIC LOG	DEPTH	SAMPLE	BLOWS/FT.	WELL CONSTRUCTION DETAIL
LIMESTONE, some dark yellowish orange clay	LS		30–36			20/30 Grade Sand Pack; 2" Dia Sch 40 PVC Screen (0 010" Slot); 8 25" Nominal Borehole
LIMESTONE	LS					
Boring terminated at 36 feet below ground surface (bgs)			37–60			



20/30 Grade Sand Pack
2" Dia Sch 40 PVC Screen (0 010" Slot)
8 25" Nominal Borehole

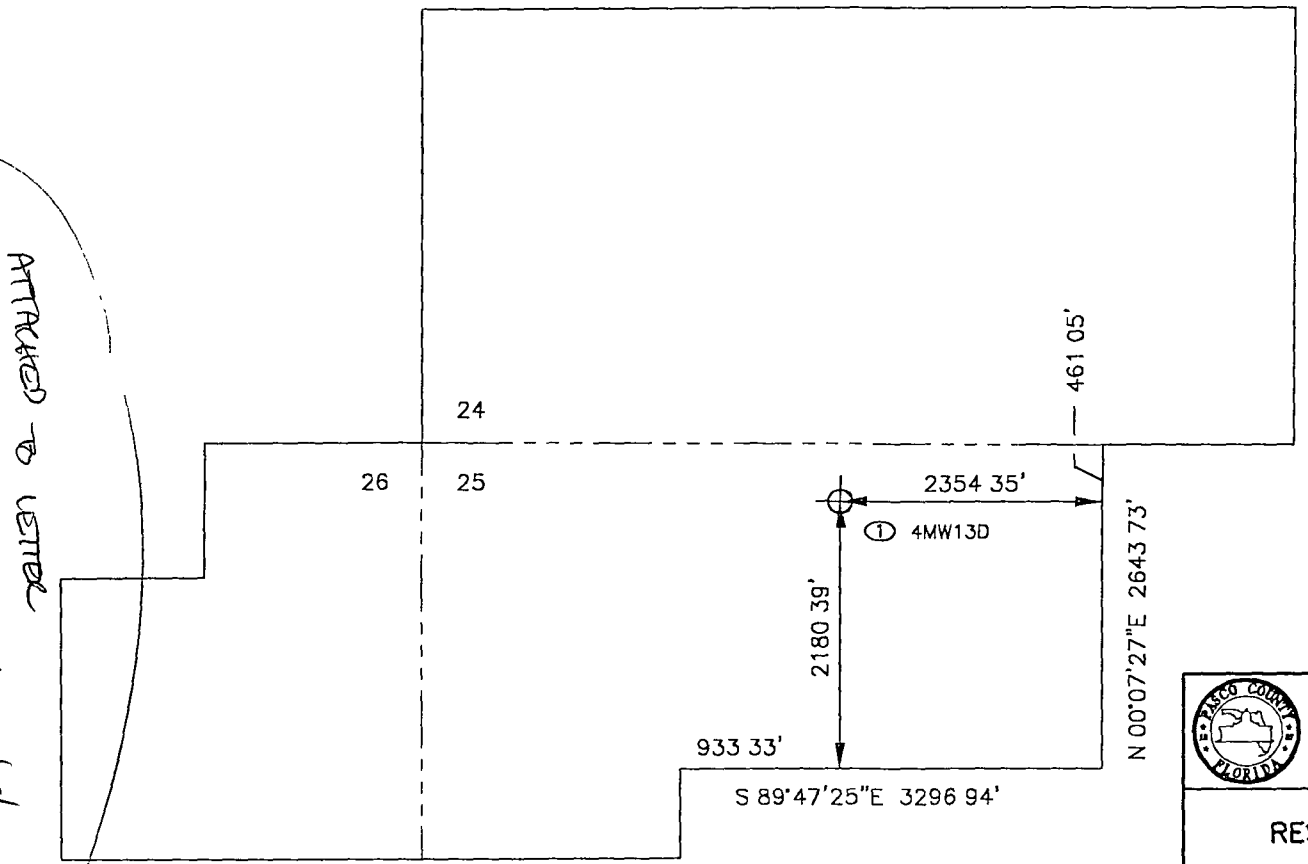
QORE™ PROPERTY SCIENCES
1211 Tech Blvd Suite 200 Tampa Florida 33619 (813) 623 6646

Notes:

Project No. 27-2440Q

2440q\4mw13d.log

SECTIONS 24,25 & 26, TWP. 24 S., RNG. 17 E.



NOTES

1 State Plane coordinates shown for the wells are based on the 1927 adjustment using control stations F16–057 and G15–058

2 The Latitude and Longitude for the wells are based on using 1983 adjustment

3 Elevations shown hereon are based on the N G V D OF 1929, derived from P0227–030, elevation 53 32

POINT	NORTHING	EASTING	GROUND ELEV	PVC ELEV	CONC ELEV	LATITUDE NORTH	LONGITUDE WEST
① 4MW13D	1469189 70297	475899 02484	51 2	54 04	51 19	28°22'27 31"	82 33'38 10"

PASCO COUNTY ENGINEERING SERVICES DEPARTMENT
7530 LITTLE ROAD
NEW PORT RICHEY, FL 34654

MONITOR WELLS
RESOURCE RECOVERY FACILITY
4MW13D

DISK/FILE	COORD–FILE	DWG–FILE	W O #
	X–9332T CRD	4MW13D DWG	X–9482 00

DATE OF SKETCH	DRAWN	CHECK	
13–JUNE–2000	RFP		SHEET 1 OF 1

ATTACHED TO LETTER FROM QUIE, INC, RECD 7/25/00

DEP Form # 62-522.900(3)
Form Title MONITOR WELL COMPLETION REPORT
Effective Date
DEP Application No.
(Filled in by DEP)

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

MONITOR WELL COMPLETION REPORT

DATE 4/31/2000

INSTALLATION NAME: Pasco County Resource Recovery Plant

DEP PERMIT NUMBER _____ GMS NUMBER _____

WELL NUMBER: 4MW13D WELL NAME: NA

DESIGNATION. Background _____ Immediate _____ Compliance _____

LATITUDE/LONGITUDE: _____

AQUIFER MONITORED Floridan

INSTALLATION METHOD hollow stem auger

INSTALLED BY: Huss Drilling, Inc.

TOTAL DEPTH. (bls) 36' DEPTH OF SCREEN: 26' (bls)

SCREEN LENGTH: 10' SCREEN SLOT SIZE: 0.010 SCREEN TYPE: PVC

CASING DIAMETER: 2" CASING TYPE: PVC

LENGTH OF CASING: 26' FILTER PACK MATERIAL: 20/30 grade silica sand

TOP OF CASING ELEVATION (MSL): _____

GROUND SURFACE ELEVATION (MSL): _____

COMPLETION DATE: 4/31/2000

DESCRIBE WELL DEVELOPMENT: Pumped and surged with centrifugal pump until visually free of fine-grained sediments

POST DEVELOPMENT WATER LEVER ELEVATION (MSL): _____

DATE AND TIME MEASURED: _____

REMARKS: (soils information, stratigraphy, etc.): see attached boring log

REPORT PREPARED BY: Sandra Kinnaman, QORE, (813) 623-6646
(name, company, phone number)

ATTACHED TO LETTER FROM QORE, INC., RECD 6/9/00

NOTE: PLEASE ATTACH BORING LOG.

(bls)= Below Land Surface

WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 2 MW13D

Date(s) of Installation: 1/22/98

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 27 (D D M M S S) 20 (S S)

Longitude: 82 33 38 (D D M M S S) 70 (S S)

Elevation Surface: 49 12

Elevation TOC: 52 39

Surveyor's Name:

Surveyor's License #:

Turbidity:

Date of Reading:

Static Water Level (MSL): 39 5

Field Geologist: Owen Thornberry



Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Schedule 40 PVC		2"	0	7 8

Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Sch 40 PVC		2 Inch	7 8	17 3	0 010"

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Sand Pack	6/20	6	18	Manual
Fine Sand Seal	20/30	5 5	6	Manual
Portland Cement		0	5 5	Manual

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Hollow Stem Auger	10" O/D	0	18	N/A

SCALE 1 INCH = 1

WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill
EPA Identification Number:
Well Identification: 4MW11D
Date(s) of Installation: 22-28 January 1998
Well Driller's Complete Name: David Kirby
Well Driller's License Number: 9176

Latitude: 28 22 27 (D D M M S S) 50 (S S)
Longitude: 82 33 28 (D D M M S S) 50 (S S)

Elevation Surface: 61 87
Elevation TOC: 65 00
Surveyor's Name:
Surveyor's License #:
Turbidity:
Date of Reading:
Static Water Level (MSL): 40 1'
Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		8 Inch	0	27

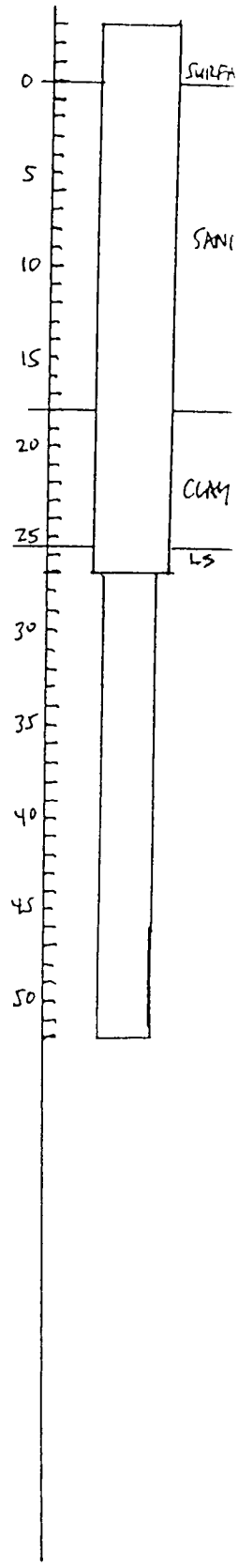
Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Borehole	6 Inch	N/A	27	52	

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement		0 0	27 0	Pressure Grouting

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotary		0 0	52 0	Bentonite Slurry



SCALE 1 UNIT = 1 FOOT

WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 4MW12D

Date(s) of Installation: 22-28 January 1998

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 27 (D D M M S S) 40 (S S)

Longitude: 82 33 33 (D D M M S S) 90 (S S)

Elevation Surface: 51 79

Elevation TOC: 55 03

Surveyor's Name:

Surveyor's License #:

Turbidity:

Date of Reading:

Static Water Level (MSL): 39 5'

Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		8 inch	0	30

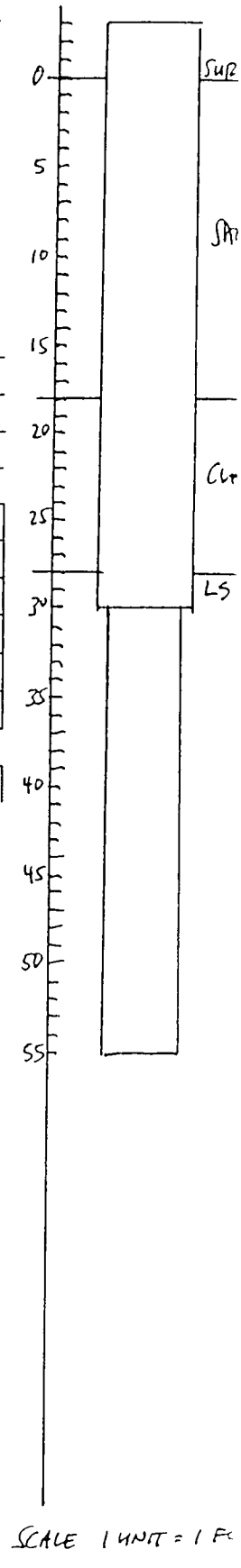
Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Borehole	6 inch		30	55	

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement		0	30	Pressure Grouting

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotary		0	55	Bentonite Slurry



WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 4MW14D

Date(s) of Installation: 22-28 January 1998

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 22 80

D D M M S S S S

Longitude: 82 33 39 00

D D M M S S S S

Elevation Surface: 48 99'

Elevation TOC: 52 00'

Surveyor's Name:

Surveyor's License #:

Turbidity:

Date of Reading:

Static Water Level (MSL): 39 8'

Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		8 inch	0	25

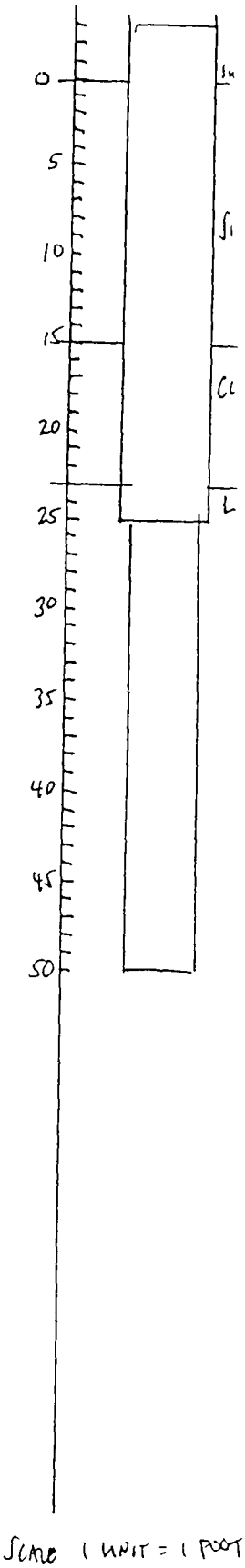
Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Borehole	6 inch		25	50	

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement		0	25	Pressure Grouting

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotary		0	50	Bentonite Slurry



Scale 1 UNIT = 1 FOOT

WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 4MW15D

Date(s) of Installation: 22-28 January 1998

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 18 (D D M M S S) 50 (S S)

Longitude: 82 33 38 (D D M M S S) 50 (S S)

Elevation Surface: 51 69

Elevation TOC: 54 53

Surveyor's Name:

Surveyor's License #:

Turbidity:

Date of Reading:

Static Water Level (MSL): 40 5'

Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		8 inch	0	36

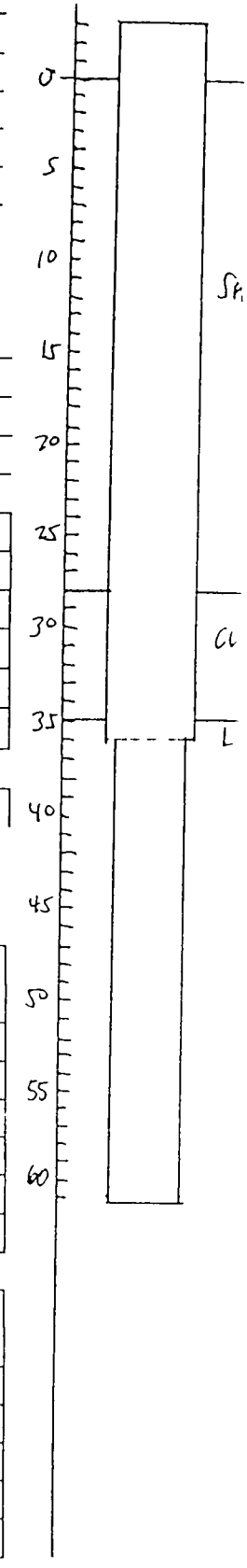
Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Borehole	6 inch		36	61	

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement		0	36	Pressure Grouting

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotary		0	61	Bentonite Slurry



WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 4MW16D

Date(s) of Installation: 22-28 January 1998

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 18 (D D M M S S) 30 (S S)

Longitude: 82 33 26 (D D M M S S) 10' (S S)

Elevation Surface: 48 63

Elevation TOC: 52 47

Surveyor's Name:

Surveyor's License #:

Turbidity:

Date of Reading:

Static Water Level (MSL): 41 1'

Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		8 inch	0	16

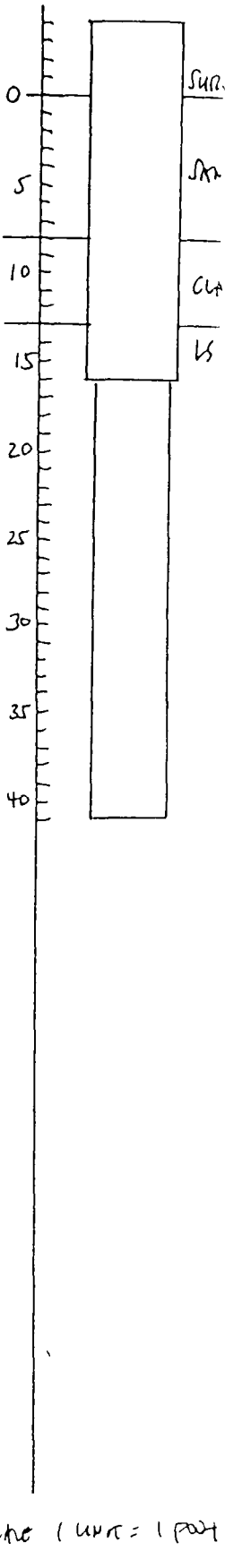
Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Borehole	6 inch		16	41	

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement		0	16	Pressure Grouting

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotary		0	41	Bentonite Slurry



Scale 1 unit = 1 foot

SECTIONS 24, 25 AND 26, TOWNSHIP 24 SOUTH, RANGE 17 EAST.

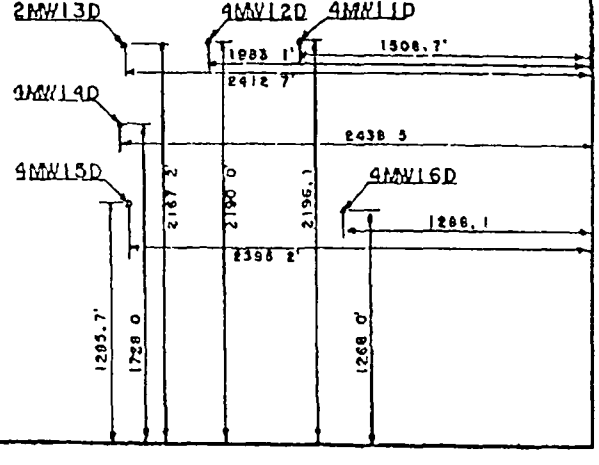
LOCATION OF GROUNDWATER MONITORING WELLS AT THE RESOURCE RECOVERY PLANT CELLS A-1 AND A-2

SHADY HILLS ROAD

NORTH

0 200 800' 1000'

GRAPHIC SCALE
1" = 1000'



NOTES

1. See F.B.541, pages 9-13
2. Elevations refer to N.G.V.D. 1927
3. Benchmark used Pasco County B.M. #227-030, 60d nail, edge of road, 1050' S. of Leachate Pumping Sta. Elevation 53.32
4. Latitude and Longitude are based on N.G.S. Markers F16-057 and G15-058.
5. Datum is NAD 83 Adjustment of 1990.

WELL NO.	NORTH LATITUDE	WEST LONGITUDE	TOP OF CASING	GROUND ELEV.
4MW11D	28°22'27.5"	82°33'28.5"	65.00'	61.87'
4MW12D	28°22'27.4"	82°33'33.9"	55.03'	51.79'
2MW13D	28°22'27.2"	82°33'38.7"	52.39'	49.12'
4MW14D	28°22'22.8"	82°33'39.0"	52.00'	48.99'
4MW15D	28°22'18.5"	82°33'38.5"	54.53'	51.69'
4MW16D	28°22'18.3"	82°33'26.1"	52.47'	48.63'

HAYS ROAD

TOTAL P 01
PAGE 01
MAR 19 '98 16:02

8/5/99
JRM

WEST PASCO CLASS I

WELL	SCREENED INTERVAL	CLAY THICKNESS	DEPTH TO CLAY (FT BLS)
4MW-11D	25 FT	8 FT	18 FT
-12D	25 FT	10 FT	18 FT
-13D	NOT INSTALLED	—	—
-14D	25 FT	8 FT	15 FT
-15D	25 FT	7 FT	28 FT
-16D	25 FT	5 FT	8 FT

AT 4MW-13D LOCATION, FIRST BORING ENCOUNTERED 20 FT OF CLAY BEFORE BEING ABANDONED

AT SECOND ATTEMPT ~50 FT SOUTH OF FIRST BORING ENCOUNTERED ~60 FT OF CLAY W/O ENCOUNTERING LS.

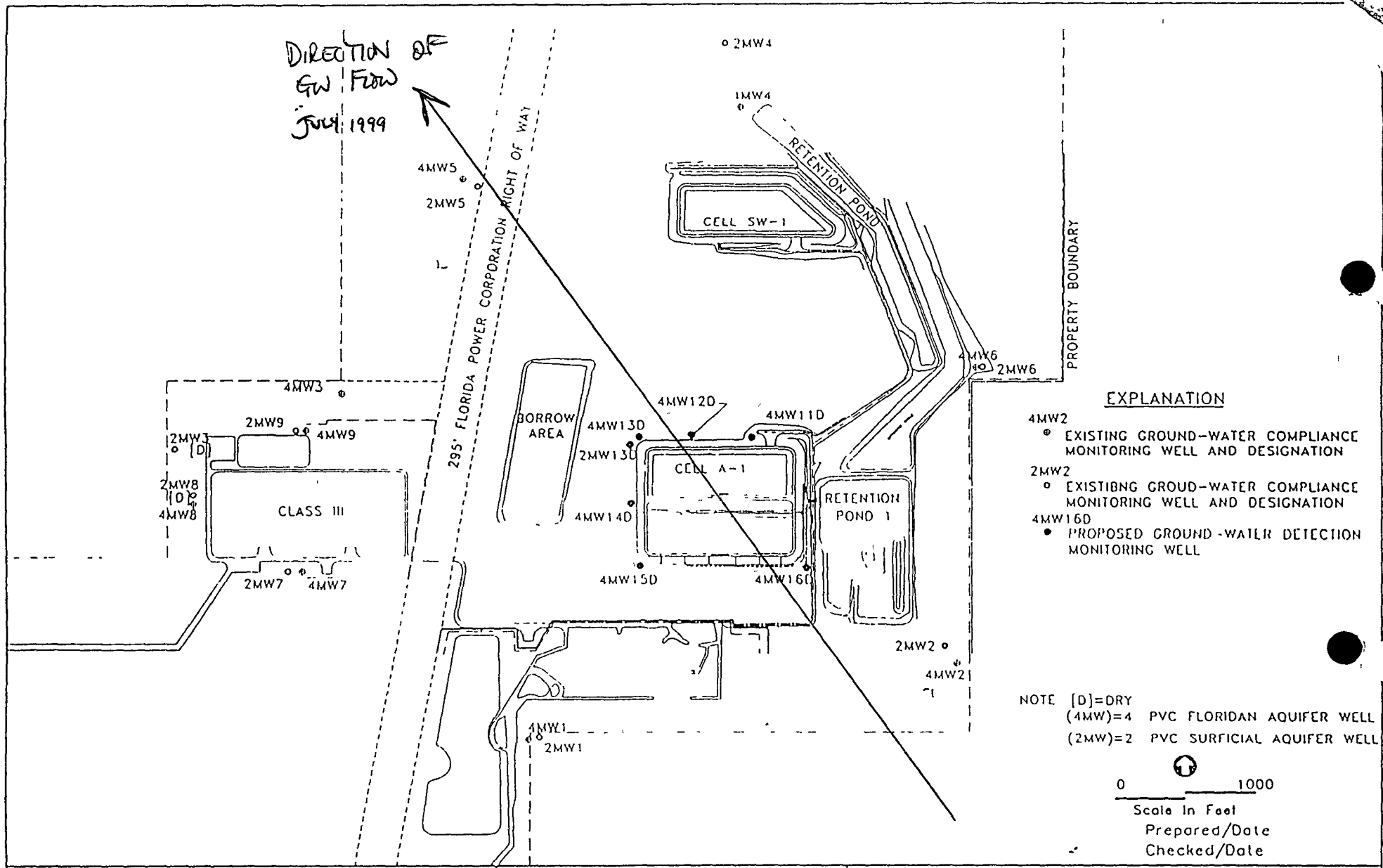
10/7/99 JRM

7/20 & 7/21/99 WELLS 4MW-11D, -12D, -14D, -15D, -16D } SAMPLED FOR REQUIRED PARAMETERS, AND ADDED APPENDIX II PARAMETERS THAT WERE OMITTED FROM INITIAL SAMPLING EVENT

EXCEEDANCES NOTED IN TABLE
4MW-11D - IRON, THALLIUM
4MW-14D - IRON
} INCOMPLETE

	COND	CHLORIDE	SODIUM	TDS	IRON
STD.		250 mg/L	160 mg/L	500 mg/L	0.3 mg/L
4MW-11D	310	7.64	3.45	214	0.43
12D	400	12.4	4.05	244	0.02
14D	600	858	163	528	2.12
15D	695	103	253	664	0.04
16D	300	11.8	410	216	0.16

APP I/II ORGANICS BDL EXCEPT FOR PHTHALATE



ACAD=3565F71

Pasco County
Board of County Commissioners
Utility Services Branch
Pasco County, Florida

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

Resource Recovery Facility
Pasco County, Florida

Ground-Water Monitoring
Well Locations

Project 573565 Figure 1

7/98 INITIAL SAMPLING EVENT AT NEW WELLS

2/99 WELLS NOT ACCESSIBLE AROUND ASH CELLS

7/99

	4MW11D	4MW12D	4MW14D	4MW15D	4MW16D
SODIUM	SAME	SAME	WORSE	BETTER	SAME
IRON	WORSE	WORSE	WORSE	SAME	SAME
MAGNESIUM	BETTER	SAME	BETTER	BETTER	BETTER
CONDUCTIVITY	SAME	SAME	WORSE	SAME	SAME
CHLORIDE	WORSE	SAME	WORSE	BETTER	SAME
TDS	WORSE	SAME	WORSE	WORSE	WORSE
NITRATE	SAME	SAME	BETTER	WORSE	SAME

WEST PASCO

6/4/98 TELECON W/ CANDIE MULHOLAN

- 2 MW-13D
- 4 MW-11D
- 4 MW-12D
- 4 MW-14D
- 4 MW-15D
- 4 MW-16D

} INSTALLED JAN. 1998

4 MW-13D ?

- INITIAL SAMPLING EVENT FOR NEW WELLS DID NOT INCLUDE APPENDIX II PARAMETERS (2ND HALF 1998)
  → CONDITION 39. b ←
- SUBSEQUENT SAMPLING EVENT FOR NEW WELLS INDICATED TO BE DAMAGED (1ST HALF 1999); NO ANALYSES CONDUCTED
- TELECON W/ LAW ENGINEERING INDICATED REWORKING OF WELLS 4MW-11D, 12D, 14D, 15D, 16D WAS SUCCESSFUL; WILL BE PROVIDING NEW CONSTRUCTION DETAILS TO DEP NEXT WEEK (7-12 → 16)

TALK W/ CANDIE MULHERN ABOUT WELLS

FROM 6/5/95
CONDS. OF CERTIFICATION

Groundwater Monitoring Well Locations. The groundwater monitoring wells shall be located as per the Water Quality Monitoring Plan, Appendix 9, Figure 1, of the Engineering Report for Construction of Disposal Unit A2 prepared by Law Environmental, dated October 1994, attached, as follows:

Well No.	Aquifer	Designation
4MW16D*	Floridan	Background
4MW11D*	Floridan	Detection
4MW12D*	Floridan	Detection
4MW13D*	Floridan	Detection
4MW14D*	Floridan	Detection
4MW15D*	Floridan	Detection
2MW13D*	Surficial	Detection
2MW3	Surficial	Compliance
2MW4	Surficial	Compliance
2MW5	Surficial	Compliance
2MW6	Surficial	Compliance
4MW3	Floridan	Compliance
4MW4	Floridan	Compliance
4MW5	Floridan	Compliance
4MW6	Floridan	Compliance
2MW1	Surficial	Background
2MW2	Surficial	Background
4MW1	Floridan	Background
4MW2	Floridan	Background

*Well to be constructed

All wells are to be clearly labeled and easily visible at all times. A surveyed drawing shall be submitted showing the location of all monitoring wells (active and abandoned) which will be horizontally located by latitude and longitude (degrees, minutes, seconds), Universal Transverse Mercator coordinates, and the elevation of the top of the well casing to the nearest 0.01 foot, National Geodetic Vertical Datum. The surveyed drawing shall include the monitor well identification number, locations and elevations of all permanent benchmarks and/or corner monument markers at the site. The survey shall be conducted by a Florida Registered Surveyor, and submitted within **90 days** of new well completion.

38. **Groundwater Monitoring Well Construction.** All new wells are to be constructed as proposed and approved in the application for construction of Disposal Unit A2 and subsequent correspondence. Wells are to be constructed and sampled prior to disposal in Disposal Unit A2 **by January 1, 1996.** The following information shall be submitted to the Department by **April 1, 1996.**

a. Documentation of the following for each well installed:

Well Identification	Boring (Lithology) Log
Aquifer monitored	Total depth of well
Screen type and slot size	Casing diameter
Screen length	Casing type and length
Screen diameter	SWFWMD well construction
Elevation at top of casing	permit Nos.
Elevation at ground surface	

38. **Groundwater Monitoring Well Locations.** The groundwater monitoring wells shall be located as per the Water Quality Monitoring Plan, Appendix 9, Figure 1, of the Engineering Report for Construction of Disposal Unit A2 prepared by Law Environmental, dated October 1994, attached, as follows:

Well No.	Aquifer	Designation
4MW16D	Floridan	Background
4MW11D	Floridan	Detection
4MW12D	Floridan	Detection
4MW13D	Floridan	Detection
4MW14D	Floridan	Detection
4MW15D	Floridan	Detection
2MW13D	Surficial	Detection
2MW3	Surficial	Compliance
2MW4	Surficial	Compliance
2MW5	Surficial	Compliance
2MW6	Surficial	Compliance
4MW3	Floridan	Compliance
4MW4	Floridan	Compliance
4MW5	Floridan	Compliance
4MW6	Floridan	Compliance
2MW1	Surficial	Background
2MW2	Surficial	Background
4MW1	Floridan	Background
4MW2	Floridan	Background

All wells are to be clearly labeled and easily visible at all times. All wells should be kept locked to prevent unauthorized access. A surveyed drawing shall be submitted showing the location of all monitoring wells (active and abandoned) which will be horizontally located by latitude and longitude (degrees, minutes, seconds), Universal Transverse Mercator coordinates, and the elevation of the top of the well casing to the nearest 0.01 foot, National Geodetic Vertical Datum. The surveyed drawing shall include the monitor well identification number, locations and elevations of all permanent benchmarks and/or corner monument markers at the site. The survey shall be conducted by a Florida Registered Surveyor, and submitted within 90 days of new well completion.

39. **Groundwater Monitoring Well Construction.** All new wells are to be constructed as proposed and approved in the application for construction of Disposal Unit A2 and subsequent correspondence. Wells are to be constructed and sampled prior to disposal in Disposal Unit A2 **by January 1, 1996.** The following information shall be submitted to the Department by **April 1, 1996:**

a. Documentation of the following for each well installed:

- Well Identification
- Aquifer monitored
- Screen type and slot size
- Screen length
- Screen diameter
- Elevation at top of casing
- Elevation at ground surface
- Boring (Lithology) Log
- Total depth of well
- Casing diameter
- Casing type and length
- SWFWMD well construction permit Nos.
- Well seal and filters pack type and thickness

b. Within one week of well completion and development, each new well shall be sampled for the parameters listed in F A C. Rules 62-701.510(8)(a) and (d). These sample results shall be submitted to the Department.

c. A surveyed drawing shall be submitted in accordance with F.A.C. Rule 62-701.510(3)(d)(1), showing the location of all monitoring wells (active and abandoned) and surface water monitoring stations horizontally located in degrees, minutes and seconds of latitude and longitude, the Universal Transverse Mercator coordinates, and the elevation of the top of the well casing to the nearest 0.01 foot, National Geodetic Vertical Datum. The surveyed drawing shall include the monitor well identification number, locations and elevations of all permanent benchmarks and/or corner monument markers at the site The survey shall be conducted by a Florida Registered Surveyor

40 Groundwater Sampling All detection and background wells shall be sampled in accordance with F A.C. 62-701.510(6)(c) and analyzed every 6 months for the groundwater monitoring parameters listed as follows:

Field parameters	Laboratory parameters
Static Water Level before purging	Total Ammonia - N
Specific Conductivity	Chlorides
pH	Iron
Dissolved Oxygen	Mercury
Turbidity	Nitrate
Temperature	Sodium
Colors and sheens (by observation)	Total Dissolved Solids (TDS)
	Those parameters listed in 40 CFR Part 258, Appendix I

Unfiltered samples shall be used for compliance with groundwater standards.

Additional samples, wells, and parameters may be required based upon subsequent analysis. Method detection limits must meet, or be lower than that parameter's Maximum Contamination Level in order to demonstrate compliance with groundwater standards.

41. Well Abandonment. All wells not a part of the approved Water Quality Monitoring Plan are to be plugged and abandoned in accordance with F.A.C. 62-532.440, and the Southwest Florida Water Management District. A written report shall be submitted to the Department providing verification of the well abandonment within 60 days of abandonment. A written request for exemption to the abandonment of a well must be submitted to the Department's Solid Waste Section for approval.

42. **Verification/Assessment Monitoring.** If at any time monitoring parameters are detected at concentrations significantly above background water quality, or exceed the Department's water quality standards or criteria at the edge of the zone of discharge, the operator has 15 days from receipt of the laboratory data to resample the monitor well(s) to verify the original analysis. Should the operator choose not to resample, the Department will consider the water quality analysis representative of current groundwater conditions at the facility, and assessment monitoring/corrective action as described in F.A.C. 62-701.510(7) shall be initiated.

43. **Water and Leachate Quality Reporting Requirements** All water quality monitoring and leachate analyses shall be reported on the Department Form 62-522 900(2) Ground Water Monitoring Report (attached). The items listed in F A C 62-701 510(9)(a), including but not limited to a groundwater flow contour map representing conditions at the time of groundwater sampling shall be submitted with each set of analytical results. The results of the water quality analysis shall be submitted by **July 15th** and **January 15th** for the semi-annual periods January-June and July-December, respectively. The results shall be sent to Solid Waste Section, Department of Environmental Protection, Southwest District Office, 3804 Coconut Palm Drive, Tampa, Florida 33619-8318.

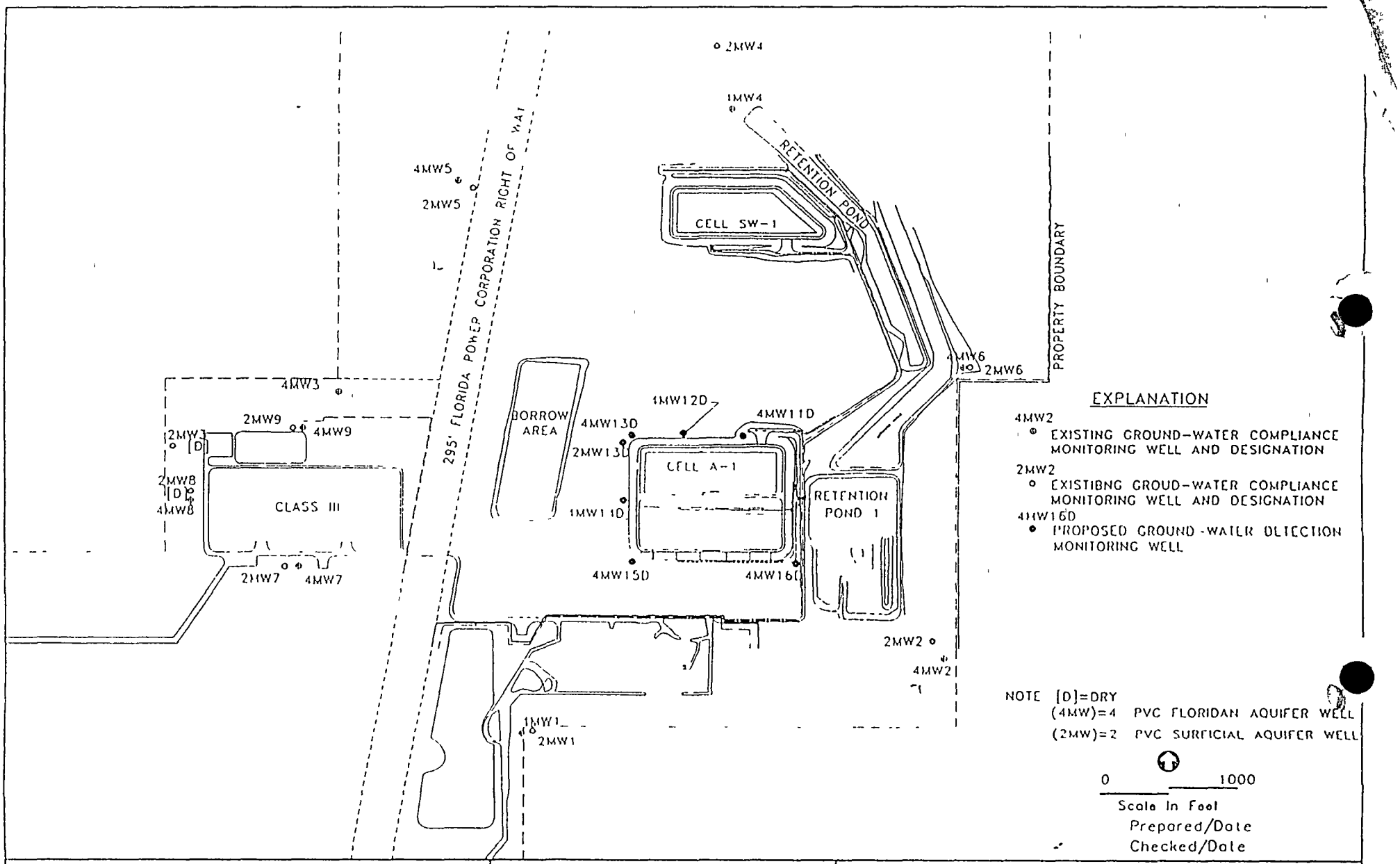
44. **Groundwater Monitoring Plan Evaluation.**

a. All site groundwater wells shall be sampled for the parameters listed in F.A.C 62-701 510(8)(a) and (d) **every five years.** Results of this analytical report shall be provided to the Solid Waste Section, Department of Environmental Protection, Southwest District Office, 3804 Coconut Palm Drive, Tampa, Florida 33619-8318.

b. **Every two years** an evaluation of the Groundwater Monitoring Plan as per F.A.C. 62-701.510(9)(b) shall be submitted. The evaluation shall include the applicable information as required by F.A.C. 62-701.510(9), and shall include assessment of the effectiveness of the existing landfill design and operation as related to the prevention of groundwater contamination. Any groundwater contamination that may exist, shall be addressed as part of a groundwater investigation for the landfill assessment. The Groundwater Monitoring Plan shall be adequate to monitor any modifications to the existing landfill site including but not limited to closure The first evaluation shall be submitted to the Solid Waste Section of the Department by **March 31, 1999.**

45. **Air Requirements.**

a An air construction permit is not required for the landfill unless landfill construction or any modification is subject to the prevention of significant deterioration (PSD) requirements of Chapter 62-212, F.A.C. A landfill for which construction or modification is subject to PSD requirements must make application to the Bureau of Air Regulation, Mail Station 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, for an air construction permit and must obtain such permit prior to beginning any construction or modification.



ACAD=3565F7'

Pasco County
Board of County Commissioners
Utility Services Branch
Pasco County, Florida

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

Resource Recovery Facility
Pasco County, Florida

Ground-Water Monitoring
Well Locations

Project 573565

Figure 1

37. Groundwater Monitoring Well Locations. The groundwater monitoring wells shall be located as per the Water Quality Monitoring Plan, Appendix 9, Figure 1, of the Engineering Report for Construction of Disposal Unit A2 prepared by Law Environmental, dated October 1994, attached, as follows:

Well No.	Aquifer	Designation
4MW16D*	Floridan	Background
4MW11D*	Floridan	Detection
4MW12D*	Floridan	Detection
4MW13D*	Floridan	Detection
4MW14D*	Floridan	Detection
4MW15D*	Floridan	Detection
2MW13D*	Surficial	Detection
2MW3	Surficial	Compliance
2MW4	Surficial	Compliance
2MW5	Surficial	Compliance
2MW6	Surficial	Compliance
4MW3	Floridan	Compliance
4MW4	Floridan	Compliance
4MW5	Floridan	Compliance
4MW6	Floridan	Compliance
2MW1	Surficial	Background
2MW2	Surficial	Background
4MW1	Floridan	Background
4MW2	Floridan	Background

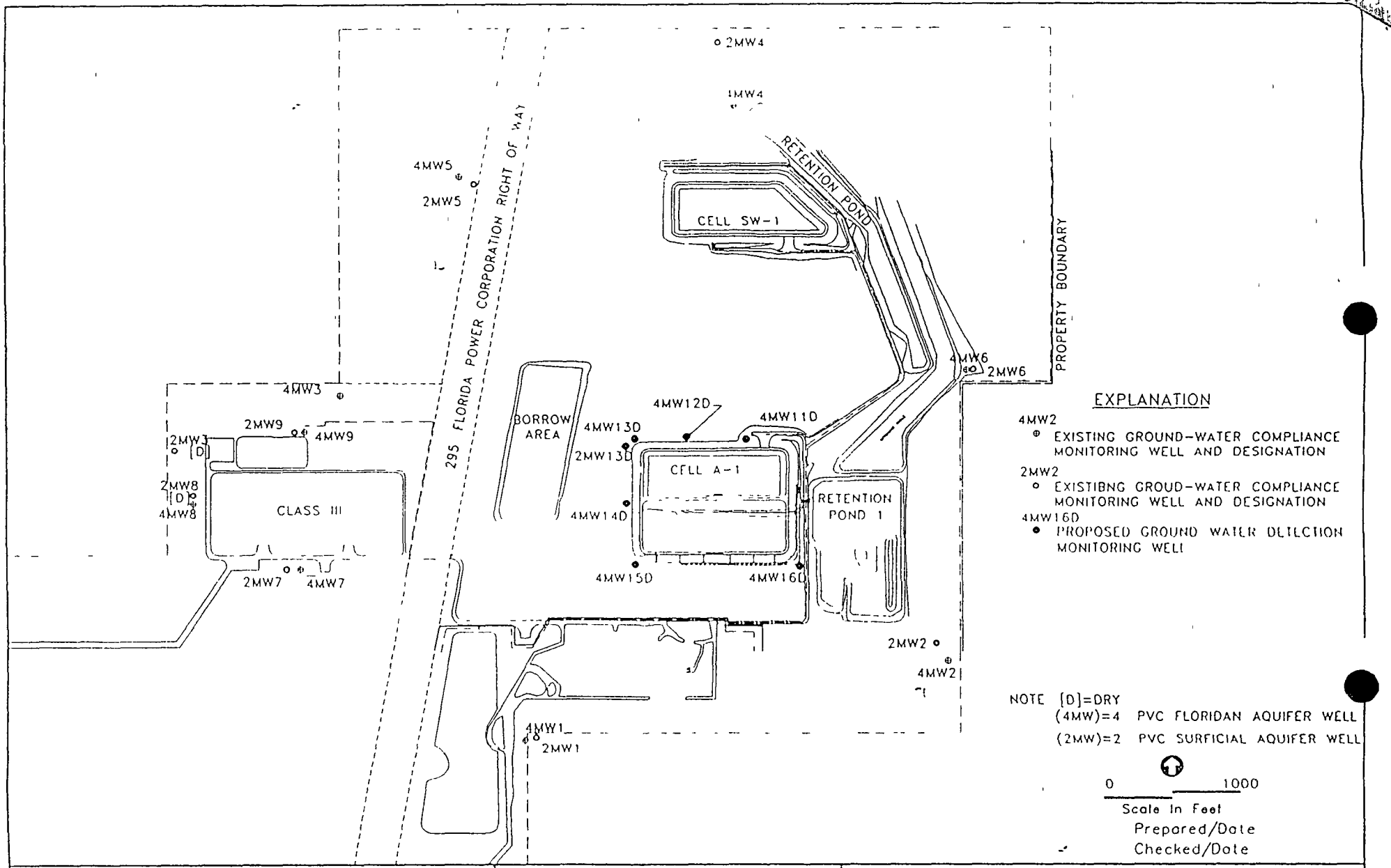
*Well to be constructed

All wells are to be clearly labeled and easily visible at all times A surveyed drawing shall be submitted showing the location of all monitoring wells (active and abandoned) which will be horizontally located by latitude and longitude (degrees, minutes, seconds), Universal Transverse Mercator coordinates, and the elevation of the top of the well casing to the nearest 0.01 foot, National Geodetic Vertical Datum. The surveyed drawing shall include the monitor well identification number, locations and elevations of all permanent benchmarks and/or corner monument markers at the site. The survey shall be conducted by a Florida Registered Surveyor, and submitted within 90 days of new well completion.

38. Groundwater Monitoring Well Construction. All new wells are to be constructed as proposed and approved in the application for construction of Disposal Unit A2 and subsequent correspondence. Wells are to be constructed and sampled prior to disposal in Disposal Unit A2 by January 1, 1996. The following information shall be submitted to the Department by April 1, 1996:

a. Documentation of the following for each well installed:

Well Identification	Boring (Lithology) Log
Aquifer monitored	Total depth of well
Screen type and slot size	Casing diameter
Screen length	Casing type and length
Screen diameter	SWFWMD well construction
Elevation at top of casing	permit Nos.
Elevation at ground surface	



ACAD=356577

Pasco County
Board of County Commissioners
Utility Services Branch
Pasco County, Florida

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

Resource Recovery Facility
Pasco County, Florida

Ground-Water Monitoring
Well Locations

Project 573565 Figure 1

Department of
Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B Wetherell
Secretary

November 4, 1994

Mr. Douglas Bramlett
Pasco County Utilities
7536 State Street
New Port Richey, FL 34654

Re: West Pasco Class I Landfill Expansion
P.A. #87-23, Pasco County

Dear Mr. Bramlett:

This is to acknowledge receipt of Pasco County's additional information submitted on October 7, 1994 to expand the existing West Pasco Class I Landfill.

In accordance with Condition of Certification No. XIII, the information provided is subject to review pursuant to Chapter 120, Florida Statutes.

The following information was discussed with Mr. Richard Mayer of Law Engineering on October 27, 1994, who agreed to provide the following revised comprehensive plans and documents for review

1 Revised construction plans with cross-sections and elevations, drawn to scale for the LCRS and other landfill components.

2. Revised Section 8.0 for clarification.

3 Revised CQA Manual and specifications for conformance testing and acceptable values, and further clarification.

4 Calculations in support of the drainage layer, LCRS, and sump capacity.

5 Response to each of Ms. Amram's comments dated October 21, 1994 (memorandum attached).

6 Response to each of Ms. Pelz's comments in her letter dated September 21, 1994 (copy attached).

7 Appendix 1 and 2

8. Revised Appendix 3 to eliminate conflicts with drawings in Appendix 8.

9. Appendix 8 narrative.

10. A summary of the leachate generated, collected and removed from the previously constructed ash disposal unit's primary and secondary liner systems for the past twelve months.

You are requested to submit your response to this letter as one complete package. If there are points which must be discussed and resolved, please contact me at (813) 744-6100, extension 382.

Sincerely,

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

KBF/ab
Attachments

c: Richard Mayer, P.E., Law Engineering
Hamilton Oven, P.E., FDEP Tallahassee
Robert Butera, P.E., FDEP Tampa
Allison Amram, P.G., FDEP Tampa
Susan Pelz, FDEP Tampa

Memorandum

TO Kim Ford, P E

FROM Allison Amram, P G

SUBJECT. Review of Engineering Report and Application for Permit to Construct Cell A-2 at Pasco County Resource Recovery Facility Class I Landfill, Revised October 6, 1994 Prepared by Law Environmental

DATE October 21, 1994

CC Bob Butera, P E
Hamilton "Buck" Oven, Executive Staff of Intergovernmental Agencies, FDEP

==========

I have reviewed Sections 6, 8, 9, and Appendix 6 of the "Engineering Report and Application for Permit to Construct Cell A-2 at Pasco County Resource Recovery Facility Class I Landfill," revised October 6, 1994 While revised sections were provided as a response to the Department's August 10, 1994 incompleteness letter, some comments did not appear to be addressed Telephone discussions with Mr George Ellsworth, geologist with Law Environmental on October 18 and 19, 1994 clarified some of these items The following comments are grouped by section and subsections of the report

Section 6 Hydrogeological Investigation Requirement

6 1 1 This information was provided, thank you

6 1 4 , 6 1 5 The boring locations provided in the Field Exploration Plan in Appendix 7 differs from the boring locations in Drawing 7 From discussions with Mr Ellsworth, the locations in Drawing 7 are the correct surveyed locations, boring locations in the geotechnical report of Appendix 7 were most likely proposed locations These comments have been addressed

6 1 7 This comment has been adequately addressed

Section 8 Landfill Operation Requirements

8 2 8 Operations of Gas, Leachate and Stormwater Controls, page 8-10, fourth paragraph, first sentence "The stormwater controls shown on will be operated " According to Mr Ellsworth, this sentence should refer to Drawings 8, with details shown in Drawings 13 and 14 This page should be replaced with the reference inserted

8 7 5 This comment was misnumbered, it should have read "8 2 9" This comment has been adequately addressed

8 8 3 This comment has been adequately addressed

Section 9 Water Quality and Leachate Monitoring Requirements

9 1.3 1 This comment has been adequately addressed, the proposed well locations are acceptable

9 1 1(3) 4 This comment has been adequately addressed

9 1 1(3) 5 The location of the surficial aquifer detection well 2MW-13D is acceptable

9 1 3 6 The proposed well construction for the Floridan aquifer shows an open borehole for 25 feet Monitoring wells characteristically have smaller open intervals to detect small amounts of chemical constituents From discussions with Mr Ellsworth, the open interval could be shortened to 10 feet Please revise this section, and Figure 2 of Appendix 9 accordingly The proposed Floridan aquifer well locations are acceptable

9 1 3 7 Monitoring well 4MW5 is located in the proposed borrow pit for Cell A2 on Drawing 4 According to Mr Ellsworth, this well should be protected from destruction The Department would suggest that bumper posts be installed (if not already present) If the well is damaged, the facility should notify the Department in writing within 7 days of the damage, and provide a description of the damage, and plans for repair This comment has been addressed

9 1 4 This comment has been adequately addressed

9 1 5 The leachate sampling location is acceptable

9 1 6 1 This comment has been adequately addressed

9 1 8 This comment has been adequately addressed

Appendix 9

2 1 NOT ADDRESSED: Drawing 5 does not show the well locations Please either change the reference to a figure that shows the well locations, or change Drawing 5 to include the well locations

The proposed well construction for the surficial aquifer well shows a 20/30 sand pack and total depth between 20 and 30 feet, at the top of the clay However, the borings and sieve analyses conducted indicate that the sands are very fine near

the clay Please consider using a finer filter pack around the well screen to help maintain the well free from sand and silt From discussions with Mr Ellsworth, this will be considered during well installation This comment has been adequately addressed

4 0 NOT ADDRESSED: The leachate monitoring plan states that leachate is collected above the primary liner, and that the leak detection layer is located between the underside of the primary liner, and the top of the secondary liner It also calls the liquid collected from the leak detection system "secondary leachate " The existing cell collects quite a volume of liquid from the secondary leachate collection system The Department interprets this as an indication of a leak in the primary liner (excluding a small volume that may be water collected during cell construction) Where would this secondary leachate originate from if not the primary liner, in both the existing disposal area, and the proposed disposal area?

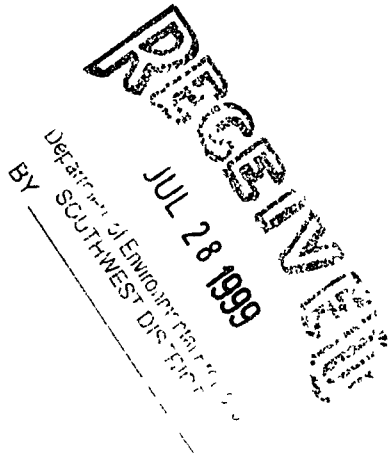
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LAW

LAWGIBB Group Member

July 27, 1999

Mr John Morris, Professional Geologist I
Division of Waste Management
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619



Subject **Ground-Water Monitoring Wells at West Pasco Class I Landfill LAW Project 40141-8-0452**

Dear Mr Morris

Law Engineering and Environmental Services, Inc (LAW), on behalf of Pasco County, is submitting the following information in order to clarify the status of the monitoring wells at the West Pasco Landfill Two issues are addressed

1 According to the permit requirements, six 4-inch PVC Type II monitoring wells were to be installed in the Floridan Aquifer and one 2-inch diameter PVC Type II was to be installed in the surficial aquifer around the perimeter of Disposal Units A-1 and A-2 One of the Floridan monitoring wells was not installed

2 The wells were installed in January 1998 and Pasco County sampled them shortly thereafter However at the next sampling event the County staff could not sample these wells because clay and limestone filled the hole LAW was directed by the County to repair the wells and it has been completed but the well logs have not been submitted

Floridan Well

Background - In a letter, dated May 12, 1998 addressed to Pasco County and forwarded to Florida Department of Environmental Protection (FDEP), LAW described the well installation and provided the logs A copy of that letter and a figure showing the location of the wells is enclosed for your review The confining clay layer in the five Floridan monitoring wells that

were successfully installed was encountered at 8 to 28 feet below land surface Approximately 5 to 8 feet of clay was penetrated above the limestone The total depth of the wells after drilling 25 feet of open hole in the limestone ranged from 41 to 61 feet The planned total depth was estimated to be 60 feet

During the unsuccessful installation of the sixth 4-inch PVC Type II Floridan aquifer monitoring well, the drillers encountered a thick sequence of clay both above and below what was thought to be the top of the limestone The four-inch casing was set three feet into the limestone and the annular space was grouted to the surface After the grout had been allowed to set up, the cement plug was drilled out in preparation to advance the well 25 feet into the limestone The objective was to provide an open hole completed to the Floridan aquifer as had been accomplished in the other Floridan aquifer monitoring wells Clay was encountered almost immediately in advancing the hole After penetrating approximately 20 feet of clay, LAW abandoned the well because it could not be completed as an open hole LAW attempted to install the well approximately 50 feet south of the planned location This well penetrated approximately 60 feet of clay without encountering limestone No casing was set

Recommendation – LAW recommends that Monitoring Well 4MW-13D not be installed for the following reasons

1 The Floridan Aquifer Monitoring Well designated as 4MW-13D was to be located at the northwest corner of Ash Cell A-1, adjacent to Surficial Aquifer Monitoring Well 2MW-13 This location is at the highest elevation of the liner system in the disposal unit and the least likely area to have a leak

2 The clay interval above the limestone comprising the Floridan Aquifer is significantly thicker in the vicinity of the planned 4MW-13D monitoring well than at the other well locations This thicker clay would also be expected to block or divert groundwater flow away from it

3 A Floridan Aquifer Monitoring Well at this location would have to significantly deeper than planned and would not be monitoring the top of the aquifer as planned

4 Moving the planned location to the south or east would place the well close to either 4MW-12D or 4MW-14D which are effectively monitoring the area around them

Blockage

In a letter, dated March 15, 1999 and addressed to Allison Amram LAW presented FDEP with the proposed plan to correct the blockage problem in the Floridan Aquifer Monitoring Wells A copy of the letter is enclosed Also Richard Mayer talked with you about the proposed corrective action and we understood that you generally agreed with the plan

The blockage was removed by LAW on May 4th and 5th We found that a thin interval of clay had bridged the well bore near the base of the 4-inch casing Also approximately ten feet of broken limestone had fallen to the base of the open hole After reaming, a 20-foot section of 2-inch PVC screen attached to 2-inch PVC casing was installed to the bottom of each well A sand pack was placed around the 2-inch PVC screened interval and casing up to the 4-inch PVC casing No drilling mud was used during the clean out process and the wells were re-developed The well logs and completion reports are enclosed

If you have any questions, please do not hesitate to contact us at (813)-289-0750

Sincerely,

LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC

George W. Ellsworth, P G
Senior Environmental Geologist
Florida Registration 0848

Richard E Mayer, P E
Principal Engineer
Florida Registration 41759

7/27/99

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Cc Douglas Bramlett
Vincent Mannella

May 12, 1998

Mr Vincent Mannella, P E , Solid Waste Manager
Utility Services
Public Works/Utilities Building, S-205
7530 Little Road
New Port Richey, Florida 34654

Subject **Well Construction Summary Reports for Ground-Water Monitoring Wells Installed at the West Pasco Class I Landfill under Task Order 2-98 LAW Project 40141-7-0323**

Dear Mr Mannella

Law Engineering and Environmental Services, Inc (LAW), has prepared well construction summary reports for the new ground-water monitoring wells installed at the West Pasco Class I Landfill Facility The wells were installed by LAW in January 1998 and surveyed by Pasco County in March 1998

LAW was directed under Task Order 2-98 to install six 4-inch PVC Type II monitoring wells in the Floridan aquifer and one 2-inch PVC Type II monitoring well in the surficial aquifer at the West Pasco Landfill Five 4-inch PVC Type II Floridan aquifer monitoring wells and one 2-inch PVC Type II surficial aquifer monitoring well were installed successfully

During the installation and completion of the sixth 4-inch PVC Type II Floridan aquifer monitoring well, 4MW-13D, the driller encountered a thick sequence of clay in the Floridan aquifer The four-inch casing had been set three feet into the limestone and the annual space was grouted to the surface After the grout had been allowed to set up, the cement plug was drilled out in preparation to advance the well 25 feet into the limestone The objective was to provide an open hole completed to the Floridan aquifer as had been accomplished in the other Floridan aquifer monitoring wells Clay was encountered almost immediately in advancing the hole After penetrating approximately 20 feet of clay, LAW abandoned the well because it could not be completed as an open hole Additionally, the interval penetrated could not be expected to produce sufficient quantities of water for monitoring

The attached well construction summary reports do not include the surveyor s name and license number The survey data provided by the County did not include this information This information will need to be added to the well construction summary report forms before submittal to the FDEP The wells should be sampled according to the FDEP permit The completed forms should be submitted to the FDEP along with the ground-water analytical results

If you have any questions please do not hesitate to contact us at (813)-289-0750

Sincerely,

LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC

George W Ellsworth, P G
Senior Environmental Geologist
Florida Registration 0848

Richard E Mayer, P E
Principal Engineer
Florida Registration 41759

5/12/98

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Attachments Well Construction Summary Reports
Pasco County Survey Data

WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 2 MW13D

Date(s) of Installation: 1/22/98

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 27 20 (D D M M S S S S)

Longitude: 82 33 38 70 (D D M M S S S S)

Elevation Surface: 49 12

Elevation TOC: 52 39

Surveyor's Name:

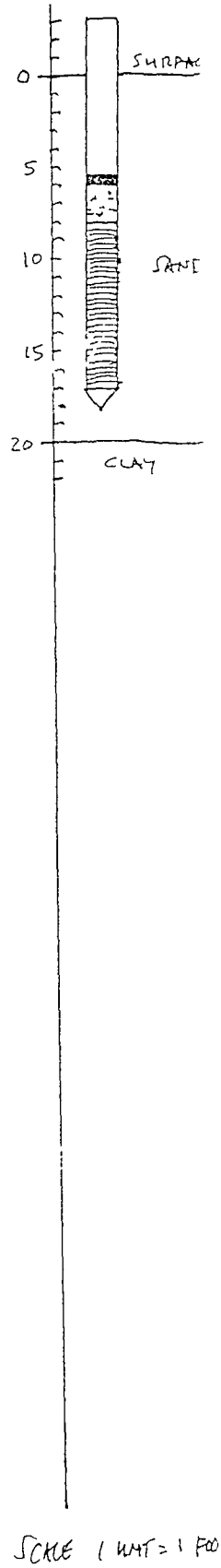
Surveyor's License #:

Turbidity:

Date of Reading:

Static Water Level (MSL): 39 5

Field Geologist: Owen Thornberry



SCALE 1 UNIT = 1 FOOT

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Schedule 40 PVC		2"	0	7 8

Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Sch 40 PVC		2 Inch	7 8	17 3	0 010"

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Sand Pack	6/20	6	18	Manual
Fine Sand Seal	20/30	5 5	6	Manual
Portland Cement		0	5 5	Manual

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Hollow Stem Auger	10" O/D	0	18	N/A

WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill
EPA Identification Number:
Well Identification: 4MW11D
Date(s) of Installation: 22-28 January 1998
Well Driller's Complete Name: David Kirby
Well Driller's License Number: 9176

Latitude: 28 22 27 . 50 (D D M M S S . S S)
Longitude: 82 33 28 . 50 (D D M M S S . S S)

Elevation Surface: 61 87
Elevation TOC: 65 00
Surveyor's Name:
Surveyor's License #:
Turbidity:
Date of Reading:
Static Water Level (MSL): 40 1'
Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		4 8/Inch	0	27

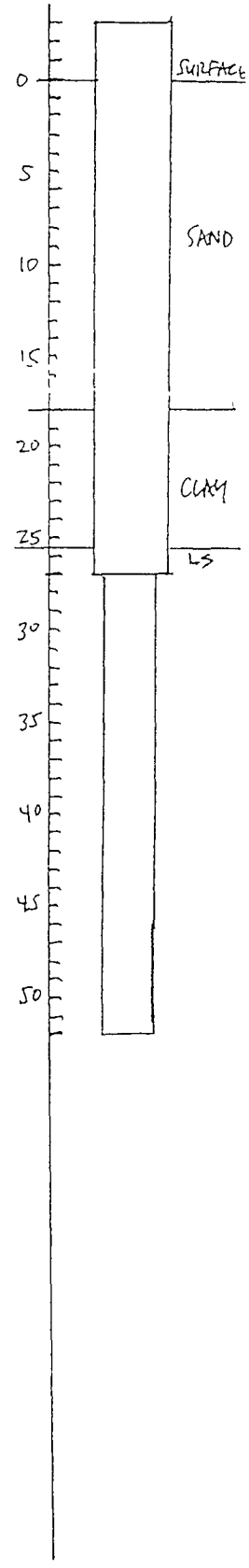
Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Borehole	6 Inch	N/A	27	52	

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement		0 0	27 0	Pressure Grouting

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotary		0 0	52 0	Bentonite Slurry



SCALE 1 UNIT = 1 FOOT

WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 4MW12D

Date(s) of Installation: 22-28 January 1998

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 27 40 (D D M M S S S S)

Longitude: 82 33 33 90 (D D M M S S S S)

Elevation Surface: 51 79

Elevation TOC: 55 03

Surveyor's Name:

Surveyor's License #:

Turbidity:

Date of Reading:

Static Water Level (MSL): 39 5'

Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		4 ~~8~~ inch	0	30

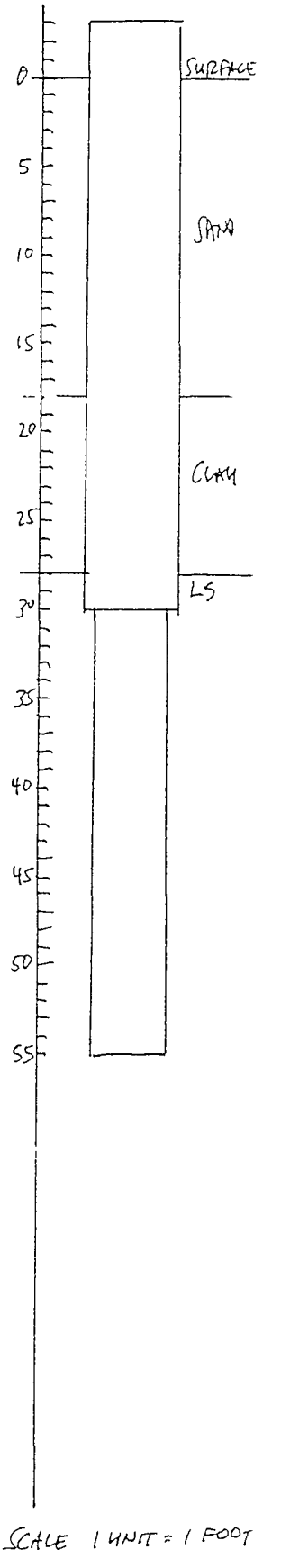
Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Borehole	~~6~~ inch		30	55	

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement		0	30	Pressure Grouting

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotary		0	55	Bentonite Slurry



WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill
EPA Identification Number:
Well Identification: 4MW14D
Date(s) of Installation: 22-28 January 1998
Well Driller's Complete Name: David Kirby
Well Driller's License Number: 9176

Latitude: 28 22 22 (D D M M S S) 80 (S S)
Longitude: 82 33 39 (D D M M S S) 00 (S S)

Elevation Surface: 48 99'
Elevation TOC: 52 00'
Surveyor's Name:
Surveyor's License #:
Turbidity:
Date of Reading:
Static Water Level (MSL): 39 8'
Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		8 inch	0	25

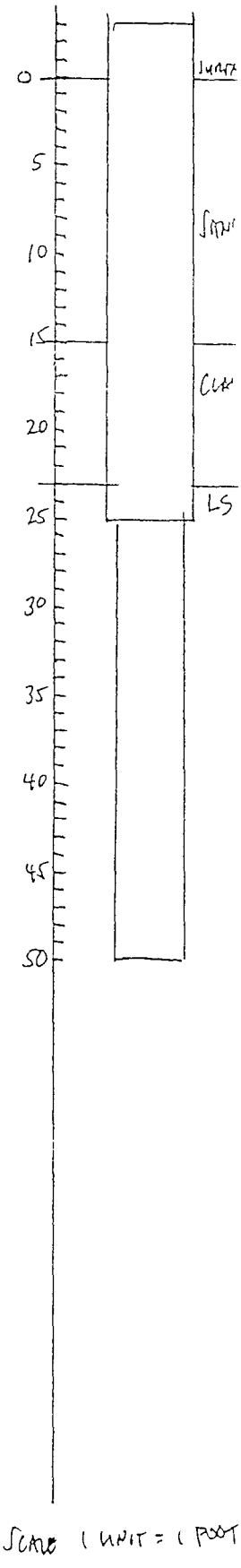
Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Borehole	6 inch		25	50	

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement		0	25	Pressure Grouting

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotary		0	50	Bentonite Slurry



WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 4MW15D

Date(s) of Installation: 22-28 January 1998

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 18 (D D M M S S) 50 (S S)

Longitude: 82 33 38 (D D M M S S) 50 (S S)

Elevation Surface: 51 69

Elevation TOC: 54 53

Surveyor's Name:

Surveyor's License #:

Turbidity:

Date of Reading:

Static Water Level (MSL): 40 5'

Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		8 inch	0	36

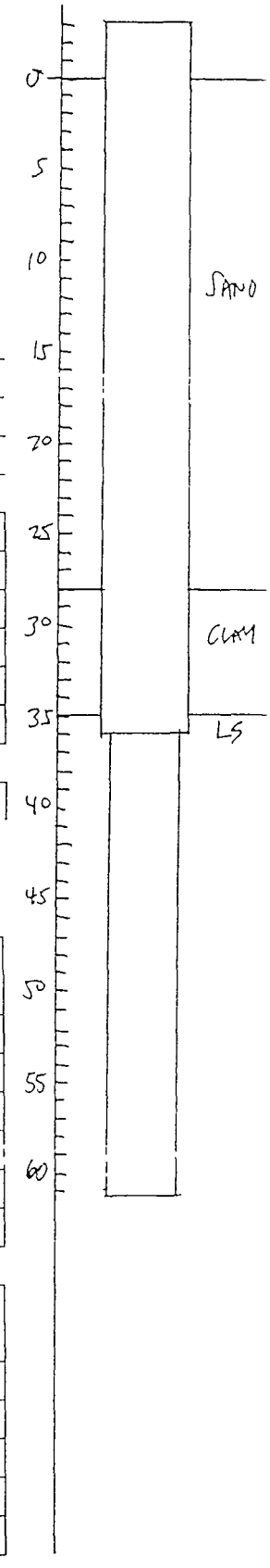
Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Borehole	6 inch		36	61	

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement		0	36	Pressure Grouting

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotary		0	61	Bentonite Slurry



WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 4MW16

Date(s) of Installation: 22-28 January 1998

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 18 30 (D D M M S S S S)

Longitude: 82 33 26 10 (D D M M S S S S)

Elevation Surface: 48 63

Elevation TOC: 52 47

Surveyor's Name:

Surveyor's License #:

Turbidity:

Date of Reading:

Static Water Level (MSL): 41 1'

Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		8 inch	0	16

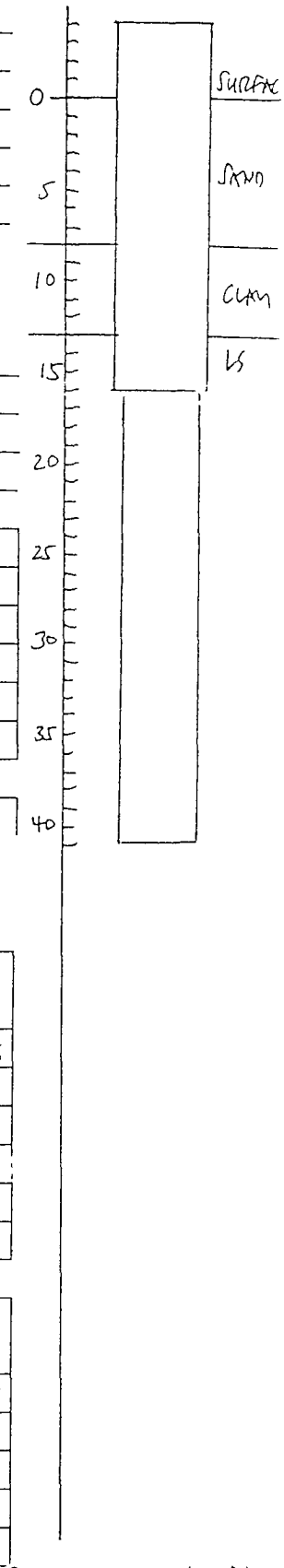
Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Borehole	6 inch		16	41	

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement		0	16	Pressure Grouting

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotary		0	41	Bentonite Slurry

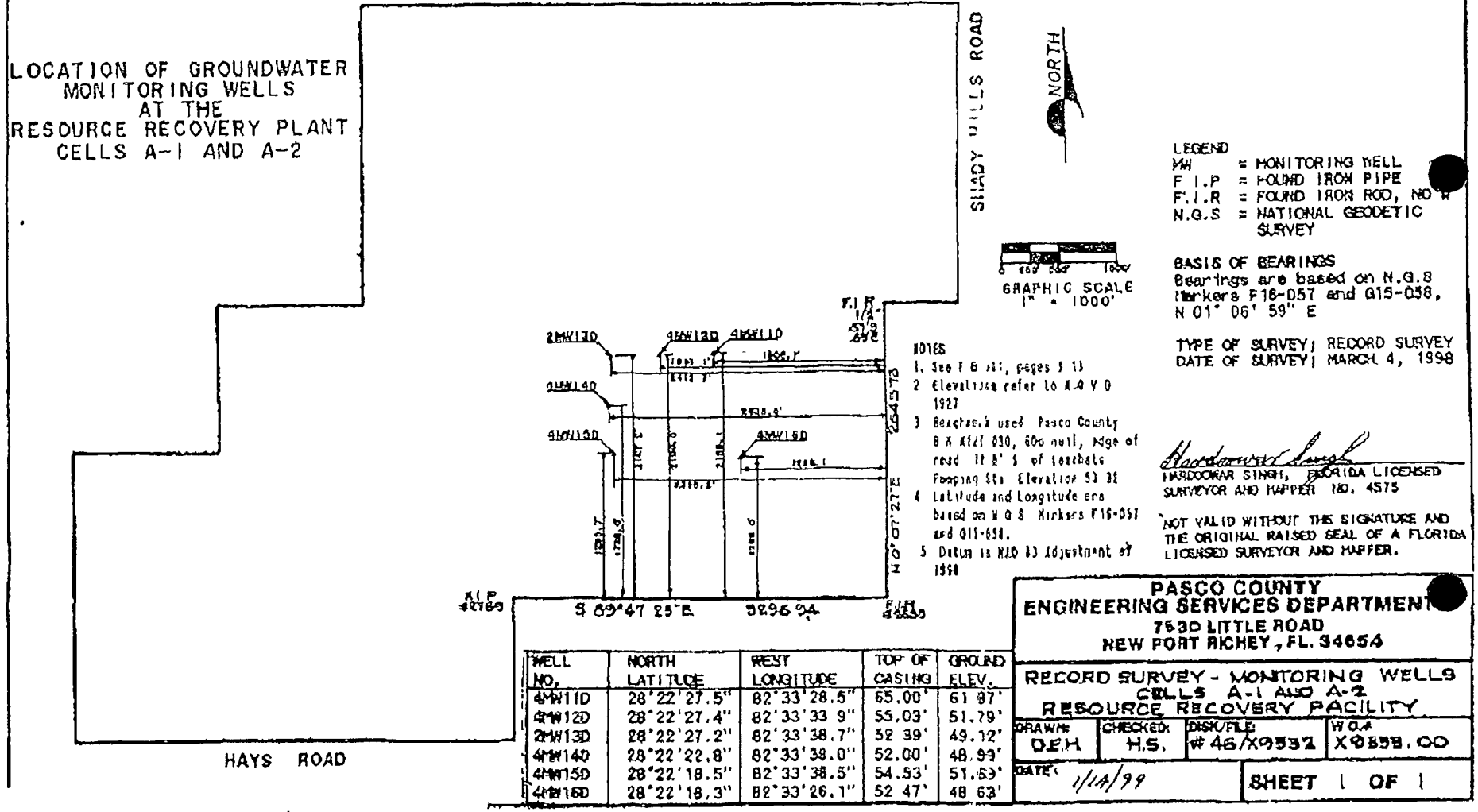


Scale 1 unit = 1 foot

JAN 14 '99 12:53

SECTIONS 24, 25 AND 26, TOWNSHIP 24 SOUTH, RANGE 17 EAST.

LOCATION OF GROUNDWATER MONITORING WELLS AT THE RESOURCE RECOVERY PLANT CELLS A-1 AND A-2



LEGEND
MW = MONITORING WELL
F.I.P = FOUND IRON PIPE
F.I.R = FOUND IRON ROD, NO #
N.G.S = NATIONAL GEODETIC SURVEY

BASIS OF BEARINGS
Bearings are based on N.G.S Markers P16-057 and G15-058, N 01° 06' 59" E

TYPE OF SURVEY: RECORD SURVEY
DATE OF SURVEY: MARCH 4, 1998

NOTES
1. See F.B. ###, pages 5 to 13
2. Elevations refer to N.G.V.D. 1927
3. Benchmark used: Pasco County B.M. #127 030, 60d nail, edge of road 11.8' S. of centerline. Elevation 53.38
4. Latitude and Longitude are based on N.G.S. Markers P16-057 and G11-058.
5. Datum is NAD 83 Adjustment of 1990

HARDOOKAR SINGH, FLORIDA LICENSED SURVEYOR AND MAPPER NO. 4575

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

WELL NO.	NORTH LATITUDE	WEST LONGITUDE	TOP OF CASING	GROUND ELEV.
4MW11D	28°22'27.5"	82°33'28.5"	65.00'	61.97'
4MW12D	28°22'27.4"	82°33'33.9"	55.03'	51.79'
2MW13D	28°22'27.2"	82°33'38.7"	52.39'	49.12'
4MW14D	28°22'22.8"	82°33'38.0"	52.00'	48.99'
4MW15D	28°22'18.5"	82°33'38.5"	54.53'	51.53'
4MW16D	28°22'18.3"	82°33'26.1"	52.47'	48.63'

PASCO COUNTY
ENGINEERING SERVICES DEPARTMENT
7530 LITTLE ROAD
NEW PORT RICHEY, FL. 34654

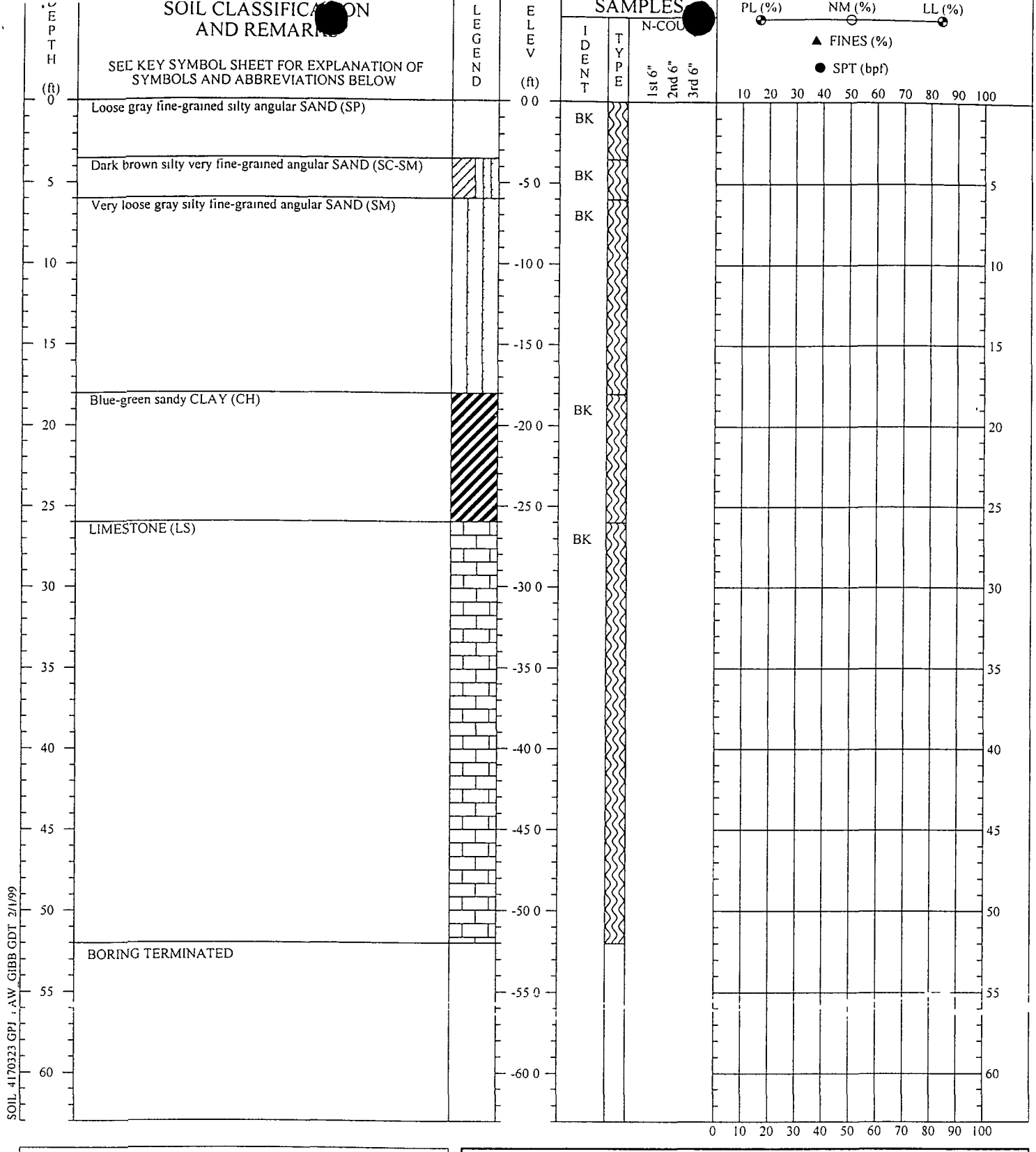
RECORD SURVEY - MONITORING WELLS
CELLS A-1 AND A-2
RESOURCE RECOVERY FACILITY

DRAWN:	CHECKED:	DISK/FILE:	W.O.#
D.E.H.	H.S.	#46/X9532	X9558.00

DATE: 1/14/99 SHEET 1 OF 1

Post-it® Fax Note 7671 | Date 1/14/99 | # of pages ▶ 1
To Dick Mayer | From Vince
Co./Dept. | Co.
Phone # | Phone # 856-0119
Fax # 282-8585 | Fax # 856-0007

TOTAL P.01
PAGE 01



SOIL 4170323 GPJ LAW GIBB GDT 2/1/99

DRILLER	Dave Kirby
EQUIPMENT	Truck-mounted Rig
METHOD	Rotary-wash Boring with Drilling Mud
HOLE DIA	8"
REMARKS	

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER INTERFACES BEWEEN STRATA ARE APPROXIMATE TRANSITIONS BETWEEN STRATA MAY BE GRADUAL

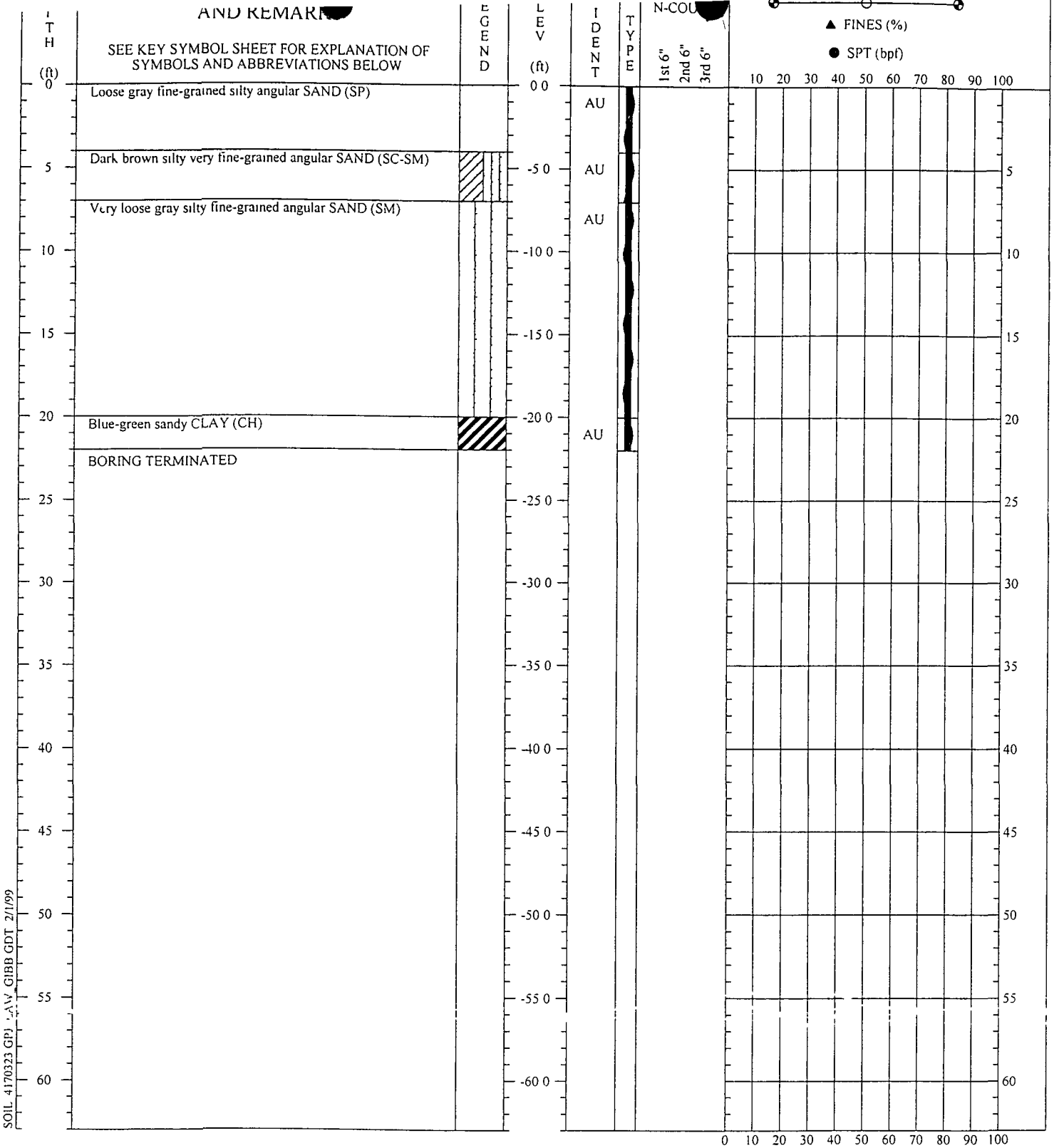
SOIL TEST BORING RECORD

PROJECT·	West Pasco Class I Landfill
COORD N:	28 4
COORD E:	82 5
DRILLED·	January 28, 1999
PROJ NO :	40141-7-0323

BORING NO. SB-11F

PAGE 1 OF 1

LAW
LAWGIBB Group Member



SOIL 4170323 GPJ LAW GIBB GDT 2/1/99

DRILLER	Dave Kirby
EQUIPMENT	Truck-mounted Rig
METHOD	Hollow-stem Auger
HOLE DIA	6-5/8"
REMARKS	

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER INTERFACES BEWEEN STRATA ARE APPROXIMATE TRANSITIONS BETWEEN STRATA MAY BE GRADUAL

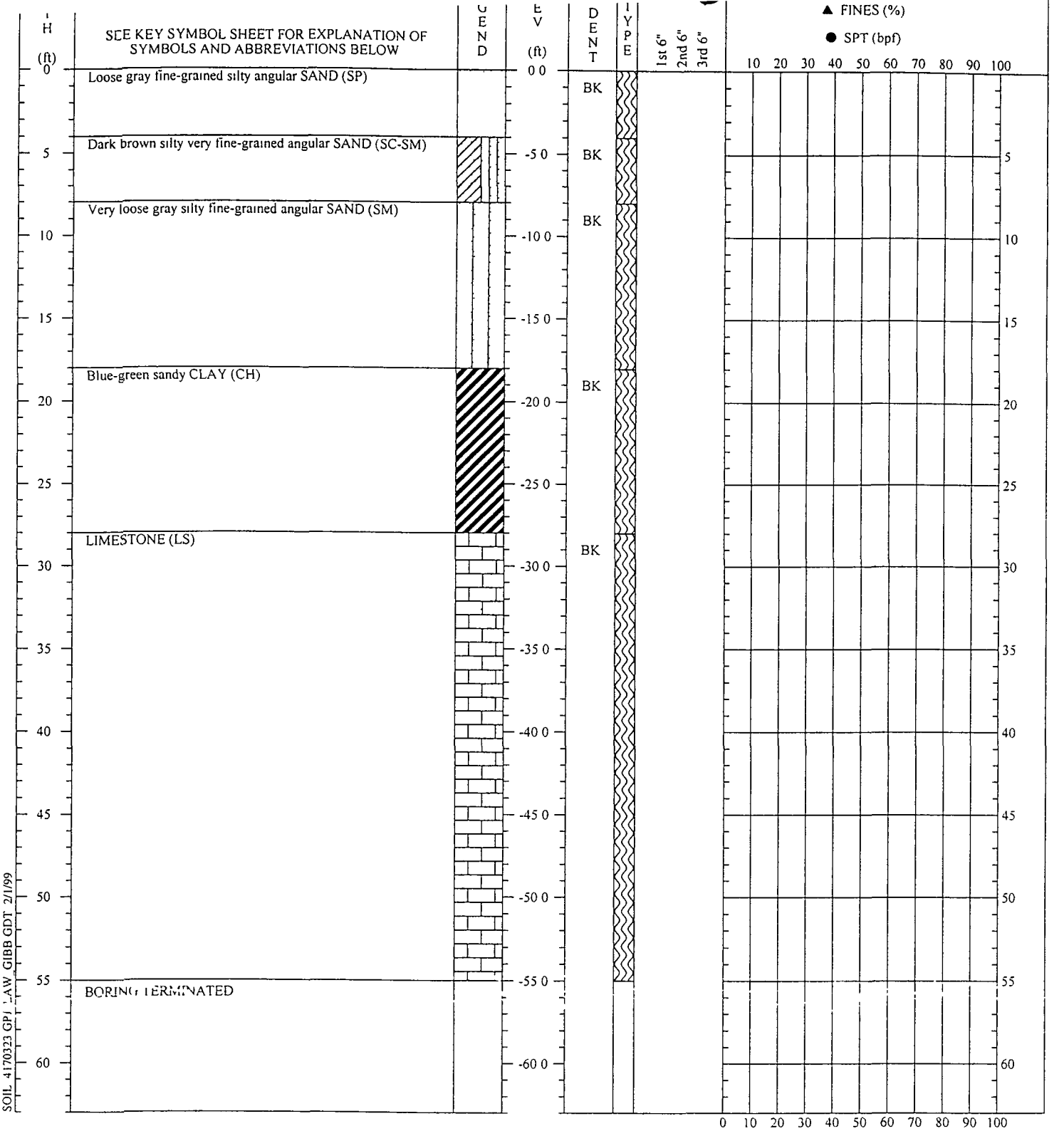
SOIL TEST BORING RECORD

PROJECT·	West Pasco Class I Landfill
COORD N.	28 5
COORD E:	82 6
DRILLED.	January 22, 1999
PROJ. NO.·	40141-7-0323

BORING NO : SB-13S

PAGE 1 OF 1

LAW
LAWGIBB Group Member



DRILLER	Dave Kirby
EQUIPMENT	Truck-mounted Rig
METHOD	Rotary-wash Boring with Drilling Mud
HOLE DIA	8"
REMARKS	

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER INTERFACES BEWEEN STRATA ARE APPROXIMATE TRANSITIONS BETWEEN STRATA MAY BE GRADUAL

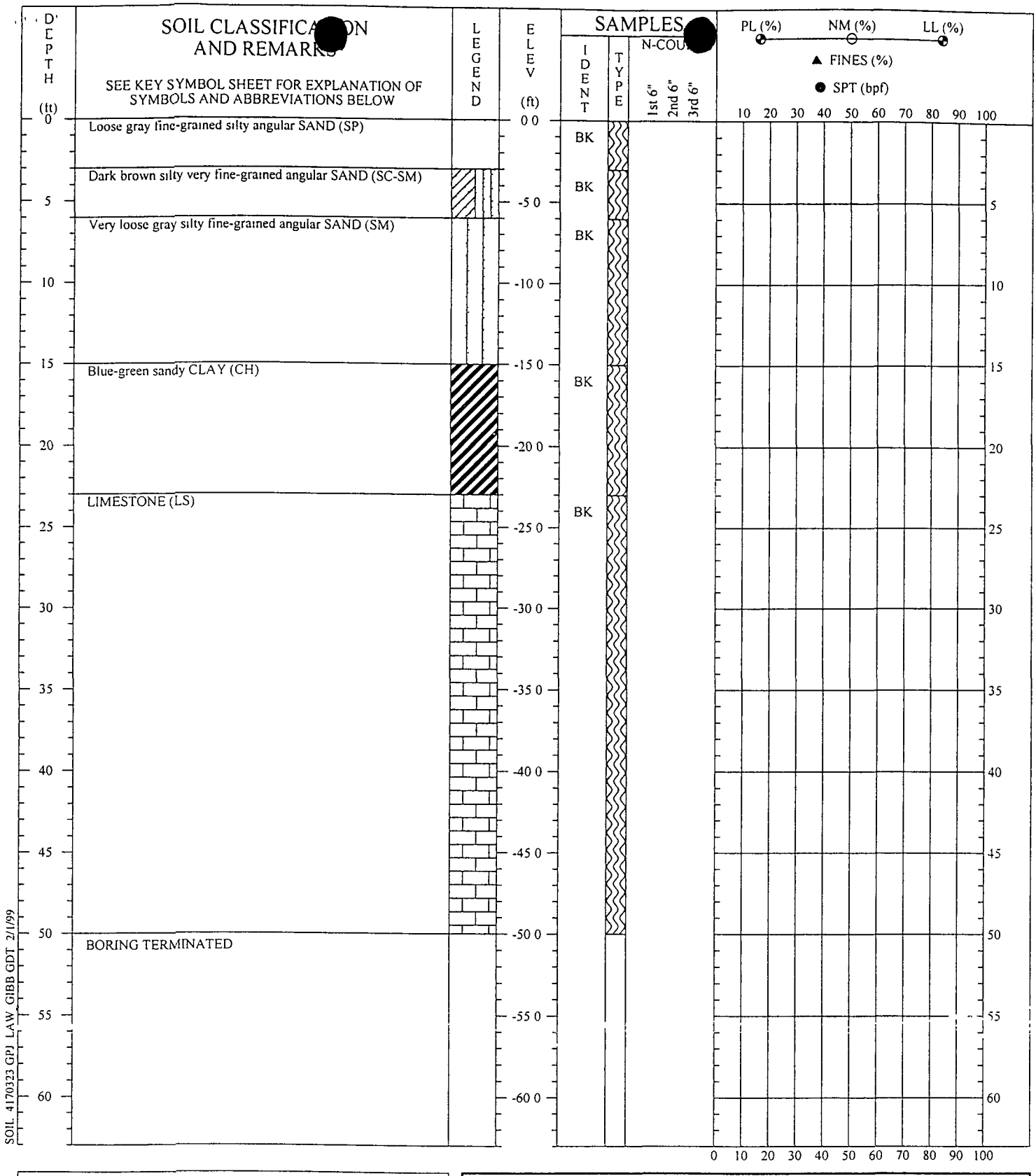
SOIL TEST BORING RECORD

PROJECT.	West Pasco Class I Landfill
COORD N·	28 8
COORD E:	82 9
DRILLED:	January 28, 1999
PROJ. NO..	40141-7-0323

BORING NO SB-12F

PAGE 1 OF 1

LAW
LAWGIBB Group Member



SOIL 4170323.GPJ LAW_GIBB.GDT 2/1/99

DRILLER	Dave Kirby
EQUIPMENT	Truck-mounted Rig
METHOD	Rotary-wash Boring with Drilling Mud
HOLE DIA	8"
REMARKS	

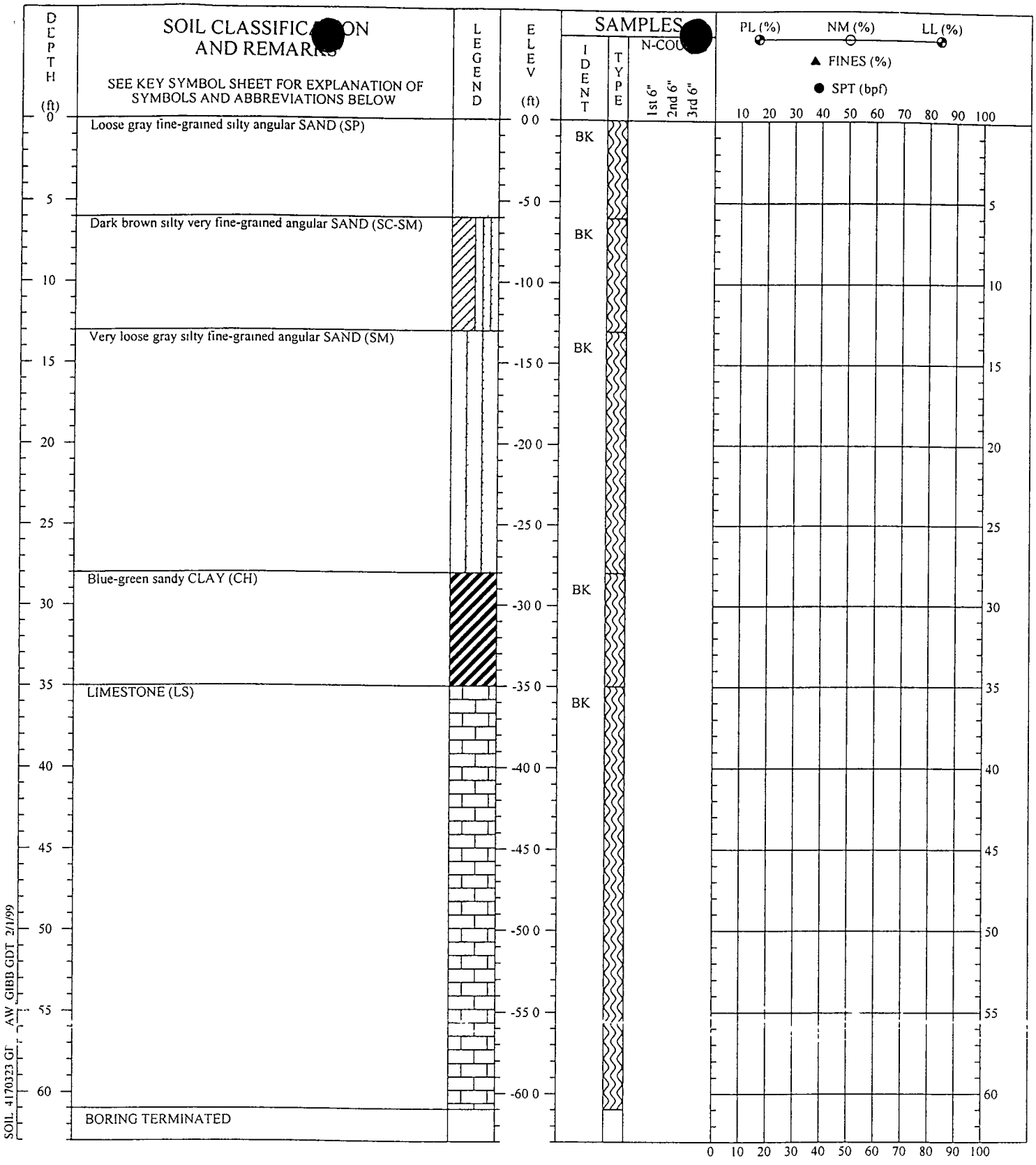
THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

PROJECT: West Pasco Class I Landfill
COORD N. 28 9
COORD E 83 0
DRILLED January 28, 1999
PROJ. NO.: 40141-7-0323

BORING NO : SB-14F
PAGE 1 OF 1

LAW
LAWGIBB Group Member



SOIL 4170323 GF AW GIBB GDT 2/1/99

DRILLER	Dave Kirby
EQUIPMENT	Truck-mounted Rig
METHOD	Rotary-wash Boring with Drilling Mud
HOLE DIA	8"
REMARKS	

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER INTERFACES BEWEEN STRATA ARE APPROXIMATE TRANSITIONS BETWEEN STRATA MAY BE GRADUAL

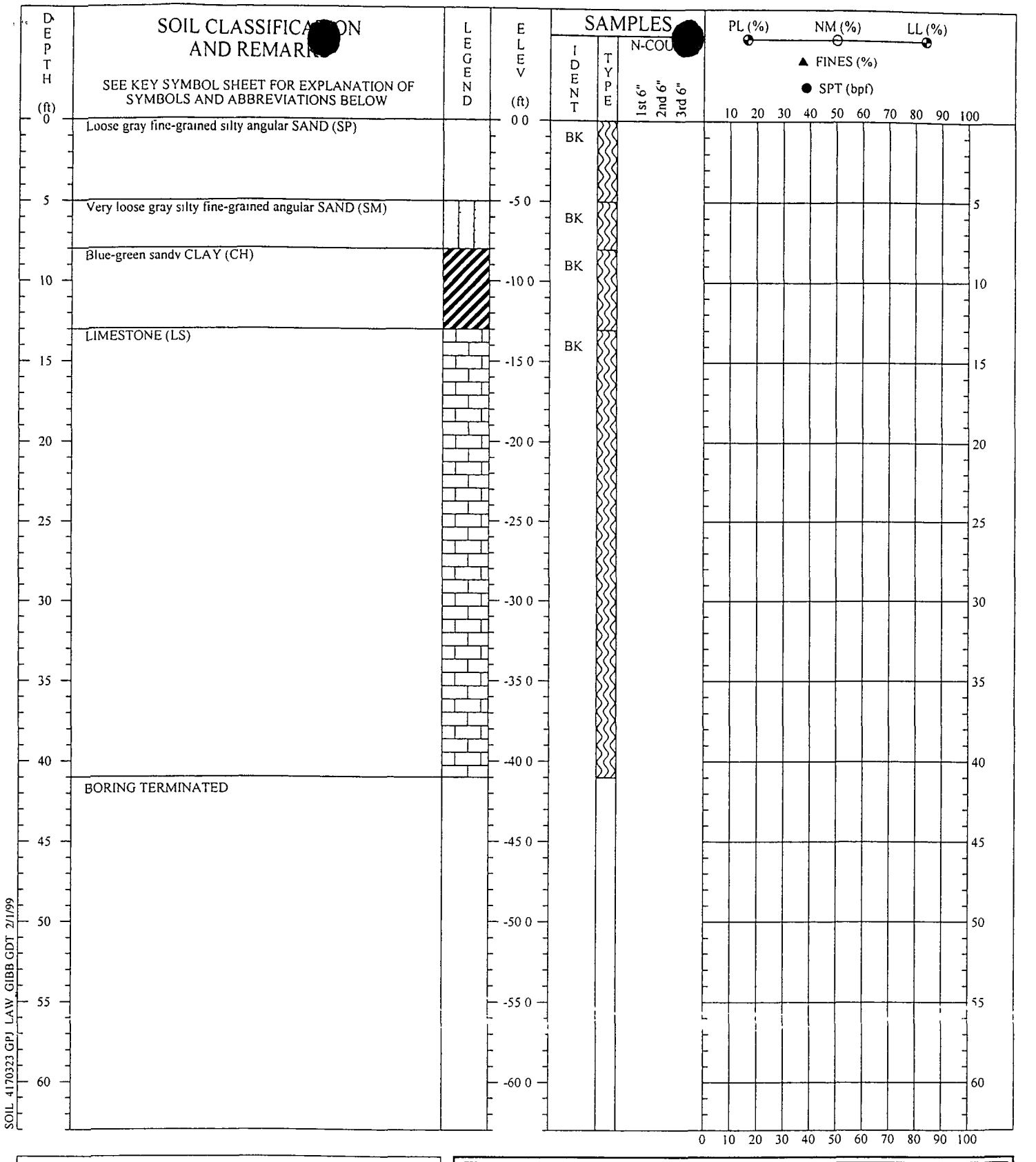
SOIL TEST BORING RECORD

PROJECT:	West Pasco Class I Landfill
COORD N:	28 6
COORD E:	82 7
DRILLED:	January 28, 1999
PROJ NO.:	40141-7-0323

BORING NO SB-15F

PAGE 1 **OF** 1

LAW
LAWGIBB Group Member



SOIL 4170323.GPJ LAW_GIBB.GDT 2/1/99

DRILLER	Dave Kirby
EQUIPMENT	Truck-mounted Rig
METHOD	Rotary-wash Boring with Drilling Mud
HOLE DIA	8"
REMARKS	

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

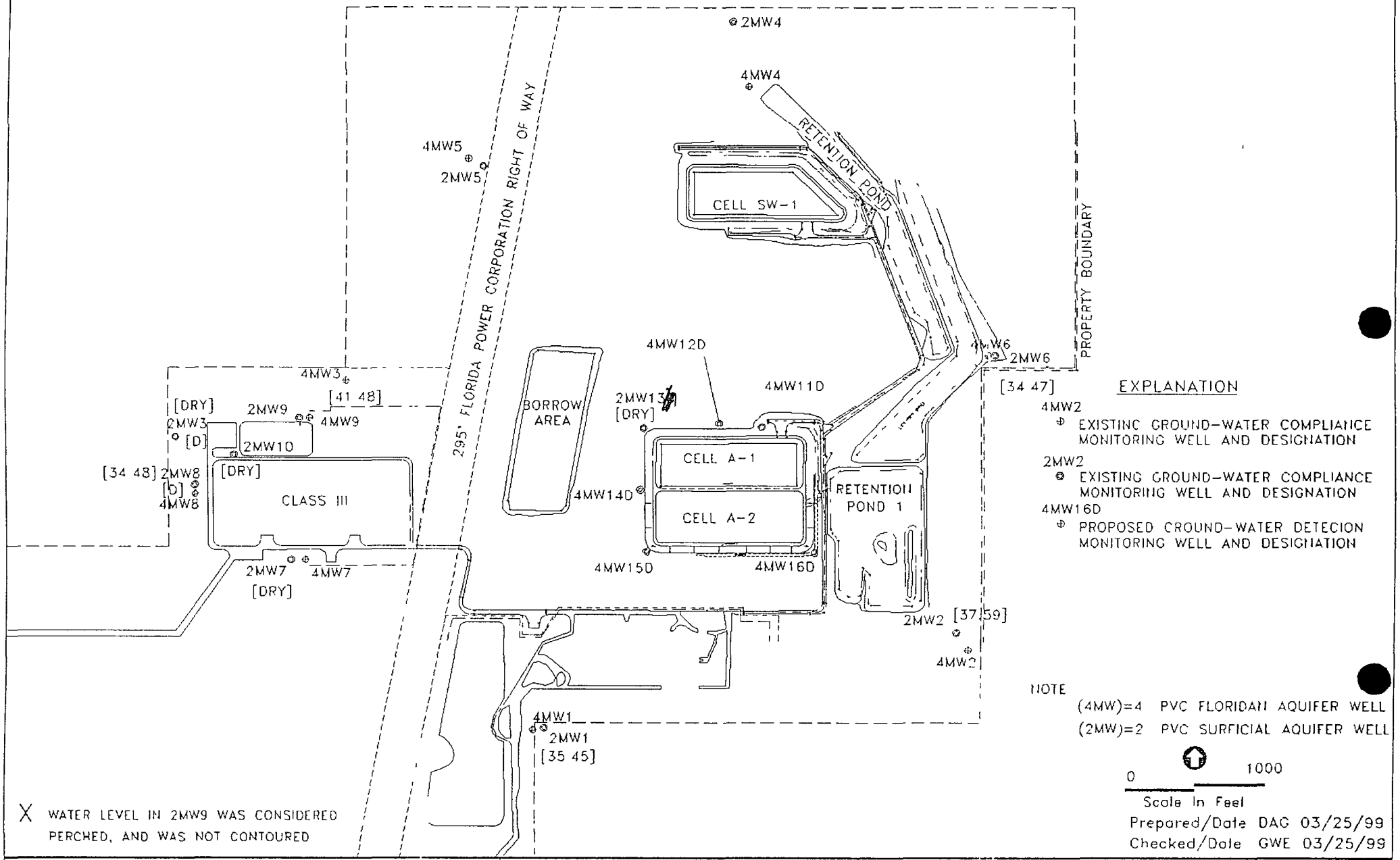
SOIL TEST BORING RECORD

PROJECT:	West Pasco Class I Landfill
COORD N.	28 7
COORD E.	82 8
DRILLED:	January 28, 1999
PROJ. NO.:	40141-7-0323

BORING NO. SB-16F

PAGE 1 **OF** 1

LAW
LAWGIBB Group Member



West Pasco Class III Landfill
Pasco County
Board of County Commissioners
Utility Services Branch
Pasco County, Florida

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

GROUND WATER MONITORING SURFACE AQUIFER WATER TABLE JANUARY 1999

Project 40141-8-0451

Figure 1

LAW

LAWGIBB Group Member

March 15, 1999

Ms Allison E Amram, Professional Geologist I
Division of Waste Management
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Subject **Ground-Water Monitoring**
West Pasco Class I Landfill
LAW Project 40141-8-0452

Dear Ms Amram

Law Engineering and Environmental Services, Inc (LAW), on behalf of Pasco County, is submitting this letter concerning the Florida Monitoring Wells located around the ash disposal units at the Class I Landfill The wells were installed with a solid four-inch diameter casing down to just below the interface of the clay confining unit and the limestone The rest of the monitoring well is an open hole There has been a problem occurring with the wells Clay and perhaps some limerock has filled the hole As a result, Pasco County has not been able to sample the wells We believe the reason is the weathered limerock is not stable at the interface and is sloughing into the well because of pressure from the clay above it

LAW plans to correct the situation by reaming out the four-inch hole and inserting a two-inch diameter well casing and screen inside the existing four-inch casing The screen portion will extend from the bottom of the existing hole up to four feet below the clay/limestone interface and solid pipe will extend to the surface The interstial space will be filled with sand to two feet above the screen, sealed and grouted to the surface A sketch of the planned corrective action is attached

If you have any questions, please contact Richard Mayer at 813/289-0750

Sincerely,

LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC

Robert C Sheridan, P G
Senior Environmental Geologist
Florida Registration 1965

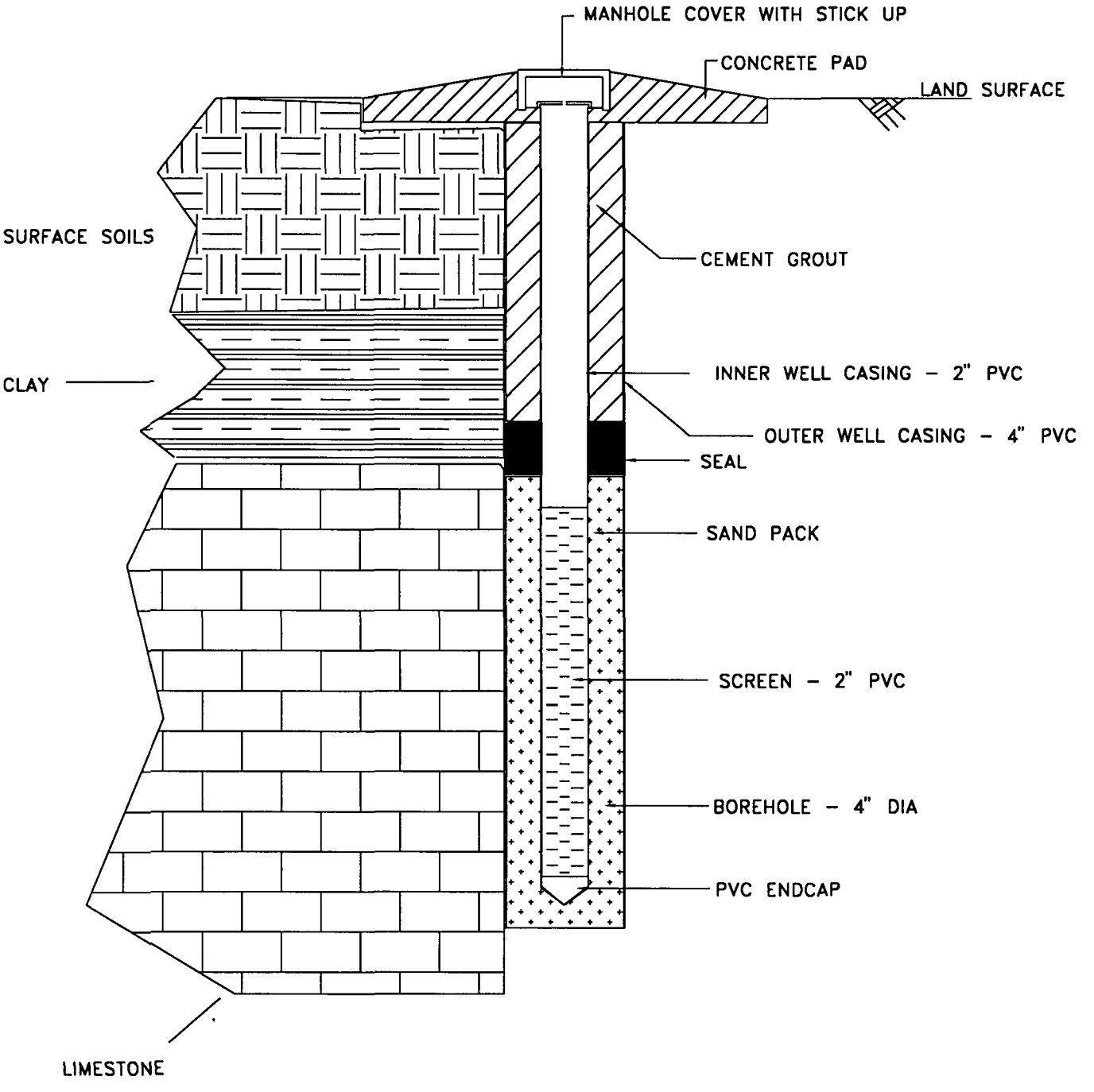
Richard E Mayer, P E
Principal Engineer
Florida Registration 41759

RCS/REM cjs\G \ENVIRO\RLPORT\4014180452 MWREV doc

cc Vincent Mannella
Douglas Bramlett

LAW Engineering and Environmental Services, Inc
4919 West Laurel Street
Tampa, FL 33607
813-289-0750 • Fax 813-289-5474

LAW
LAW:IBB Group Member



NOTE: MEASURING POINT IS TOP OF CASING UNLESS OTHERWISE NOTED.
ALL DEPTHS MEASURED IN FEET BELOW TOP OF CASING UNLESS OTHERWISE NOTED

Not To Scale

REVISED MONITORING WELL CONFIGURATION – West Pasco Class I

WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 2 MW 13 D (Detection Well)

Date(s) of Installation: 1/22/98

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 27 . 20 (D D M S S . S S)

Longitude: 82 33 38 . 70 (D D M M S S . S S)

Elevation Surface: 49 12

Elevation TOC: 52 39

Surveyor's Name:

Surveyor's License #:

Turbidity:

Date of Reading: 1/28/98

Static Water Level (MSL): 39 5

Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		2 inch	49 12	41 32

Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Sch 40 PVC		2 inch	41 32	31 32	0 010"

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement		49 12	43 62	Manual
Fine Sand Pack	20/30	43 62	43 12	Manual
Sand Pack	6/20	43 12	31 12	

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	

WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 4MW11D (Detection Well)

Date(s) of Installation: 1/22-28/98 , 2"PVC Screen 5/6/99

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 27 . 50 (D D M S S . S S)

Longitude: 82 33 28 . 50 (D D M M S S . S S)

Elevation Surface: 61 87 | Elevation TOC: 65 00

Surveyor's Name: | Surveyor's License #:

Turbidity: | Date of Reading: 1/28/98

Static Water Level (MSL): 40 1 | Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		4 inch	65 00	34 87
Sch 40 PVC		2 inch	65 00	35 00

Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Hole			34 87	9 87	
Sch 40 PVC		2 inch	35 00	10 00	0 010"

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement-4"Casing		61 87	34 87	Pressure Grouting
Sand Pack	6/20	30 00	9 87	Manual

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotatory		61 87	9 87	Bentonite Slurry

WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill
EPA Identification Number:
Well Identification: 4MW12D (Detection Well)
Date(s) of Installation: 1/22-28/98, 2"PVC Screen 5/6/99
Well Driller's Complete Name: David Kirby
Well Driller's License Number: 9176

Latitude: 28 22 27 40 (D D M S S S S)
Longitude: 82 33 33 90 (D D M M S S S S)

Elevation Surface: 51 79
Elevation TOC: 55 03
Surveyor's Name:
Surveyor's License #:
Turbidity:
Date of Reading: 1/28/98
Static Water Level (MSL): 39 5
Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		4 inch	55 03	21 79
Sch 40 PVC		2 inch	55 03	22 00

Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Hole			21 79	-3 21	
Sch 40 PVC		2 inch	22 00	-3 00	0 010"

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement-4"Casing		51 79	21 79	Pressure Grouting
Sand Pack	6/20	27 00	-3 21	Manual

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotatory		51 79	-3 21	Bentonite Slurry

WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 4MW14D (Detection Well)

Date(s) of Installation: 1/22-28/98, 2"PVC Screen 5/6/99

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 22 . 80 (D D M S S . S S)

Longitude: 82 33 39 . 00 (D D M M S S . S S)

Elevation Surface: 48 99

Elevation TOC: 52 00

Surveyor's Name:

Surveyor's License #:

Turbidity:

Date of Reading: 1/28/98

Static Water Level (MSL): 39 8

Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		4 inch	52 00	23 99
Sch 40 PVC		2 inch	52 00	25 00

Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Hole			23 99	-1 01	
Sch 40 PVC		2 inch	25 00	0	0 010"

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement-4"Casing		48 99	23 99	Pressure Grouting
Sand Pack	6/20	20 00	-1 01	Manual

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotatory		48 99	-1 01	Bentonite Slurry

WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 4MW15D (Detection Well)

Date(s) of Installation: 1/22-28/98, 2"PVC Screen 5/6/99

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 18 (D D M S S) 50 (S S)

Longitude: 82 33 38 (D D M M S S) 50 (S S)

Elevation Surface: 51 69

Elevation TOC: 54 43

Surveyor's Name:

Surveyor's License #:

Turbidity:

Date of Reading: 1/28/98

Static Water Level (MSL): 40 5

Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		4 inch	54 43	15 69
Sch 40 PVC		2 inch	54 43	16 00

Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Hole			15 69	-9 31	
Sch 40 PVC		2 inch	16 00	-9 00	0 010"

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement-4"Casing		51 69	15 69	Pressure Grouting
Sand Pack	6/20	21 00	9 31	Manual

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotatory		51 69	-9 31	Bentonite Slurry

WELL CONSTRUCTION SUMMARY REPORT

Facility: West Pasco Class I Landfill

EPA Identification Number:

Well Identification: 4MW16D (Detection Well)

Date(s) of Installation: 1/22-28/98, 2"PVC Screen 5/6/99

Well Driller's Complete Name: David Kirby

Well Driller's License Number: 9176

Latitude: 28 22 18 (D D M S S) 30 (S S)

Longitude: 82 33 26 (D D M M S S) 10 (S S)

Elevation Surface: 48 63

Elevation TOC: 52 47

Surveyor's Name:

Surveyor's License #:

Turbidity:

Date of Reading: 1/28/98

Static Water Level (MSL): 40 1

Field Geologist: Owen Thornberry

Casing

Material	Outside Diameter	Inside Diameter	Depth	
			From (ft)	To (ft)
Sch 40 PVC		4 inch	52 47	32 63
Sch 40 PVC		2 inch	52 47	33 00

Screen

Material	Outside Diameter	Inside Diameter	Depth		Slot Size
			From (ft)	To (ft)	
Open Hole			32 63	7 63	
Sch 40 PVC		2 inch	33 00	8 00	0 010"

Annulus

Material Including Additives for sealant	Size of Material	Depth		Installation Method
		From (ft)	To (ft)	
Portland Cement-4"Casing		48 63	32 63	Pressure Grouting
Sand Pack	6/20	38 00	7 63	Manual

Drilling Method	Bit/Auger	Depth		Drilling Fluids
		From (ft)	To (ft)	
Mud Rotatory		48 63	7 63	Bentonite Slurry

G \enviro\common\george\pascowell_rpt doc

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT

CONVERSATION RECORD

Date 7/13/99 Subject WEST PASCO CLASS I LF

Time 1610 Permit No PA 87-23

County PASCO

Mr. GEORGE ELLSWORTH Telephone No 813-289-0750

Representing LAW ENG.

[ ] Phoned Me [X] Was Called [ ] Scheduled Meeting [ ] Unscheduled Meeting

Other Individuals Involved in Conversation/Meeting

Summary of Conversation/Meeting

- NEW WELL 4MW-13D / STATUS?

- LEFT MESSAGE ON VOICE MAIL

7/16/99 @ 1100 LEFT ANOTHER VOICE MAIL FOR GEORGE TO CALL

7/20/99 @ 1400 LEFT MESSAGE W/ RECEPTIONIST

@ 1530 GE. CALLED BACK

5 OF 6 FLORIDAN WELLS INSTALLED / ENCOUNTERED CLAY BELOW 4" CASING & COULD NOT COMPLETE OPEN HOLE SECTION; MOVED OVER 50 FT & HIT ONLY CLAY

→ LAW LETTER TO VINCE 5/12/98 INDICATED 1 WELL COULD NOT BE INSTALLED

- G.E DOES NOT THINK THE DEPARTMENT RESPONDED TO THE MISSING WELL

2 PAGE LETTER TRANSMITTING WELL CONSTRUCTION DATA

- LAW IS WORKING ON LETTER TO VINCE MANELLA PRESENTING OPTIONS FOR WHAT TO DO AT 4MW-13D LOCATION

- WHEN REWORKED WELLS 4MW-11D, 12D, 14D, 15D, 16D, THEY WERE REDEVELOPED & SHOULD BE READY TO BE SAMPLED

(continue on another sheet, if necessary)

Signature J Mellin

Title

PA-01
1/96
pap

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST DISTRICT

CONVERSATION RECORD

Date 7/13/99 Subject West Pasco Class I

Time 1525 Permit No PA 87-23

County Pasco

MS. Candia Mulhern Telephone No 727-847-8902

Representing Pasco County

[ ] Phoned Me [X] Was Called [ ] Scheduled Meeting [ ] Unscheduled Meeting

Other Individuals Involved in Conversation/Meeting

Summary of Conversation/Meeting

(1.) INITIAL SAMPLING EVENT @ NEW WELLS (2ND HALF 1998) DID NOT INCLUDE APPENDIX II PARAMETERS

(2.) WELL 4MW-13D STATUS?

(3.) REWORKING OF NEW WELLS COMPLETED BY LAN ENG. — WHEN PLANNED TO BE SAMPLED NEXT?
- NEED TO INCLUDE APPENDIX II PARAMETERS

- PLANNING TO DO 2ND HALF 1999 SAMPLING EVENT RELATIVELY SOON
- SHE HAD NO RECOLLECTION ABOUT 4MW-13D — CHECK W/ GEORGE ELLSWORTH OR VINCE MANERA
- SHE WILL CHECK ABOUT APPENDIX II PARAMETERS BEING RUN ON NEW WELLS (FIELD NOTES & CHAIN OF CUSTODY RECORDS) — IF PREVIOUSLY RUN SHE WILL FORWARD RESULTS; IF NOT RUN SHE WILL INCLUDE THE APPENDIX II ON NEXT SAMPLING EVENT
- TOLD HER I WOULD ALSO AS LAN IF THE REWORKED WELLS HAD BEEN DEVELOPED & WERE READY TO BE SAMPLED
- C.M. INDICATED THE DEDICATED SAMPLERS USED BY PASCO COUNTY WOULD FIT INSIDE 2" DIAMETER WELLS

(continue on another sheet, if necessary)

Signature J-Morris

Title

PA-01
1/96
pap

7/14/99 @ 1440
- NO RECORD OF WELL 4MW-13D BEING INSTALLED
- SHE WILL SEND RESULTS IN FOR APPENDIX II ANALYTES RUN ON THE AUGUST 1998 SAMPLING EVENT; SHE DOES NOT KNOW WHY THEY WERE NOT IN THE 10/98 SUBMITTAL TO THE DEPARTMENT; WILL PUT IN MAIL TODAY

LAW

LAWGIBB Group Member

MON WELL CONSTRUCTION DETAILS ONLY

D.E.R.
FEB 0 1 1999
Southwest District Tampa

February 1, 1999

Ms Allison E Amram
Division of Waste Management
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619-8318

D.E.R.
FEB 0 1 1999
Southwest District Tampa

Subject **Data for Ash Cells A-1 and A-2**
LAW Project 40141-8-0452

Dear Ms Amram

Law Engineering and Environmental Services, Inc (LAW), is providing the following data on behalf of Pasco County in response to your letter of January 6, 1999 concerning the new wells for A1/A2 ash cells 4MW11D –4MW15D and 2MW13D

- The SWFWMD well construction permit numbers,
- Detailed boring logs,
- A survey drawing showing well locations conducted by a Florida Registered Surveyor,

Leachate chemical testing data from ash Cell A-2 is also included The Groundwater Monitoring Plan Evaluation for the West Pasco ash and solid waste landfills is provided under separate cover and is addressed to Danielle Nichols

If you have any questions or concerns, please call the undersigned at (813) 289-0750

Sincerely,

LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC

George W. Ellsworth

George W Ellsworth, P G
Senior Geologist
Florida Registration 00848

Richard E. Mayer

Richard E Mayer, P E
Principal Engineer
Florida Registration 41759

GWE/REM cjs\G \ENVIRO\LETTER\4014180452 L1 doc

cc Vincent Mannella, Pasco County

LAW Engineering and Environmental Services, Inc
4919 West Laurel Street
Tampa, FL 33607
813-289-0750 • Fax 813-289-5474

PASCO COUNTY, FLORIDA

D.E.R.
FEB 0 1 1999
Southwest District Tampa

DADE CITY (352) 521-4274
LAND O'LAKES (813) 996-7341
NEW PORT RICHEY (727) 856-0119
FAX (727) 856-0007

PASCO COUNTY SOLID WASTE
RESOURCE RECOVERY FACILITY
14230 HAYS ROAD
SPRING HILL, FL 34610

January 28, 1999

Mr Richard E Mayer, P E
Principal Environmental Engineer
Law Engineering and Environmental Services
4919 West Laurel Street
Tampa, FL 33507

RE Certified Survey of Monitoring
Well Locations

Dear Mr Mayer

Attached herewith, please find a certified survey of A-2 monitoring wells as per Florida Department of Environmental Protection's request

Very truly yours,

Vincent Mannella, P E
Solid Waste Facility Manager

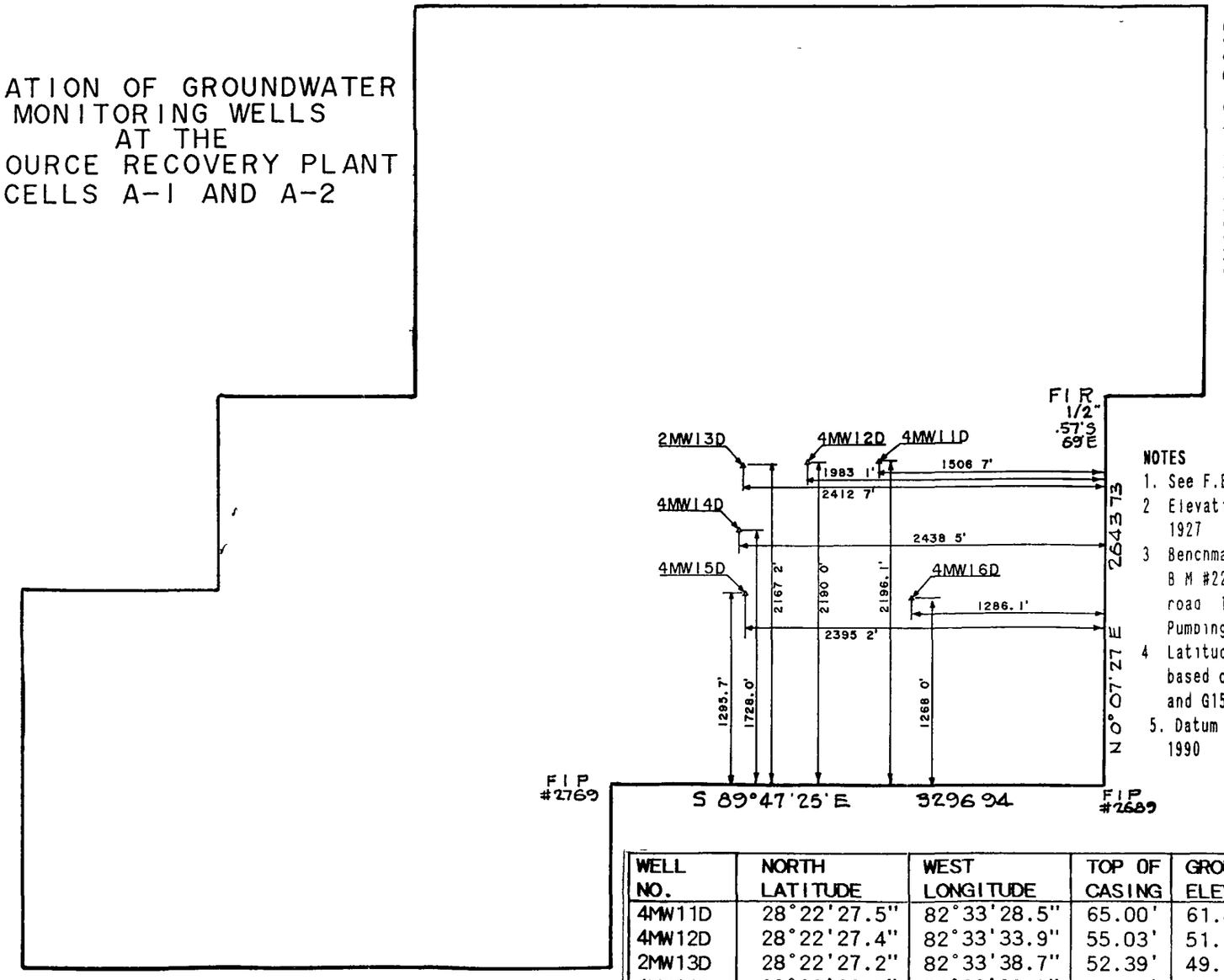
VM/drc

Attachment

cc Douglas S Bramlett, Assistant County Administrator

SECTIONS 24, 25 AND 26, TOWNSHIP 24 SOUTH, RANGE 17 EAST.

LOCATION OF GROUNDWATER MONITORING WELLS AT THE RESOURCE RECOVERY PLANT CELLS A-1 AND A-2



LEGEND
MW = MONITORING WELL
F.I.P. = FOUND IRON PIPE
F.I.R. = FOUND IRON ROD, NO #
N.G.S. = NATIONAL GEODETIC SURVEY

BASIS OF BEARINGS
Bearings are based on N.G.S Markers F16-057 and G15-058, N 01° 06' 59" E

TYPE OF SURVEY; RECORD SURVEY
DATE OF SURVEY; MARCH 4, 1998

NOTES
1. See F.B.541, pages 9-13
2. Elevations refer to N G V D 1927
3. Benchmark used Pasco County B M #227-030, 60d nail, edge of road 1050' S of Leachate Pumping Sta Elevation 53 32
4. Latitude and Longitude are based on N.G S Markers F16-057 and G15-058
5. Datum is NAD 83 Adjustment of 1990

Hardoowar Singh
HARDOOWAR SINGH, FLORIDA LICENSED SURVEYOR AND MAPPER, NO. 4575

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

WELL NO.	NORTH LATITUDE	WEST LONGITUDE	TOP OF CASING	GROUND ELEV.
4MW11D	28°22'27.5"	82°33'28.5"	65.00'	61.87'
4MW12D	28°22'27.4"	82°33'33.9"	55.03'	51.79'
2MW13D	28°22'27.2"	82°33'38.7"	52.39'	49.12'
4MW14D	28°22'22.8"	82°33'39.0"	52.00'	48.99'
4MW15D	28°22'18.5"	82°33'38.5"	54.53'	51.69'
4MW16D	28°22'18.3"	82°33'26.1"	52.47'	48.63'

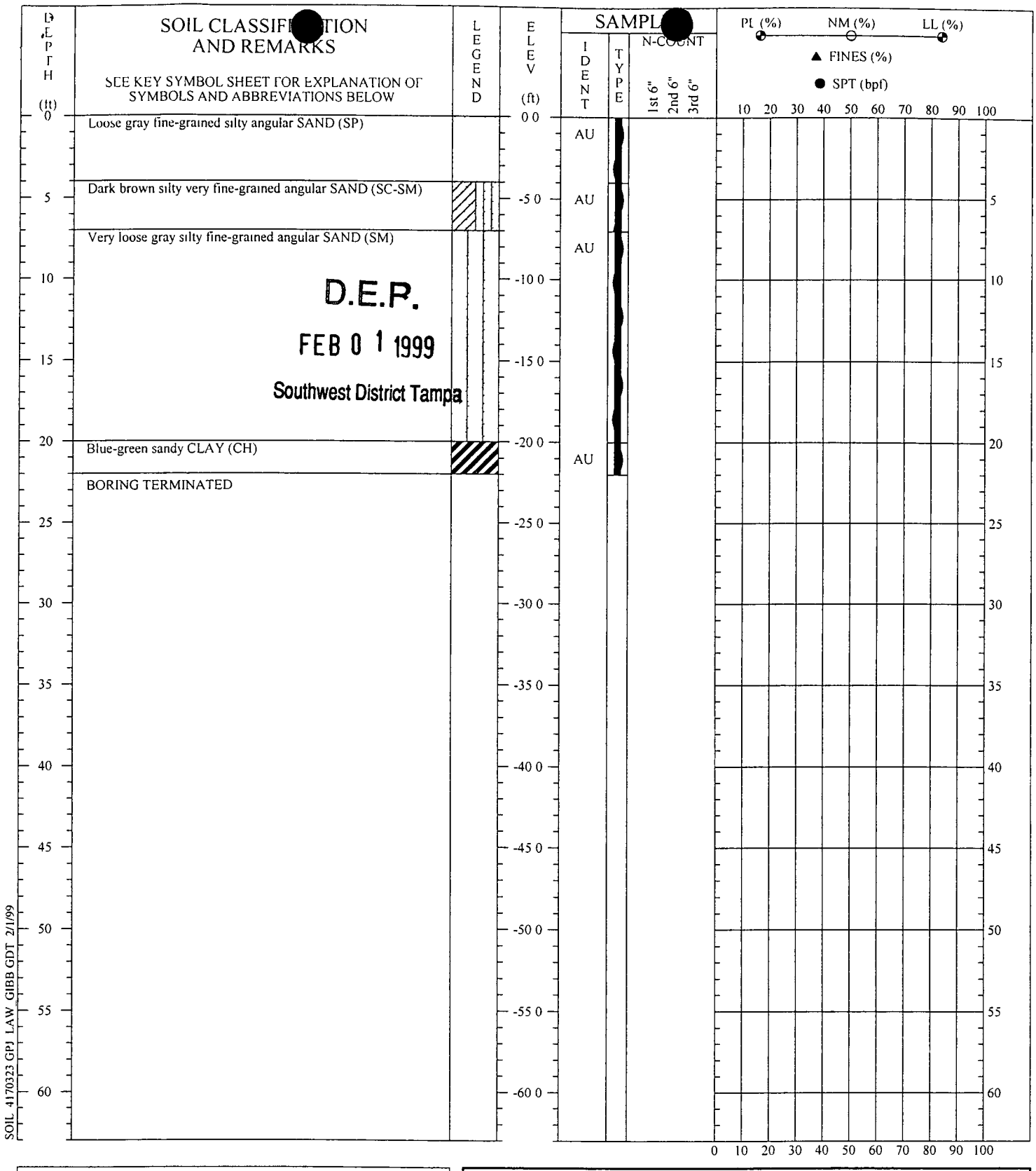
PASCO COUNTY
ENGINEERING SERVICES DEPARTMENT
7530 LITTLE ROAD
NEW PORT RICHEY, FL. 34654

RECORD SURVEY - MONITORING WELLS CELLS A-1 AND A-2 RESOURCE RECOVERY FACILITY

DRAWN:	CHECKED:	DISK/FILE:	W.O.#
D.E.H.	H.S.	#46/X9332	X9333.00

DATE: 1/14/99

SHEET 1 OF 1



D.E.P.
FEB 0 1 1999
Southwest District Tampa

SOIL 4170323.GPJ LAW_GIBB.GDT 2/1/99

DRILLER	Dave Kirby
EQUIPMENT	Truck-mounted Rig
METHOD	Hollow-stem Auger
HOLE DIA	6-5/8"
REMARKS	

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER INTERFACES BEWEEN STRATA ARE APPROXIMATE TRANSITIONS BETWEEN STRATA MAY BE GRADUAL

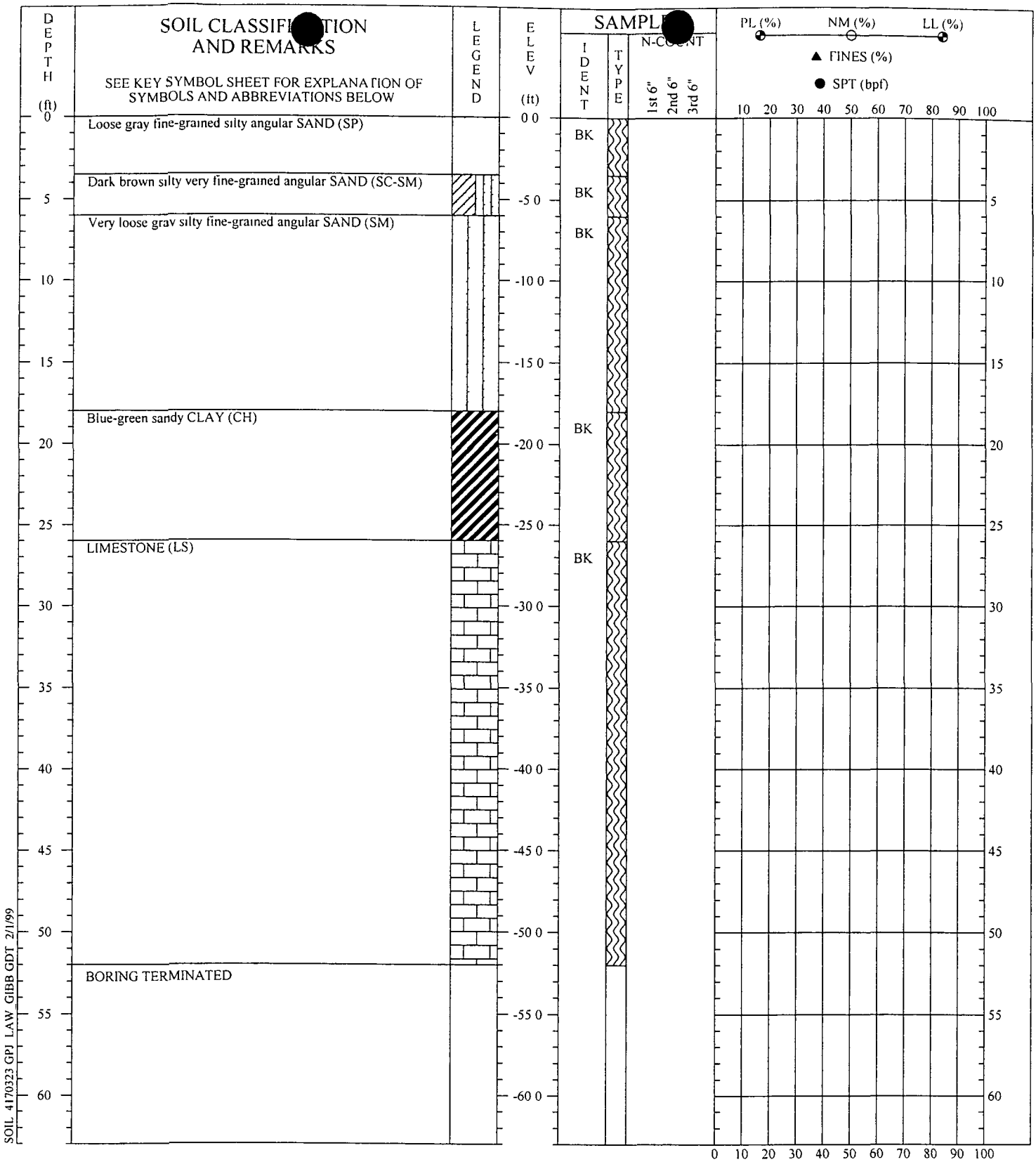
SOIL TEST BORING RECORD

PROJECT:	West Pasco Class I Landfill
COORD N.	28 5
COORD E:	82 6
DRILLED:	January 22, 1999
PROJ. NO..	40141-7-0323

BORING NO.: SB-13S

PAGE 1 OF 1

LAW
LAWGIBB Group Member



SOIL 4170323 GPJ LAW GIBB GDT 2/1/99

DRILLER	Dave Kirby
EQUIPMENT	Truck-mounted Rig
METHOD	Rotary-wash Boring with Drilling Mud
HOLE DIA	8"
REMARKS	

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER INTERFACES BEWEEN STRATA ARE APPROXIMATE TRANSITIONS BETWEEN STRATA MAY BE GRADUAL

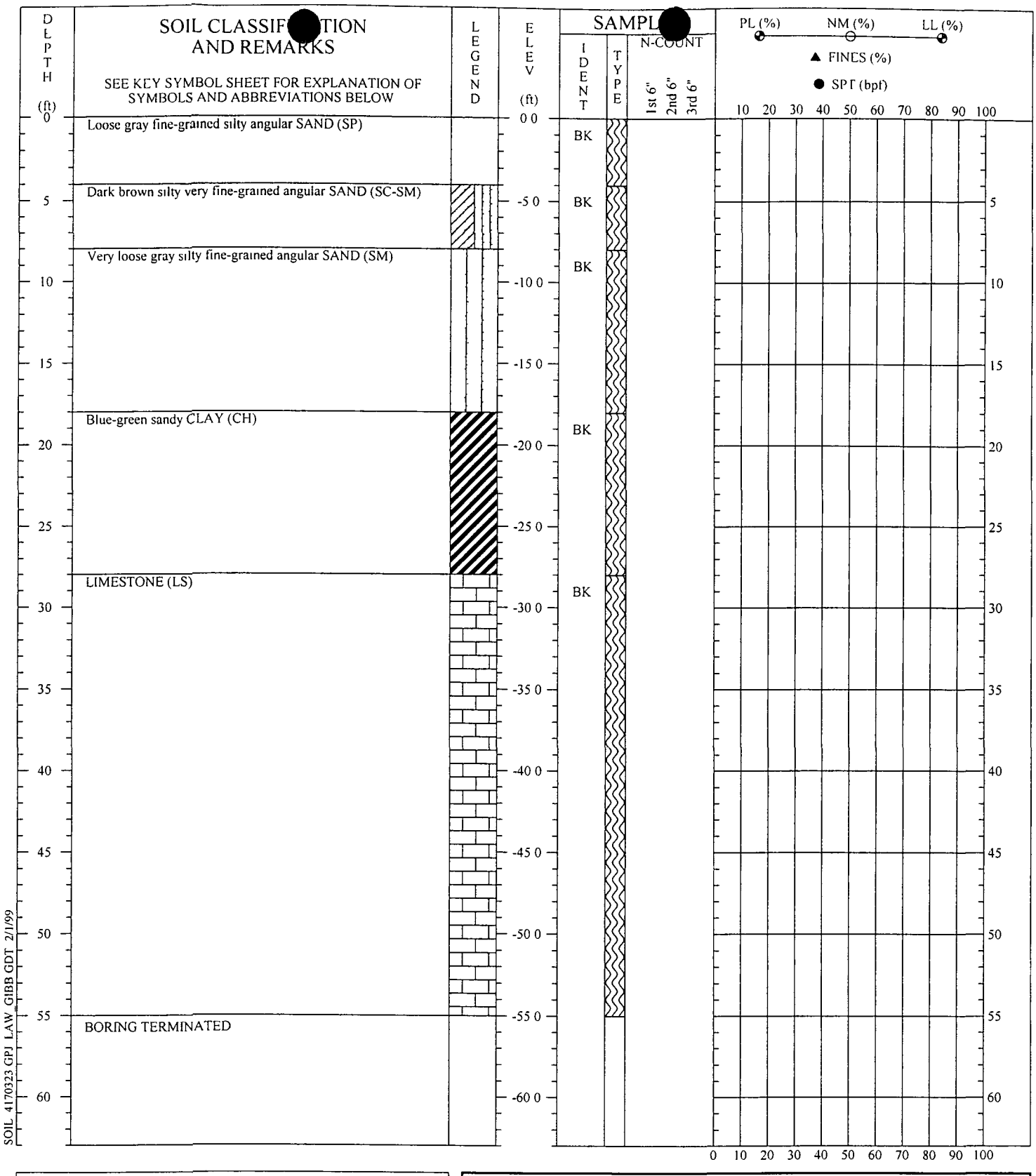
SOIL TEST BORING RECORD

PROJECT:	West Pasco Class I Landfill
COORD N:	28 4
COORD E:	82 5
DRILLED:	January 28, 1999
PROJ. NO.:	40141-7-0323

BORING NO.: SB-11F

PAGE 1 OF 1

LAW
LAWGIBB Group Member



SOIL 4170323 GPJ LAW GIBB GDT 2/1/99

DRILLER	Dave Kirby
EQUIPMENT	Truck-mounted Rig
METHOD	Rotary-wash Boring with Drilling Mud
HOLE DIA	8"
REMARKS	

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER INTERFACES BEWEEN STRATA ARE APPROXIMATE TRANSITIONS BETWEEN STRATA MAY BE GRADUAL

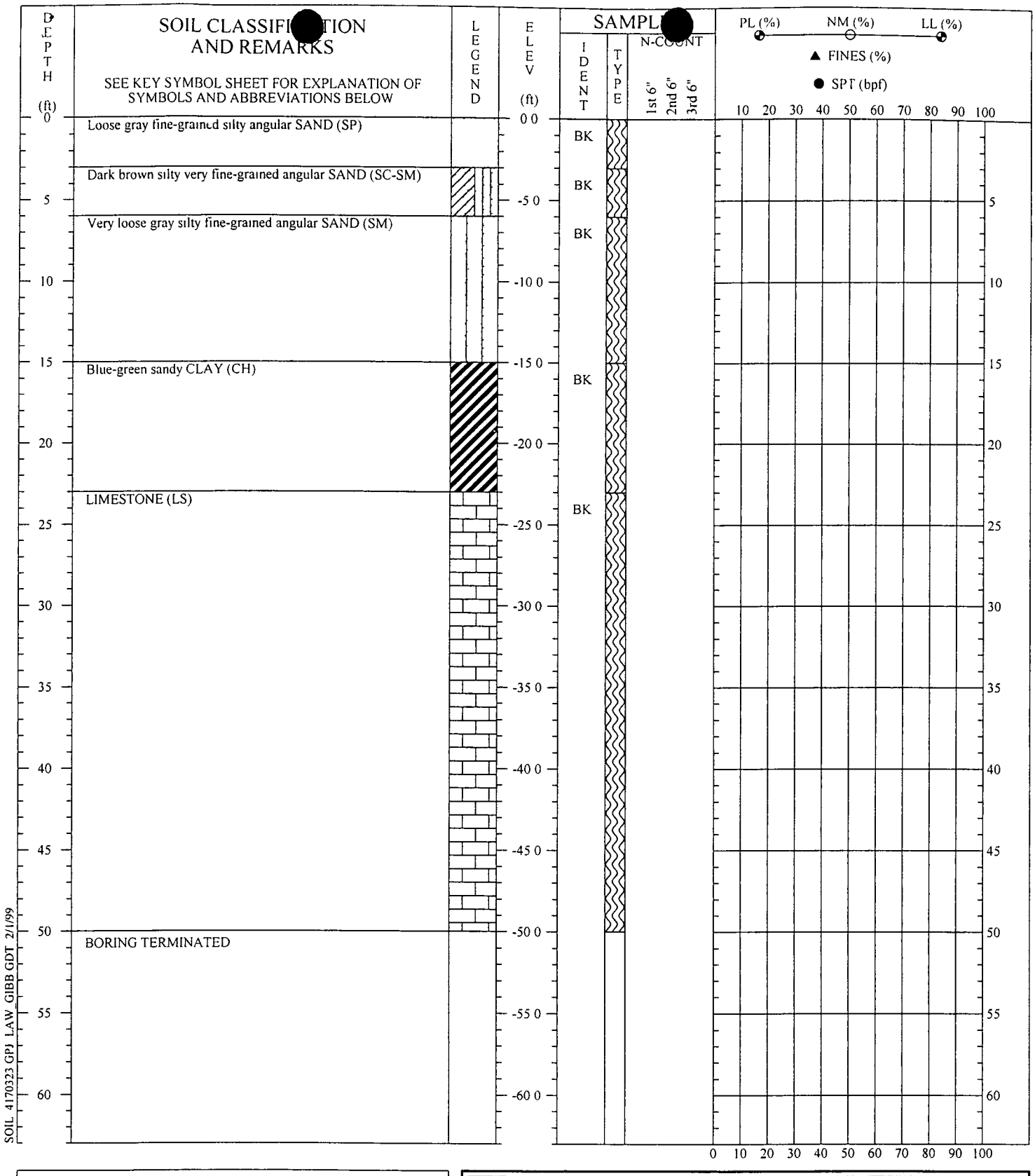
SOIL TEST BORING RECORD

PROJECT:	West Pasco Class I Landfill
COORD N:	28 8
COORD E:	82 9
DRILLED:	January 28, 1999
PROJ. NO.:	40141-7-0323

BORING NO : SB-12F

PAGE 1 OF 1

LAW
LAWGIBB Group Member



SOIL 4170323 GPJ LAW_GIBB GDT 2/1/99

DRILLER	Dave Kirby
EQUIPMENT	Truck-mounted Rig
METHOD	Rotary-wash Boring with Drilling Mud
HOLE DIA	8"
REMARKS	

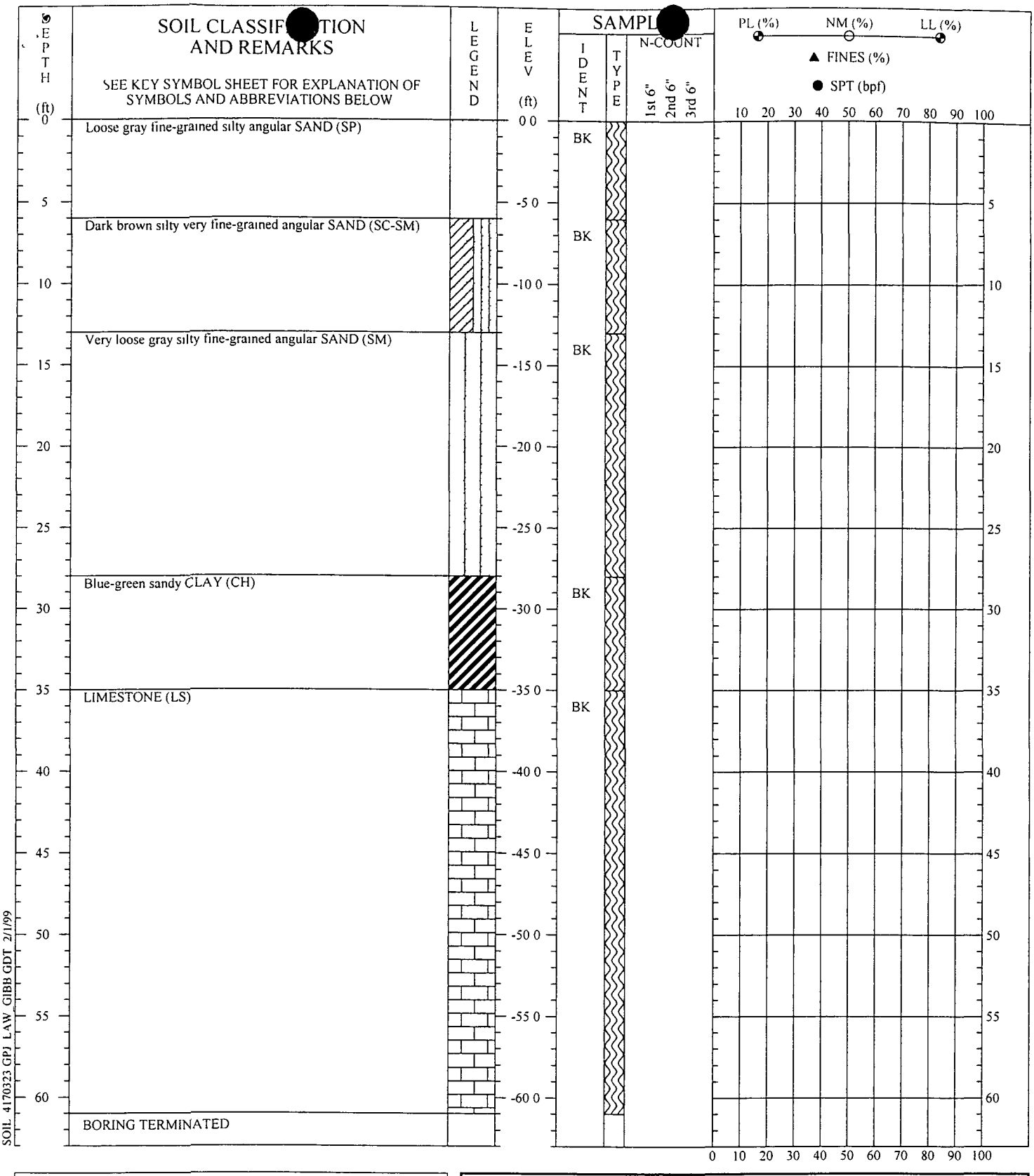
THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER INTERFACES BEWEEN STRATA ARE APPROXIMATE TRANSITIONS BETWEEN STRATA MAY BE GRADUAL

SOIL TEST BORING RECORD

PROJECT: West Pasco Class I Landfill
COORD N: 28 9
COORD E. 83 0
DRILLED: January 28, 1999
PROJ. NO.: 40141-7-0323

BORING NO.: SB-14F
PAGE 1 **OF** 1

LAW
LAWGIBB Group Member



SOIL 4170323 GPJ LAW GIBB GDT 2/1/99

DRILLER	Dave Kirby
EQUIPMENT	Truck-mounted Rig
METHOD	Rotary-wash Boring with Drilling Mud
HOLE DIA	8"
REMARKS	

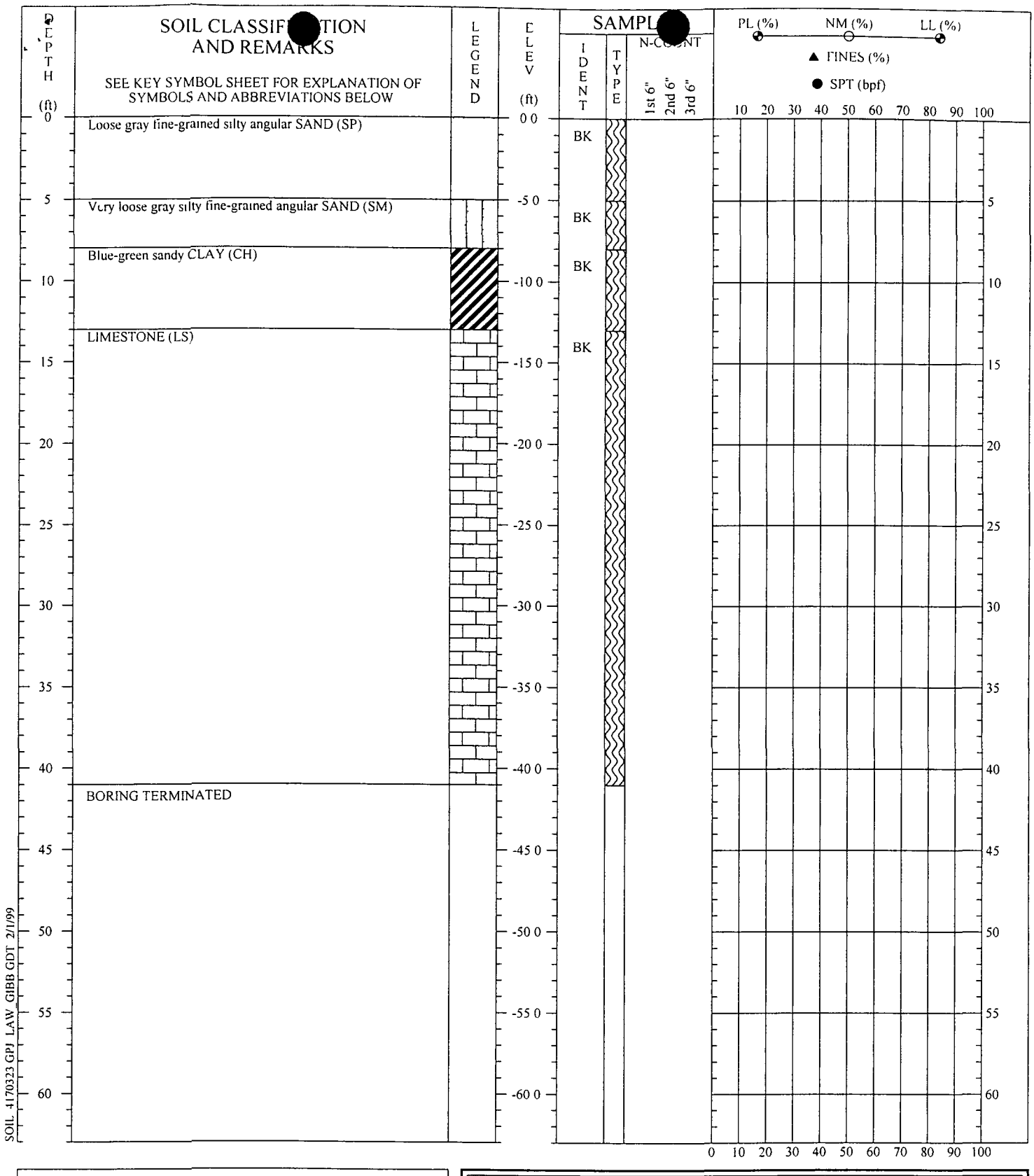
THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER INTERFACES BEWEEN STRATA ARE APPROXIMATE TRANSITIONS BETWEEN STRATA MAY BE GRADUAL

SOIL TEST BORING RECORD

PROJECT: West Pasco Class I Landfill
COORD N: 28 6
COORD E: 82 7
DRILLED: January 28, 1999
PROJ. NO.: 40141-7-0323

BORING NO.: SB-15F

LAW
LAWGIBB Group Member



SOIL 4170323.GPJ LAW_GIBB.GDT 2/1/99

DRILLER	Dave Kirby
EQUIPMENT	Truck-mounted Rig
METHOD	Rotary-wash Boring with Drilling Mud
HOLE DIA	8"
REMARKS	

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER INTERFACES BEWEEN STRATA ARE APPROXIMATE TRANSITIONS BETWEEN STRATA MAY BE GRADUAL

SOIL TEST BORING RECORD

PROJECT: West Pasco Class I Landfill
COORD N: 28 7
COORD E: 82 8
DRILLED: January 28, 1999
PROJ. NO.: 40141-7-0323

BORING NO.: SB-16F

LAW
LAWGIBB Group Member


Sect 23, Twp 24 S, Rge 17 E
Sect 24, Twp 24 S, Rge 17 E
Sect 19, Twp 24 S, Rge 18 E
2MW-4
4MW-4
2MW-17S
2MW-5
4MW-5
2MW-18D
SW-1
SW-2
2MW-19D
W Pasco WTPF
4MW-3A
4MW-6
2MW-6
2MW-10
2MW-9
4MW-9
4MW-13D
2MW-13D
4MW-12D
4MW-11D
2MW-3A
4MW-22
4MW-14D
Lift Station @
A-1/A-2/A-3
2MW-25S
2MW-25D
2MW-24S
2MW-24D
2MW-8
4MW-8
2MW-26S
2MW-26D
W PASCO C I LF
WACS Facility #45799
4MW-21
LT #1
4MW-7
2MW-7
LT #2
W Pasco C III LF
WACS Facility #45799
2MW-27S
2MW-27D
4MW-27
4MW-27D
2MW-15DA
4MW-2
2MW-2
4MW-1
2MW-1
Sect 26, Twp 24 S, Rge 17 E
Sect 25, Twp 24 S, Rge 17 E
Sect 30, Twp 24 S, Rge 18 E

West Pasco Class I Landfill

location_name	lat_dd	lat_mm	lat_ss	long_dd	long_mm	long_ss	elev	date	location	method
2MW-1	28	22	5 6	82	33	48	100 ft	7/30/2002	w pasco	GPS
2MW-2	28	22	12 3	82	33	11 8	86 ft	7/30/2002	w pasco	GPS
2MW-4	28	22	57 5	82	33	31	79 ft	7/30/2002	w pasco	GPS
2MW-5	28	22	47	82	33	52 3	63 ft	7/30/2002	w pasco	GPS
2MW-6	28	22	32 7	82	33	11 1	80 ft	7/30/2002	w pasco	GPS
2MW-13D	28	22	27 3	82	33	38 6	95 ft	7/30/2002	w pasco	GPS
2MW-15DA	28	22	13 7	82	33	31 8	69 ft	7/30/2002	w pasco	GPS
4MW-16D	28	22	18 3	82	33	26 1		7/30/2002	w pasco	GPS
2MW-17S	28	22	47 8	82	33	30 1	91 ft	7/30/2002	w pasco	GPS
2MW-18D	28	22	46 7	82	33	36 2	63 ft	7/30/2002	w pasco	GPS
2MW-19D	28	22	39 8	82	33	36 9	67 ft	7/30/2002	w pasco	GPS
2MW-20D	28	22	16 5	82	33	39 4	85 ft	7/30/2002	w pasco	GPS
4MW-1	28	22	5 4	82	33	48	134 ft	7/30/2002	w pasco	GPS
4MW-2	28	22	12 3	82	33	11 9	97 ft	7/30/2002	w pasco	GPS
4MW-4	28	22	52 2	82	33	30 4	64 ft	7/30/2002	w pasco	GPS
4MW-5	28	22	47 2	82	33	53	58 ft	7/30/2002	w pasco	GPS
4MW-6	28	22	32 6	82	33	11 2	85 ft	7/30/2002	w pasco	GPS
4MW-11D	28	22	27 1	82	33	28 9	80 ft	7/30/2002	w pasco	GPS
4MW-12D	28	22	27 4	82	33	33 9	60 ft	7/30/2002	w pasco	GPS
4MW-13D	28	22	27 3	82	33	38 2	88 ft	7/30/2002	w pasco	GPS
4MW-14D	28	22	22 8	82	33	38 8	130 ft	7/30/2002	w pasco	GPS
12A	28	22	14 2	82	34	1 9	50 ft	7/30/2002	w pasco	GPS
12B	28	22	14 4	82	34	1 6	34 ft	7/30/2002	w pasco	GPS
2MW-24S	28	22	21 6	82	33	43 4		10/13/2010	w pasco	CSUR
2MW-24D	28	22	21 6	82	33	43 6		10/13/2010	w pasco	CSUR
2MW-25S	28	22	21 7	82	33	49 7		10/13/2010	w pasco	CSUR
2MW-25D	28	22	21 7	82	33	49 5		10/13/2010	w pasco	CSUR
2MW-26S	28	22	18 8	82	33	52 7		10/13/2010	w pasco	CSUR
2MW-26D	28	22	18 9	82	33	52 7		10/13/2010	w pasco	CSUR
2MW-27S	28	22	12 8	82	33	47 4		10/13/2010	w pasco	CSUR
2MW-27D	28	22	12 7	82	33	47 3		10/13/2010	w pasco	CSUR
4MW-27	28	22	12 7	82	33	47 2		10/13/2010	w pasco	CSUR
4MW-27D	28	22	12 7	82	33	47 1		10/13/2010	w pasco	CSUR
A-1 primary	28	22	24 9	82	33	24 4		7/21/2003	w pasco	GPS
A-1 secondary	28	22	25 3	82	33	24 3		7/21/2003	w pasco	GPS
A-2 primary	28	22	22 3	82	33	24 7		7/21/2003	w pasco	GPS
A-2 secondary	28	22	22 1	82	33	24 6		7/21/2003	w pasco	GPS
A-3 primary	28	22	16 7	82	33	24 5		7/21/2003	w pasco	GPS
A-3 secondary	28	22	16 9	82	33	24 4		7/21/2003	w pasco	GPS
A-4 primary	28			82					w pasco	
A-1/A-2/A-3 lift sta	28	22	26 09	82	33	24 48		3/30/2010	w pasco	GPS
SW-1 primary	28	22	42 9	82	33	20 9		7/21/2003	w pasco	GPS
SW-1 secondary	28	22	42 9	82	33	21 1		7/21/2003	w pasco	GPS
SW-2 primary	28	22	40 1	82	33	19 7		7/21/2003	w pasco	GPS
SW-2 secondary	28	22	40 2	82	33	19 7		7/21/2003	w pasco	GPS
SW lift station	28	22	38 1	82	33	18 8		7/21/2003	w pasco	GPS

West Pasco Class III Landfill

2MW-3A	28	22	26 9	82	34	17 8	56 ft	7/30/2002	w pasco	GPS
2MW-7	28	22	18 5	82	34	6 9	78 ft	7/30/2002	w pasco	GPS
2MW-8	28	22	23 3	82	34	15	77 ft	7/30/2002	w pasco	GPS
2MW-9	28	22	28 5	82	34	6 3	77 ft	7/30/2002	w pasco	GPS
2MW-10	28	22	25 3	82	34	12 9		7/30/2002	w pasco	GPS
4MW-3A	28	22	31 2	82	34	3 7	98 ft	7/30/2002	w pasco	GPS
4MW-7	28	22	18 5	82	34	6 8		7/30/2002	w pasco	GPS
4MW-8	28	22	23 3	82	34	15 1	110 ft	7/30/2002	w pasco	GPS
4MW-9	28	22	28 3	82	34	6 3	78 ft	7/30/2002	w pasco	GPS
4MW-21	28	22	22 17	82	34	14 48		11/25/2008	w pasco	CSUR
4MW-22	28	22	24 97	82	34	10 05		11/25/2008	w pasco	CSUR
4MW-23	28			82					w pasco	
Leachate Tank 1	28	22	18 5	82	34	10		2/28/2007	w pasco	DPHO
Leachate Tank 2	28	22	18 5	82	34	2 5		2/28/2007	w pasco	DPHO

West Pasco Resource Recovery Facility

WTE ash samp	28			82					w pasco	

John Morris 7/02 mutlimedia Inspection
Lora Ross 7/03 LOS inspection
Steve Morgan 3/10 LOS inspection

Table 1

Construction Summary of Existing Monitor Wells in the Water Quality Monitoring Plan for the West Pasco Class I Landfill

Well I D	Location		Ground Elevation	Top of Casing	Screened/Open Hole Section			Total Depth
	Latitude North	Longitude West	(ft NGVD)	(ft NGVD)	Well Type (dia)	Depth (ft bls)	Elevation (ft NGVD)	(ft bls)
Surficial Aquifer								
2MW-1	28 22' 05 8"	82 33' 48 1"	46 7	49 97	Screened (2")	8 5 - 18 5	38 2 - 28 2	18 5
2MW-2	28 22' 12 3"	82 33' 11 9"	52 8	56 26	Screened (2")	29 5 - 34 5	23 3 - 18 3	34 5
2MW-3	28 22' 26 7"	82 34' 17 8"	41 7	49 94	Screened (2")	10 5 - 15 5	31 2 - 26 2	15 5
2MW-4	28 22' 57 7"	82 33' 31 4"	51 3	54 31	Screened (2")	10 5 - 15 5	40 8 - 35 8	15 5
2MW-5	28 22' 46 7"	82 33' 52 2"	45 3	48 13	Screened (2")	4 0 - 8 0	41 3 - 37 3	8 0
2MW-6	28 22' 32 7"	82 33' 11 1"	53 0	55 64	Screened (2")	20 0 - 30 0	33 0 - 23 0	30 0
2MW-13D	28 22' 27 2"	82 33' 38 7"	49 1	52 39	Screened (2")	7 8 - 17 3	41 3 - 31 8	18 0
2MW-17S					Screened (2")	23 0 - 38 0		41 0
Floridan Aquifer								
4MW-1	28 22' 05 5"	82 33' 48 1"	46 5	49 61	Open Hole (3 7/8")	32 0 - 60 0	14 5 - -13 5	60 0
4MW-2	28 22' 12 2"	82 33' 11 9"	53 0	55 76	Open Hole (3 7/8")	42 0 - 70 0	11 0 - -17 0	70 0
4MW-3A	28 22' 31 5"	82 34' 03 3"	50 6	52 84	Open Hole (3 7/8")	22 0 - 50 0	28 6 - 0 6	50 0
4MW-4	28 22' 52 5"	82 33' 30 3"	48 1	50 52	Open Hole (3 7/8")	22 0 - 50 0	26 1 - 0 5	50 0
4MW-5	28 22' 47 2"	82 33' 53 4"	45 4	48 26	Open Hole (3 7/8")	68 0 - 100 0	-22 6 - -47 6	100 0
4MW-6	28 22' 32 7"	82 33' 11 3"	52 4	55 03	Open Hole (3 7/8")	73 0 - 100 0	-20 6 - -47 6	100 0
4MW-11D	28 22' 27 5"	82 33' 28 5"	61 9	65 00	Screened (2")	27 0 - 52 0	34 9 - 9 9	52 0
4MW-12D	28 22' 27 4"	82 33' 33 9"	51 8	55 03	Screened (2")	30 0 - 55 0	21 8 - -3 2	55 0
4MW-13D	28 22' 27 3"	82 33' 38 1"	51 2	54 04	Screened (2")	26 0 - 36 0	25 2 - 15 2	36 0
4MW-14D	28 22' 22 8"	82 33' 39 0"	49 0	52 00	Screened (2")	25 0 - 50 0	24 0 - -1 0	50 0
4MW-15D	28 22' 18 5"	82 33' 38 5"	51 7	54 53	Screened (2")	36 0 - 61 0	15 7 - -9 3	61 0
4MW-16D	28 22' 18 3"	82 33' 26 1"	48 6	52 47	Screened (2")	16 0 - 41 0	32 6 - 7 6	41 0
4MW-18D					Screened (2")	25 0 - 40 0		40 0

From: WATER QUALITY MON PLAN FOR W. PASCO CLASS I LF PREPARED BY CDM DATED 3/28/01

S \PASCO\PAS_SW\Tb01022 xls

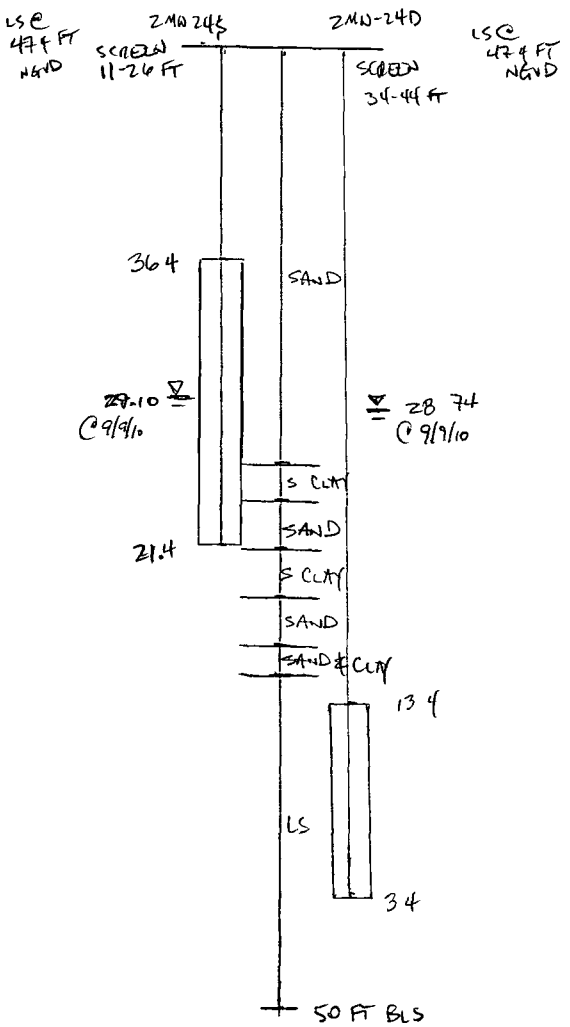
SUMMARY OF INADEQUATE RESULTS FOR THE MAY 14, 2010 SAMPLING EVENT

Facility Name -- West Pasco Class I | County -- Pasco | Date Sampled -- 7/1/10 & 9/9/10
Analytical Laboratory -- Pace Analytical | Date Received -- 12/22/10

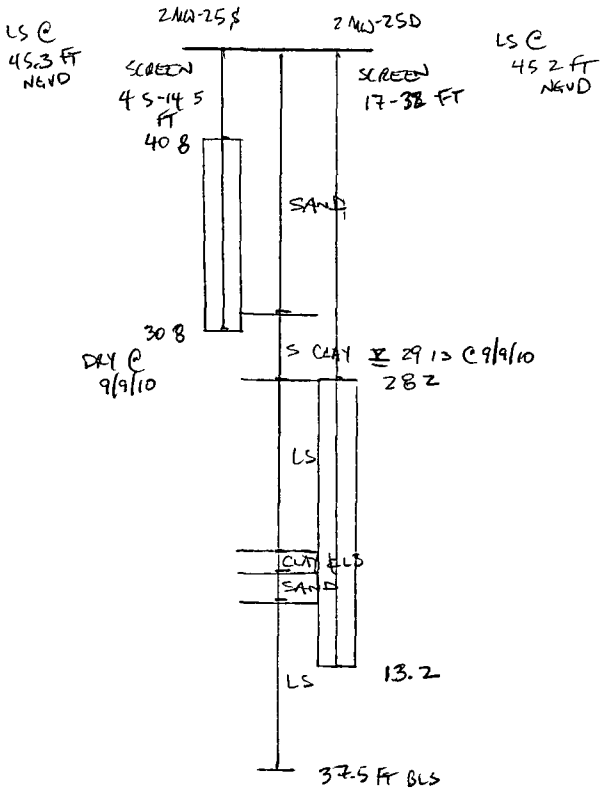
PARAMETERS	Ground Water Criteria	Criteria Type	CAS #	2MW 27D B/F	4MW 27 B/F	4MW 27D B/F	2MW 24S D/F	2MW 24D D/F	2MW 25D D/S	2MW 26D D/F	Notes (as needed)
Field Measurements											
pH [Std Units]	6 5 - 8 5	2° GWS	--		**8 82**						Result reported outside ground water standard range
Dissolved Oxygen [mg/L]	<20% saturation	PC	--			**4 51**					Result reported to exceed purging criterion
Metals/Semimetals											
Arsenic [mg/L]	0 01	1° GWS			**0 0125**				**0 0178**		Result reported to exceed ground water standard
Iron [mg/L]	0 3	2° GWS							**1 61**		Result reported to exceed ground water standard
Inorganics											
Total dissolved solids (mg/L)	500	2° GWS		**660**					**530**		Result reported to exceed ground water standard
Volatile Organics				No exceedances reported							
SEMI-VOLATILE ORGANICS											
Benzo[a]anthracene [µg/L]	0 05	MC	56-55-3	<0 6	<0 61	<0 6	<0 62	<0 6	<0 6	<0 63	Elevated MDL reported, PQL @ 0 2 µg/L
Benzo[a]pyrene [µg/L]	0 2	1° GWS	50-32-8	<0 55	<0 56	<0 55	<0 57	<0 55	<0 56	<0 58	Elevated MDL reported
Benzo[b]fluoranthene [µg/L]	0 05	MC	205-99-2	<0 59	<0 6	<0 59	<0 61	<0 59	<0 59	<0 62	Elevated MDL reported, PQL @ 0 1 µg/L
Benzo[k]fluoranthene [µg/L]	0 5	MC	207-08-9							<0 51	Elevated MDL reported
Diallate [µg/L]	0 6	MC	2303-16-4	<0 69	<0 7	<0 69	<0 72	<0 69	<0 7	<0 72	Elevated MDL reported
Dibenz[a,h]anthracene [µg/L]	0 005	MC	53-70-3	<0 62	<0 62	<0 62	<0 64	<0 62	<0 62	<0 65	Elevated MDL reported, PQL @ 0 2 µg/L
2,4-dinitrotoluene [µg/L]	0 05	MC	121-14-2	<0 51	<0 51	<0 5	<0 52	<0 5	<0 51	<0 53	Elevated MDL reported, PQL @ 0 2 µg/L
Indeno[1 2,3-cd]pyrene [µg/L]	0 05	MC	193-39-5	<0 7	<0 7	<0 7	<0 72	<0 69	<0 7	<0 73	Elevated MDL reported, PQL @ 0 2 µg/L
Kepone [µg/L]	0 004	MC	143-50-0	<10	<10	<10	<10	<10	<10	<10	Elevated MDL reported, PQL @ 6 µg/L
3- & 4-methyl phenols [µg/L]	3 5	MC	108-39-4, 106-44-5						**7 8**		Combined result reported to exceed ground water minimum criterion for 3-methyl phenol

1° GWS = primary ground water standard
2° GWS = secondary ground water standard
MC = minimum criterion (Chapter 62-777, F A C , Table 1)
PC = purging criterion [SOP FS 2200]
NE = not established
MDL = method detection limit
PQL = practical quantitation limits presented in Table C of DEP document "Guidance for the Selection of Analytical Methods and for the Evaluation of Practical Quantitation Limits," dated October 12, 2004, this document can be accessed at the following link
ftp //ftp dep state fl us/pub/labs/assessment/library/docs/62_777final pdf
Unless a PQL value is presented in the Notes column, the analytical laboratory must report an MDL at or below the ground water standard or minimum criterion to demonstrate compliance for that parameter

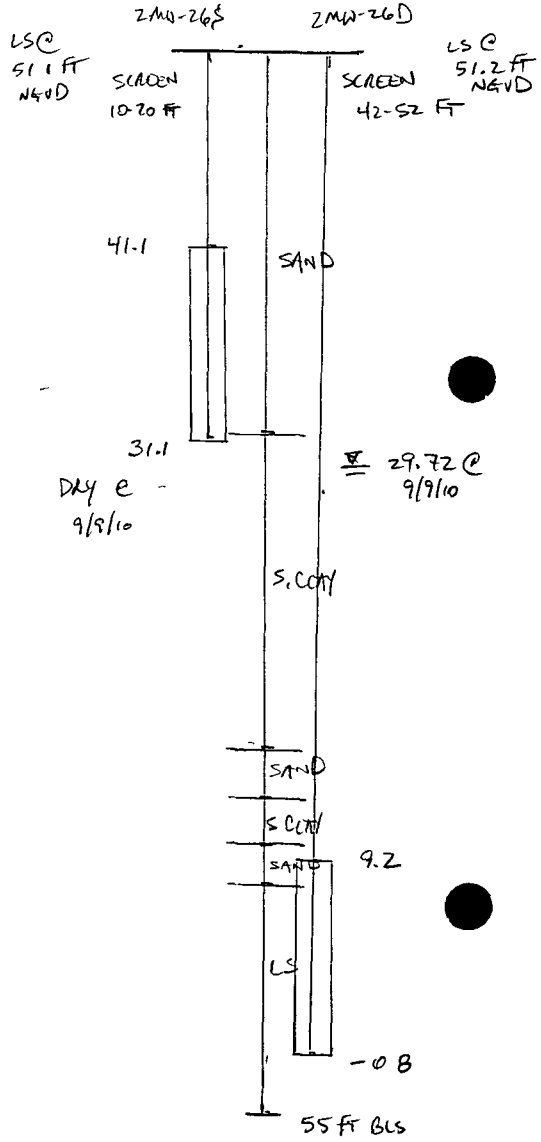
2MW-24S/D



2MW-25



2MW-26



Analytical Results Summary for Ground Water Samples Collected at Class I/III Landfills

Facility Name -- West Pasco Class I | County -- Pasco | Sampling Frequency -- initial event

Analytical Laboratory -- Pace Analytical (App III/metals) Pasco Co Env Lab (inorganics Fe Na) | Date Sampled -- see below | Date Received -- 12/22/10

Equipment Blank -- N | Duplicate -- N | GW Contour Map -- ?? | Exceedances summarized -- ??

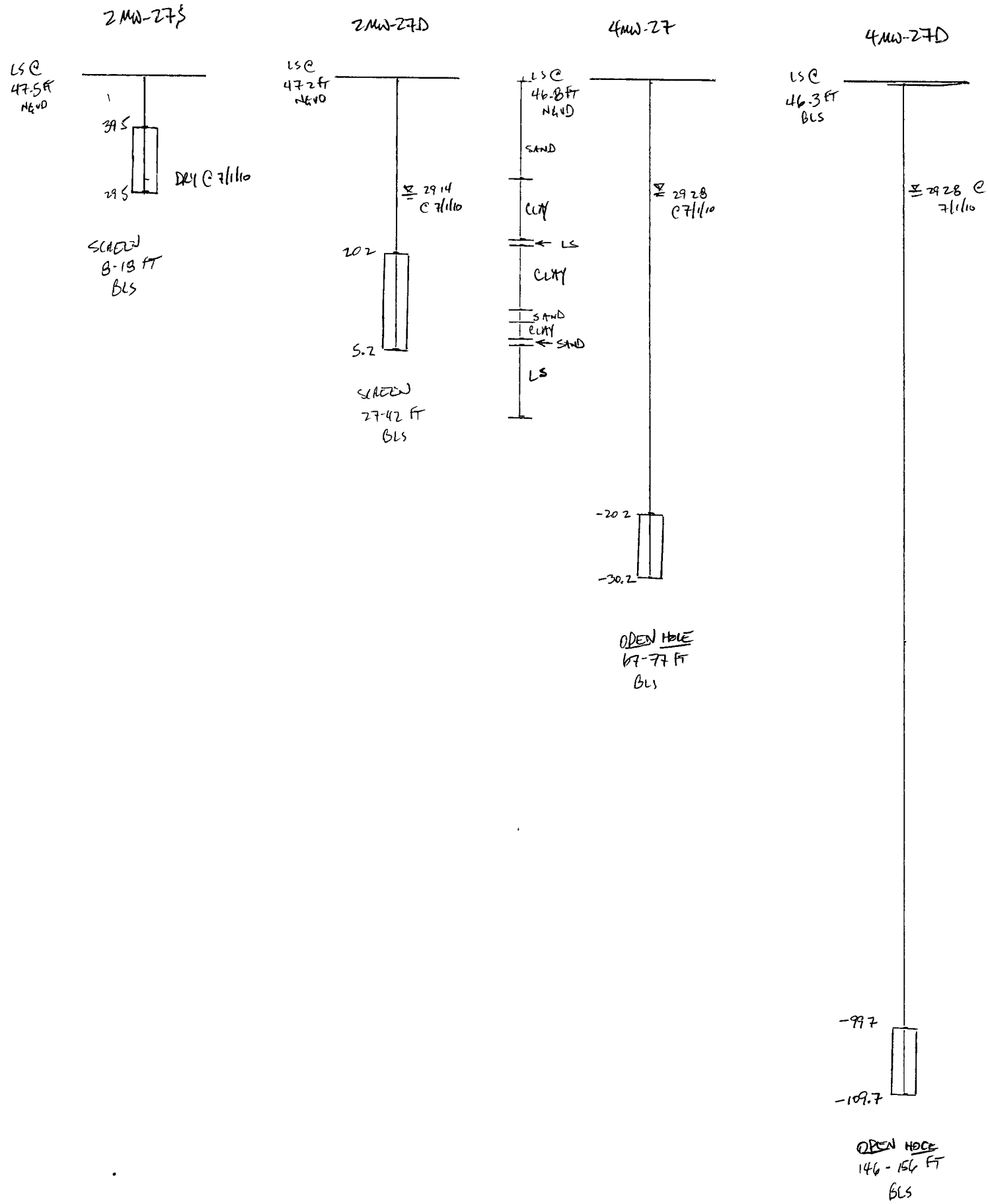
	Ground Water Standard	2MW 27S B/S	2MW-27D B/F	4MW 27 B/F	4MW-27D B/F	2MW-24S D/F	2MW 24D D/F	2MW 25S D/F	2MW 25D D/S	2MW 26S D/F	2MW 26D D/F	Notes (as needed)
PARAMETERS		7/1/2010				9/9/2010						Sample Date
Field Measurements												
Water level (ft NGVD)	NE	DRY	29 14	29 28	29 28	29 1	28 74	DRY	29 13	DRY	29 72	
pH (Std Units)	6 5 - 8 5		7 19	**8 82**	8 13	7 35	7 5		7 05		7 27	
Turbidity (NTU)	20*		5 29	2 39	3 46	<0 1	<0 1		1 4		2	
Conductivity (µmhos/cm)	NE		794	715	294	373	446		750		647	
Dissolved Oxygen (mg/L)	<20% sat*		0 78	0 73	**4.51**	1 46	0 72		1 43		0 81	
Temperature (°C)	NE		25 84	26 26	25 59	29 13	25 85		27 03		25 4	
Metals/Semimetals												
Antimony (mg/L)	0 006		<0 0005	0 0029	<0 0005	<0 0005	<0 0005		<0 0005		<0 0005	
Arsenic (mg/L)	0 01		<0 005	**0 0125**	<0 005	<0 005	<0 005		**0 0178**		0 0055	
Cadmium (mg/L)	0 005		<0 0005	<0 0005	<0 0005	<0 0005	<0 0005		<0 0005		<0 0005	
Chromium (mg/L)	0 1		0 0025	<0 0025	0 0051	<0 0025	<0 0025		<0 0025		<0 0025	
Iron (mg/L)	0 3		0 153	0 211	0 135	0 0952	0 248		**1 61**		0 279	
Lead (mg/L)	0 015		<0 005	<0 005	<0 005	<0 005	<0 005		<0 005		<0 005	
Mercury (mg/L)	0 002		<0 0001	<0 0001	<0 0001	<0 0001	<0 0001		<0 0001		<0 0001	
Selenium (mg/L)	0 05		<0 0075	<0 0075	<0 0075	<0 0075	<0 0075		<0 0075		<0 0075	
Sodium (mg/L)	160		52 5	58	7 91	10 2	22 8		41 6		36 2	
Thallium (mg/L)	0 002		<0 0005	<0 0005	<0 0005	<0 0005	<0 0005		<0 0005		<0 0005	
Vanadium (mg/L)	0 049**		<0 005	0 01	0 0355	<0 005	<0 005		<0 005		<0 005	
Zinc (mg/L)	5		<0 01	<0 01	<0 01	<0 01	<0 01		<0 01		<0 01	
Inorganics												
Ammonia (mg/L)	2 8**		0 05	0 09	0 06	0 04	0 04		0 11		0 04	
Chlorides (mg/L)	250		151	127	12 2	29 5	46 3		87 1		77 9	
Nitrate (mg/L)	10		0 94	0 86	<0 02	0 41	0 52		0 05		0 36	
Total Dissolved Solids (mg/L)	500		**660**	492	200	260	260		**530**		450	
Organics												
Acetone (µg/L)	6300**		<5	<5	<5	~~<5~~ 10	<5		<5		<5	
Benzene (µg/L)	1		<0 5	<0 5	<0 5	<0 5	<0 5		<0 5		<0 5	
Bromodichloromethane (µg/L)	0 6**		<0 27	<0 27	<0 27	<0 27	<0 27		<0 27		<0 27	
Carbon disulfide (µg/L)	700**		0 8	0 74	0 7	0 53	0 91		0 86		0 66	7/1/10 TB @ 0 73, 9/9 TB @ 0 5 µg/L
Chlorobenzene (µg/L)	100		<0 5	<0 5	<0 5	<0 5	<0 5		<0 5		<0 5	
Chloroform (µg/L)	70**		~~<0 5~~ 0 88	<0 5	<0 5	<0 5	<0 5		<0 5		<0 5	
Chloromethane (µg/L)	2 7**		<0 62	<0 62	<0 62	<0 62	<0 62		<0 62		<0 62	
1,2-dichlorobenzene (µg/L)	600		<0 65	<0 65	<0 65	~~<0 65~~ 67	~~<0 65~~ 64		<0 65		~~<0 65~~ 68	
1,4-dichlorobenzene (µg/L)	75		<0 74	<0 74	<0 74	~~<0 74~~ 76	~~<0 74~~ 73		<0 74		~~<0 74~~ 77	
1 2-dichloroethane (µg/L)	3		<0 5	<0 5	<0 5	<0 5	<0 5		<0 5		<0 5	
1 1-dichloroethene (µg/L)	7		<0 5	<0 5	<0 5	<0 5	<0 5		<0 5		<0 5	
Ethylbenzene (µg/L)	30		<0 5	<0 5	<0 5	<0 5	<0 5		<0 5		<0 5	
Methylene chloride (µg/L)	5		<2 5	<2 5	<2 5	<2 5	<2 5		<2 5		<2 5	
Tetrachloroethene (µg/L)	3		<0 5	<0 5	<0 5	<0 5	<0 5		<0 5		<0 5	
1,1 2,2-Tetrachloroethane (µg/L)	0 2**		<0 18	<0 18	<0 18	<0 18	<0 18		<0 18		<0 18	PQL @ 2 µg/L
Toluene	40		<0 5	<0 5	<0 5	<0 5	<0 5		<0 5		<0 5	
Vinyl Chloride (µg/L)	1		<0 5	<0 5	<0 5	<0 5	<0 5		<0 5		<0 5	
Xylenes	20		<0 5	<0 5	<0 5	<0 5	<0 5		<0 5		<0 5	
Organics												
Endrin (µg/L)	2		0 024	<0 0016	<0 0017	<0 0016	<0 0016		<0 0016		<0 0017	
3- & 4-methyl phenols (µg/L)	4		<0 63	<0 63	<0 63	<0 65	<0 63		**7 8**		1 6	

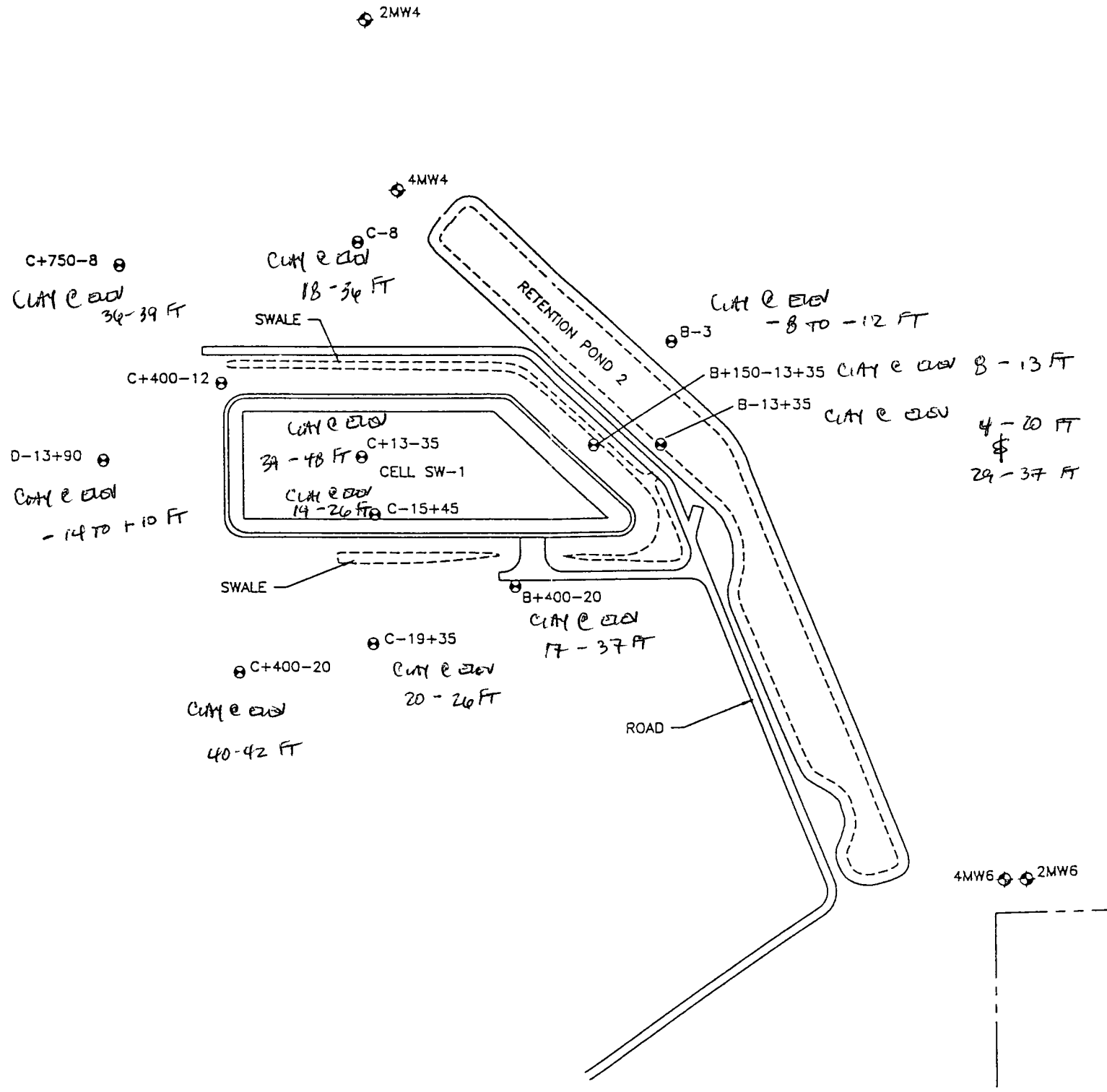
Monitor Well Descriptions: B = background C = compliance D= detection S = surficial aquifer I = intermediate aquifer (confined) F = Floridan aquifer

NE = not established | * = SOP FS 2200 (Ground water sampling)

NA = not analyzed | ** = Minimum Criteria (Chapter 62-777 F A C)

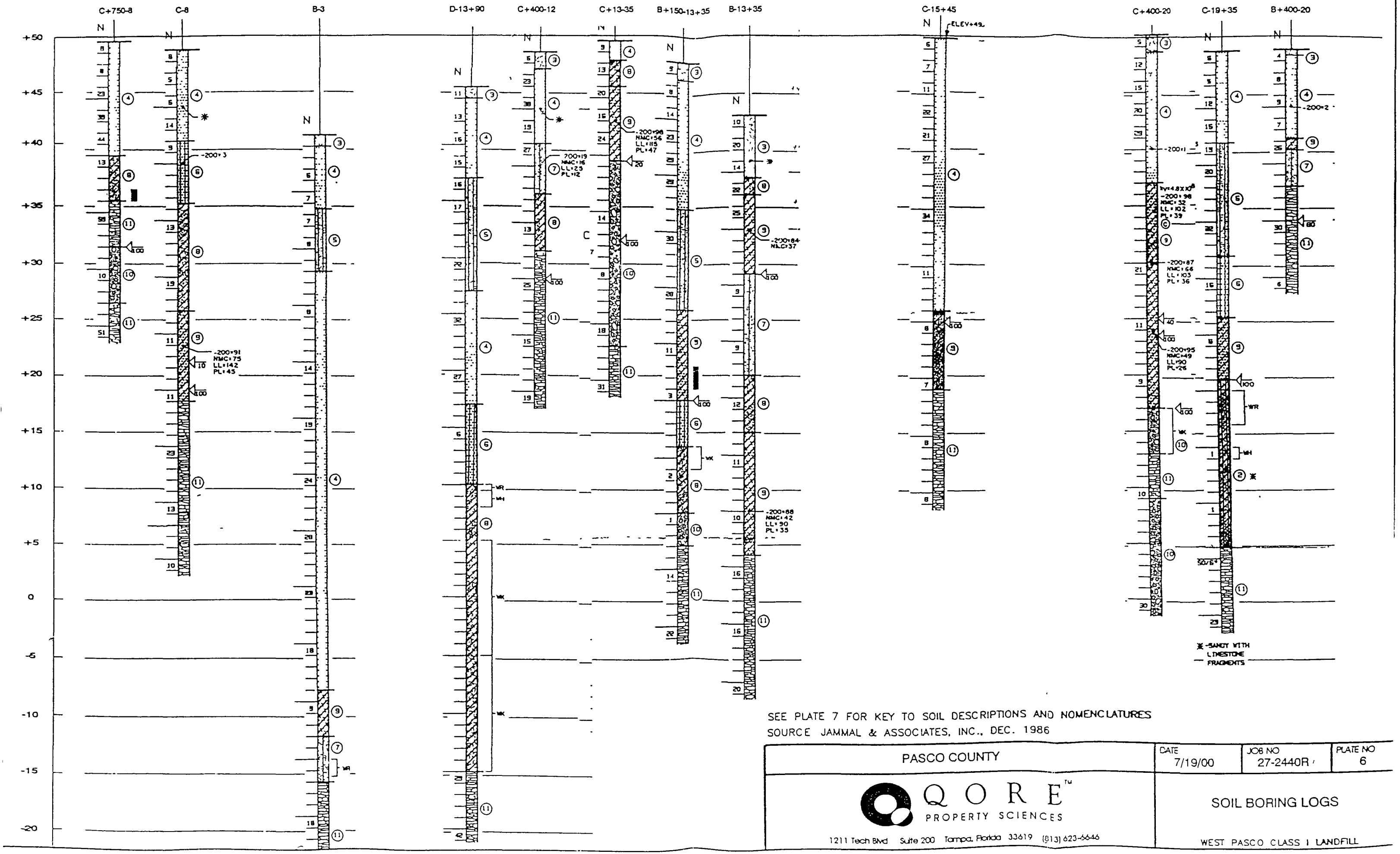
NS = not sampled | THIS REPRESENTS THE INITIAL SAMPLING EVENT FOR THE NEW WELLS ASSOCIATED WITH CELL A-4


2MW-27S
LS @ 47.5 FT NGVD
39.5
29.5
DRY @ 7/1/10
SCREEN 8-19 FT BLS
2MW-27D
LS @ 47.2 FT NGVD
29.14 @ 7/1/10
20.2
5.2
SCREEN 27-42 FT BLS
4MW-27
LS @ 46.8 FT NGVD
SAND
CLAY
LS
CLAY
SAND
CLAY
SAND
LS
29.28 @ 7/1/10
-20.2
-30.2
OPEN HOLE 67-77 FT BLS
4MW-27D
LS @ 46.3 FT BLS
29.28 @ 7/1/10
-99.7
-109.7
OPEN HOLE 146-156 FT BLS



PASCO COUNTY	DATE 7/19/00	JOB NO 27-2440R	PLATE NO 4
QORE™ PROPERTY SCIENCES 1211 Tech Blvd Suite 200 Tampa Florida 33619 (813) 623-6646	BORING LOCATION MAP WEST PASCO CLASS I LANDFILL		

R\BCR-LOC



SEE PLATE 7 FOR KEY TO SOIL DESCRIPTIONS AND NOMENCLATURES
SOURCE JAMMAL & ASSOCIATES, INC., DEC. 1986

PASCO COUNTY	DATE 7/19/00	JOB NO 27-2440R	PLATE NO 6
QORE™ PROPERTY SCIENCES 1211 Tech Blvd Suite 200 Tampa, Florida 33619 (813) 623-6646	SOIL BORING LOGS WEST PASCO CLASS I LANDFILL		