

July 15, 2015

Ms. Christine Ritter  
NCDENR Division of Waste Management  
Solid Waste Section  
1646 Mail Service Center  
Raleigh, N.C. 27699-1646

**RE: Landfill Gas Well Installation  
Warren County Closed MSW Landfill  
Warrenton, NC (Permit No. 93-01)**

Dear Ms. Ritter:

Smith Gardner, Inc. (S+G) is pleased to present this brief letter report regarding landfill gas (LFG) monitoring well installation for the Closed MSW Landfill in Warren County (Permit No. 93-01). LFG monitoring wells were installed in accordance with the approved Landfill Gas Monitoring Plan<sup>1</sup>, and Solid Waste Section Rule 15A NCAC 13B .0543.

### **Landfill Gas Monitoring Well Installation**

S+G personnel mobilized to the site May 18-19, 2015 with Martin Moulds of GeoTechnologies, Inc.<sup>2</sup> (license # NC 4000-B) for the LFG monitoring well installation. Five landfill gas monitoring wells (LFG-1 through LFG-5) were installed along the facility property boundary. LFG-1 and LFG-2 were advanced to a depth of 25 feet below ground surface (bgs). LFG-3 was advanced to a depth of 20 feet bgs, and LFG-4 and LFG-5 were advanced to depths of 35 feet and 32 feet bgs, respectively.

At the LFG-4 and LFG-5 locations, drilling ceased when moist soils were encountered. On May 19, 2015 a water level indicator was used to determine if water had moved into those wells. Water levels in LFG-4 and LFG-5 were measured at approximately 22.5 feet and 21.32 feet below top of casing, respectively. LFG-1, LFG-2 and LFG-3 were stopped at a shallower depth following these measurements.

Each well was constructed of 0.010 slotted 2-inch diameter PVC pipe with 5-7 feet of solid PVC riser pipe, and approximate 2.5 foot stick-up. Subsurface material was generally dark red brown silt with clay and a few small rock fragments. LFG monitoring wells were finished with a well cap fitted for LFG monitoring, protective steel casing, monitoring well tag and

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<sup>1</sup> Landfill Gas Monitoring Plan, Warren County Closed MSW Landfill, prepared by Smith Gardner, Inc., December 2014.

<sup>2</sup> GeoTechnologies, Inc. P.A., 3200 Wellington Ct. Ste 108, Raleigh, NC 27615

Ms. Christine Ritter  
July 15, 2015  
Page 2 of 2

large reflective identification numbers. Approximate locations are provided on attached **Figure 1**. Quarterly monitoring of these locations will begin in June 2015.

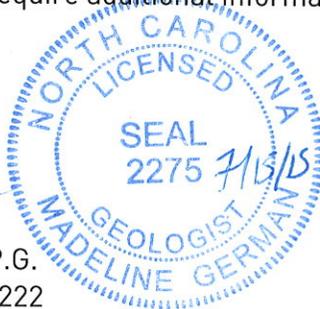
Please contact us at (919) 828-0577 or by email (below) at your earliest convenience if you have questions, or require additional information.

Sincerely,  
**SMITH GARDNER, INC.**



Madeline German, P.G.  
Project Geologist, x 222

[madeline@smithgardnerinc.com](mailto:madeline@smithgardnerinc.com)

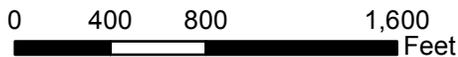
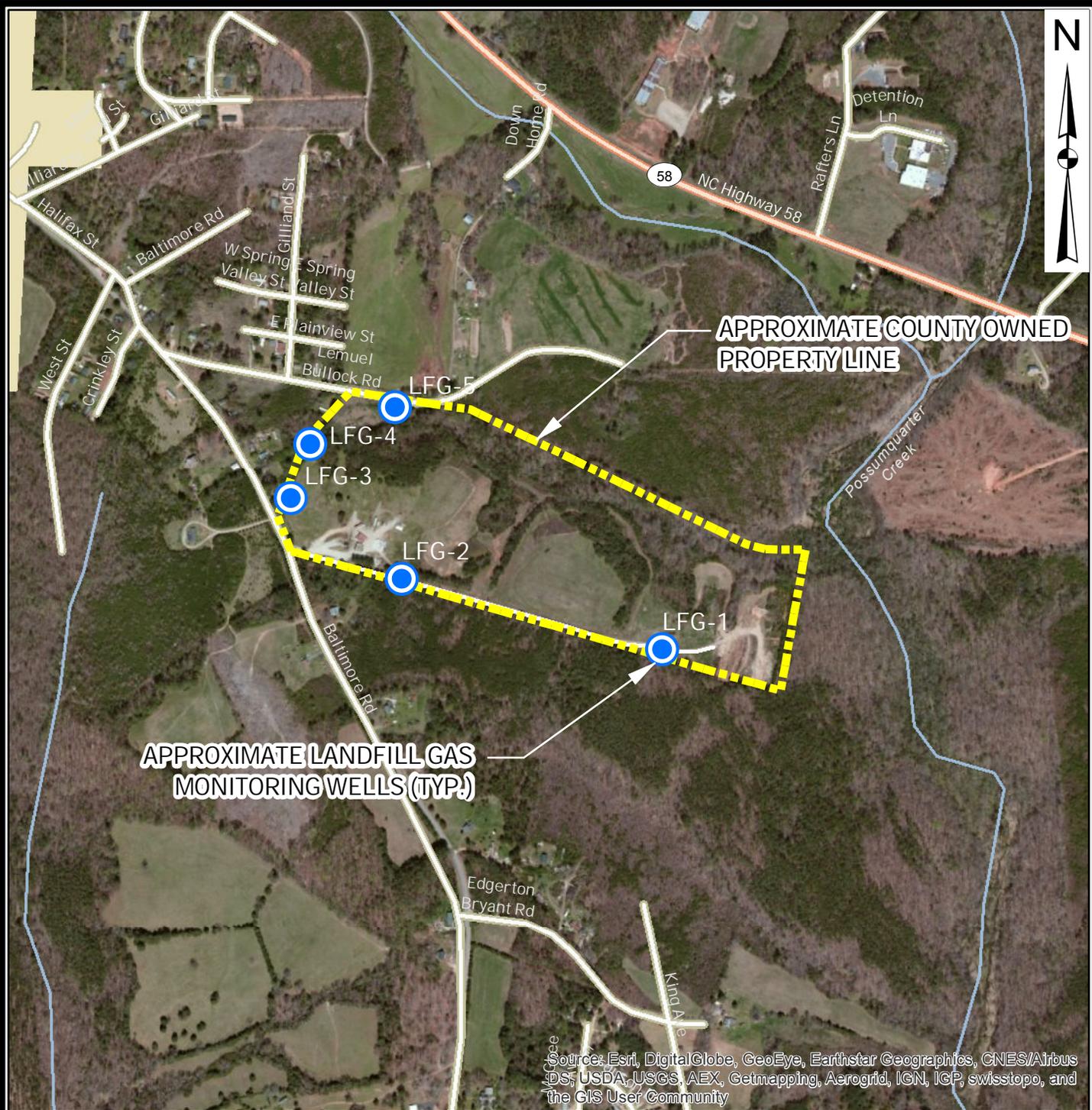


Joan A. Smyth, P.G.  
Senior Hydrogeologist, x 221

[joan@smithgardnerinc.com](mailto:joan@smithgardnerinc.com)

Attachments: LFG Boring Logs and Well Construction Records  
Figure 1 - Landfill Gas Well Locations

cc: Marshall Brothers, Warren County  
Mary Whaley, NCDENR  
File



**LANDFILL GAS MONITORING WELLS  
CLOSED WARREN COUNTY LANDFILL  
WARRENTON, NC**

NC LIC. NO. C-0828 (ENGINEERING)

**SMITH + GARDNER**

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

DRAWN: C.T.J.	APPROVED: J.A.S.	SCALE: AS SHOWN	DATE: May. 2015	PROJECT NO.: WARREN 14-1	FIGURE NO.: 1
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**Smith Gardner, Inc.**  
 14 North Boylan Avenue, Raleigh NC 27603  
 (919) 828-0577

**FIELD BOREHOLE LOG**

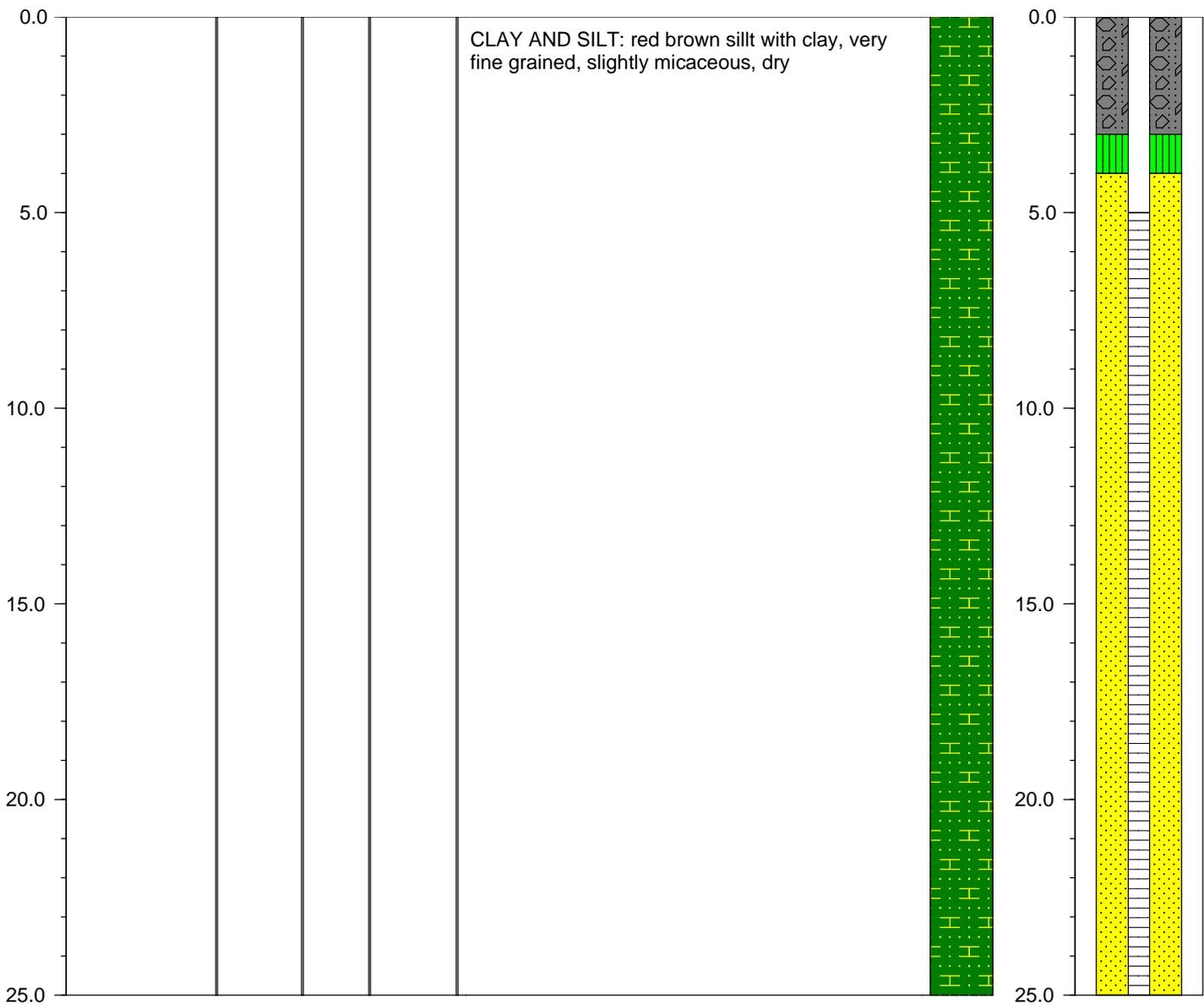
BOREHOLE NUMBER **LFG-1** Page 1 of 1

PROJECT NAME: **Closed MSW Landfill**  
 LOCATION: **Warren County**  
 DRILLING CO: **GeoTechnologies, Inc.**  
 DRILLING METHOD: **Hollow Stem Auger**  
 FIELD PARTY: **Martin Moulds**  
 GEOLOGIST: **M. German**  
 DATE BEGUN: **5/19/15** COMPLETED: **5/19/15**

TOTAL DEPTH: **25**  
 TOP OF CASING ELEV.: GROUND ELEV.:  
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (from ground)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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# NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources - Division of Water Quality

WELL CONTRACTOR CERTIFICATION # NC 4000-B

### 1. WELL CONTRACTOR:

Martin David Maulds  
Well Contractor (Individual) Name

Geotechnologys Drilling Inc.  
Well Contractor Company Name

STREET ADDRESS 3000 Wellington Ct., Suite 108  
Raleigh NC 27615  
City or Town State Zip Code

(919) 815-4572  
Area code - Phone number

### 2. WELL INFORMATION:

SITE WELL ID #(if applicable) LFG 1

STATE WELL PERMIT #(if applicable)

DWQ or OTHER PERMIT #(if applicable)

WELL USE (Check Applicable Box) Monitoring  Municipal/Public

Industrial/Commercial  Agricultural  Recovery  Injection

Irrigation  Other  (list use)

DATE DRILLED 5-19-15

TIME COMPLETED 3:18 AM  PM

### 3. WELL LOCATION:

CITY: Warrenton COUNTY: Warren  
559 Baltimore Rd 27589  
(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

#### TOPOGRAPHIC / LAND SETTING:

Slope  Valley  Flat  Ridge  Other  
(check appropriate box)

LATITUDE 36 38588

LONGITUDE 78 13831

May be in degrees, minutes; seconds or in a decimal format

Latitude/longitude source:  GPS  Topographic map  
(location of well must be shown on a USGS topo map and attached to this form if not using GPS)

### 4. FACILITY - Is the name of the business where the well is located.

FACILITY ID #(if applicable)

NAME OF FACILITY Warren Co Landfill

STREET ADDRESS 559 Baltimore Rd

Warrenton NC 27589  
City or Town State Zip Code

CONTACT PERSON Marshall

MAILING ADDRESS

same as above  
City or Town State Zip Code

(752) 257-2711  
Area code - Phone number

### 5. WELL DETAILS:

a. TOTAL DEPTH: 25

b. DOES WELL REPLACE EXISTING WELL? YES  NO

c. WATER LEVEL Below Top of Casing: 0 FT.  
(Use "+" if Above Top of Casing)

d. TOP OF CASING IS +2.5 FT. Above Land Surface\*

\*Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. YIELD (gpm): \_\_\_\_\_ METHOD OF TEST \_\_\_\_\_

f. DISINFECTION: Type \_\_\_\_\_ Amount \_\_\_\_\_

g. WATER ZONES (depth):

From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

### 6. CASING:

Depth Diameter Thickness/Weight Material  
From 25 To +2.5 Ft. 2 PVC

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_ \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_ \_\_\_\_\_

### 7. GROUT:

Depth Material Method

From 3.0 To 0 Ft. Portland Barrow

From 0 To +4.0 Ft. Sabote Barrow

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_ \_\_\_\_\_

### 8. SCREEN:

Depth Diameter Slot Size Material

From 25 To 5 Ft. 2 in. .010 in. PVC

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_ in. \_\_\_\_\_ in.

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_ in. \_\_\_\_\_ in.

### 9. SAND/GRAVEL PACK:

Depth Size Material

From 5 To 4 Ft. #2 Sand

From 4 To 3 Ft. 3/8 Bentonite

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_ \_\_\_\_\_

### 10. DRILLING LOG

From	To	Formation Description
<u>0</u>	<u>1/4</u>	<u>Top Soil</u>
<u>1/4</u>	<u>12.0</u>	<u>br red sil cl</u>
<u>12.0</u>	<u>25.0</u>	<u>br sil cl</u>

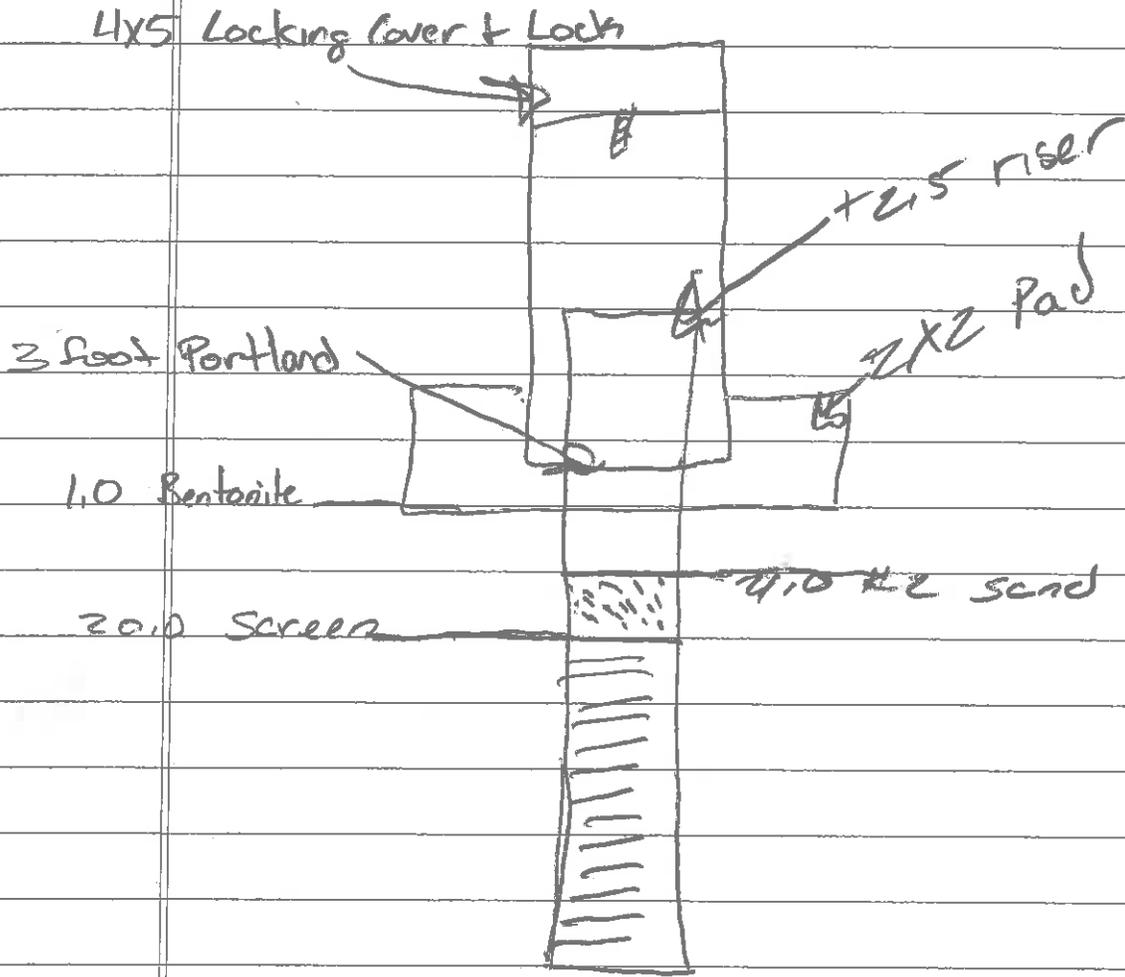
### 11. REMARKS:

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Martin David Maulds 5-19-15  
SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

Martin David Maulds  
PRINTED NAME OF PERSON CONSTRUCTING THE WELL

# LFG 1



**Smith Gardner, Inc.**  
 14 North Boylan Avenue, Raleigh NC 27603  
 (919) 828-0577

**FIELD BOREHOLE LOG**

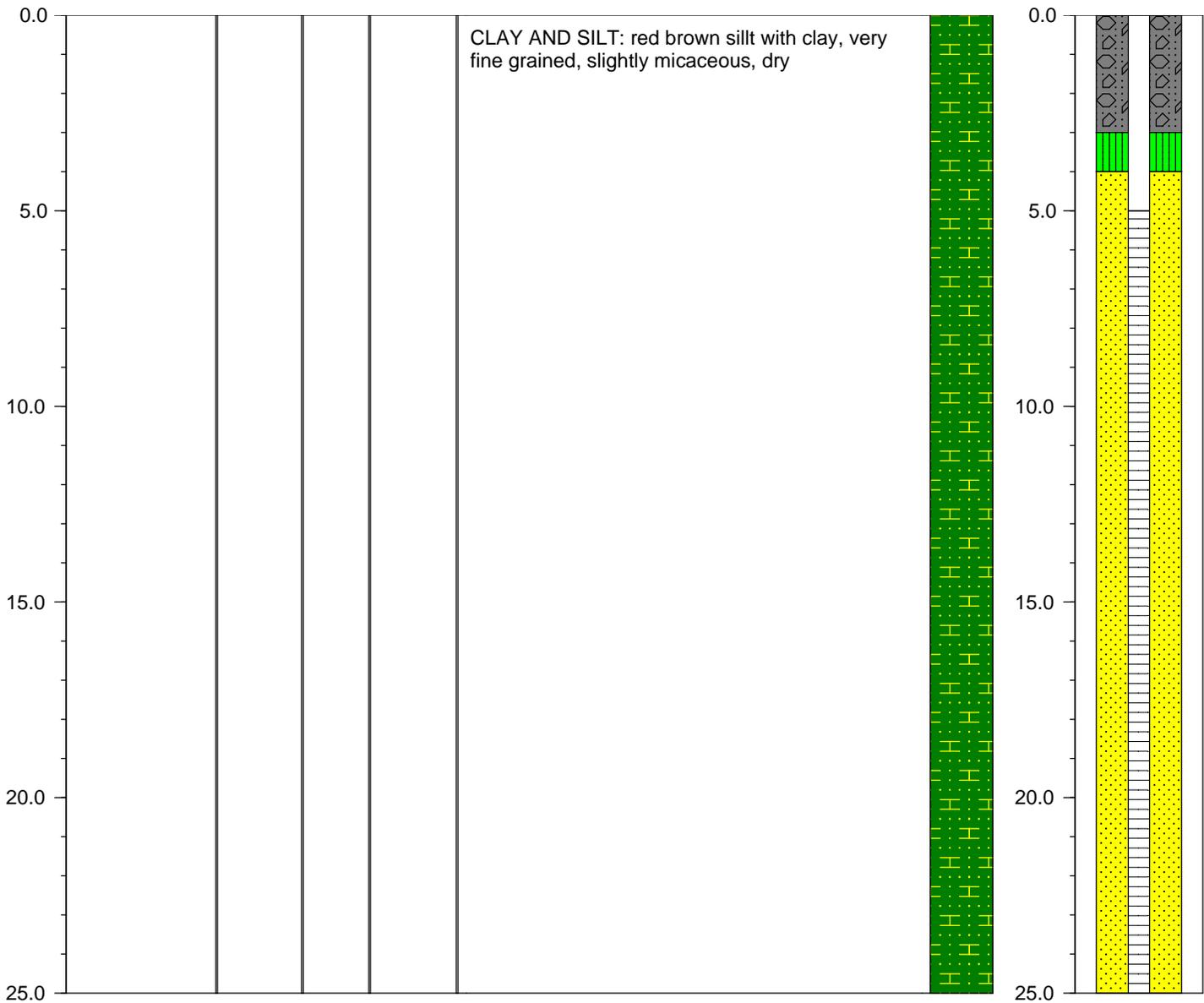
BOREHOLE NUMBER **LFG-2** Page 1 of 1

PROJECT NAME: **Closed MSW Landfill**  
 LOCATION: **Warren County**  
 DRILLING CO: **GeoTechnologies, Inc.**  
 DRILLING METHOD: **Hollow Stem Auger**  
 FIELD PARTY: **Martin Moulds**  
 GEOLOGIST: **M. German**  
 DATE BEGUN: **5/19/15** COMPLETED: **5/19/15**

TOTAL DEPTH: **25**  
 TOP OF CASING ELEV.: GROUND ELEV.:  
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (from ground)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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# NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources - Division of Water Quality

WELL CONTRACTOR CERTIFICATION # NC 4000-B

### 1. WELL CONTRACTOR:

Martin David Maulds  
Well Contractor (Individual) Name  
GeoTechnologies Drilling Inc.  
Well Contractor Company Name

STREET ADDRESS 3000 Wellington Ct Suite 108  
Raleigh NC 27615  
City or Town State Zip Code

(919) 815-4572  
Area code - Phone number

### 2. WELL INFORMATION:

SITE WELL ID #(if applicable) LF62  
STATE WELL PERMIT #(if applicable)  
DWQ or OTHER PERMIT #(if applicable)

WELL USE (Check Applicable Box) Monitoring  Municipal/Public   
Industrial/Commercial  Agricultural  Recovery  Injection   
Irrigation  Other  (list use)

DATE DRILLED 5-19-15

TIME COMPLETED 9:32 AM  PM

### 3. WELL LOCATION:

CITY: Warrenton COUNTY Warren  
559 Baltimore Rd 27589  
(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

#### TOPOGRAPHIC / LAND SETTING:

Slope  Valley  Flat  Ridge  Other  
(check appropriate box)

LATITUDE 36 38702

LONGITUDE 78 14168

May be in degrees, minutes; seconds or in a decimal format

Latitude/longitude source:  GPS  Topographic map  
(location of well must be shown on a USGS top map and attached to this form if not using GPS)

### 4. FACILITY - Is the name of the business where the well is located.

FACILITY ID #(if applicable)  
NAME OF FACILITY Warren Co Landfill  
STREET ADDRESS 559 Baltimore Rd  
Warrenton NC 27589  
City or Town State Zip Code

CONTACT PERSON Marshall

MAILING ADDRESS  
Same as Above  
City or Town State Zip Code

(252) 257-2711  
Area code - Phone number

### 5. WELL DETAILS:

- a. TOTAL DEPTH: 25
- b. DOES WELL REPLACE EXISTING WELL? YES  NO
- c. WATER LEVEL Below Top of Casing: 0 FT.  
(Use "+" if Above Top of Casing)

d. TOP OF CASING IS +25 FT. Above Land Surface\*

\*Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. YIELD (gpm): \_\_\_\_\_ METHOD OF TEST \_\_\_\_\_

f. DISINFECTION: Type \_\_\_\_\_ Amount \_\_\_\_\_

### g. WATER ZONES (depth):

From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_  
From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_  
From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

### 6. CASING:

Depth	Diameter	Thickness/Weight	Material
From <u>25</u> To <u>+25</u> Ft.	<u>2</u>		<u>PVC</u>
From _____ To _____ Ft.			
From _____ To _____ Ft.			

### 7. GROUT:

Depth	Material	Method
From <u>3</u> To <u>0</u> Ft.	<u>Portland</u>	<u>Borrow</u>
From <u>0</u> To <u>+4"</u> Ft.	<u>Sawtoe</u>	<u>Borrow</u>
From _____ To _____ Ft.		

### 8. SCREEN:

Depth	Diameter	Slot Size	Material
From <u>25</u> To <u>5.0</u> Ft.	<u>2</u> in.	<u>.010</u> in.	<u>PVC</u>
From _____ To _____ Ft.			
From _____ To _____ Ft.			

### 9. SAND/GRAVEL PACK:

Depth	Size	Material
From <u>5</u> To <u>4</u> Ft.	<u>#2</u>	<u>Sand</u>
From <u>4</u> To <u>3</u> Ft.	<u>#8</u>	<u>Bentonite</u>
From _____ To _____ Ft.		

### 10. DRILLING LOG

From	To	Formation Description
<u>0</u>	<u>2"</u>	<u>Top Soil</u>
<u>2"</u>	<u>6.5</u>	<u>red br. cl</u>
<u>6.5</u>	<u>15.0</u>	<u>br. cl s</u>
<u>15.0</u>	<u>25.0</u>	<u>br. s</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

### 11. REMARKS:

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER:

Martin David Maulds 5-19-15  
SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

Martin David Maulds  
PRINTED NAME OF PERSON CONSTRUCTING THE WELL

# LFG 2

4x5 Locking cover + Locks

3.0 Portland Cement

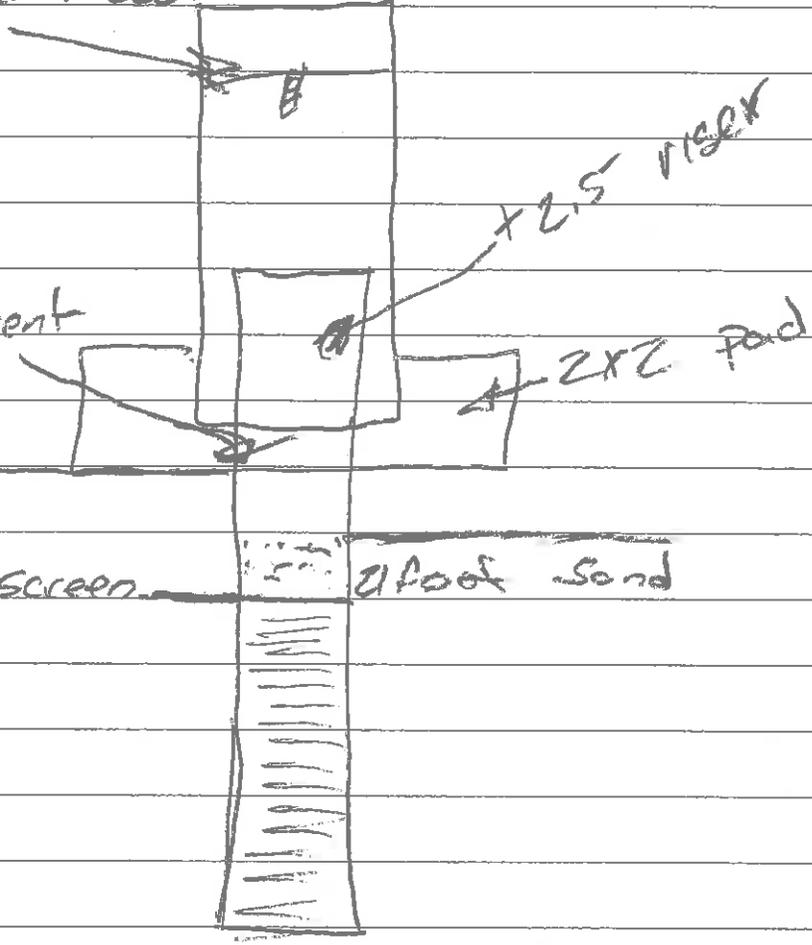
1 foot Bentonite

+ 2.5 riser

2x2 pad

20.0 foot screen

2 foot sand



**Smith Gardner, Inc.**  
 14 North Boylan Avenue, Raleigh NC 27603  
 (919) 828-0577

**FIELD BOREHOLE LOG**

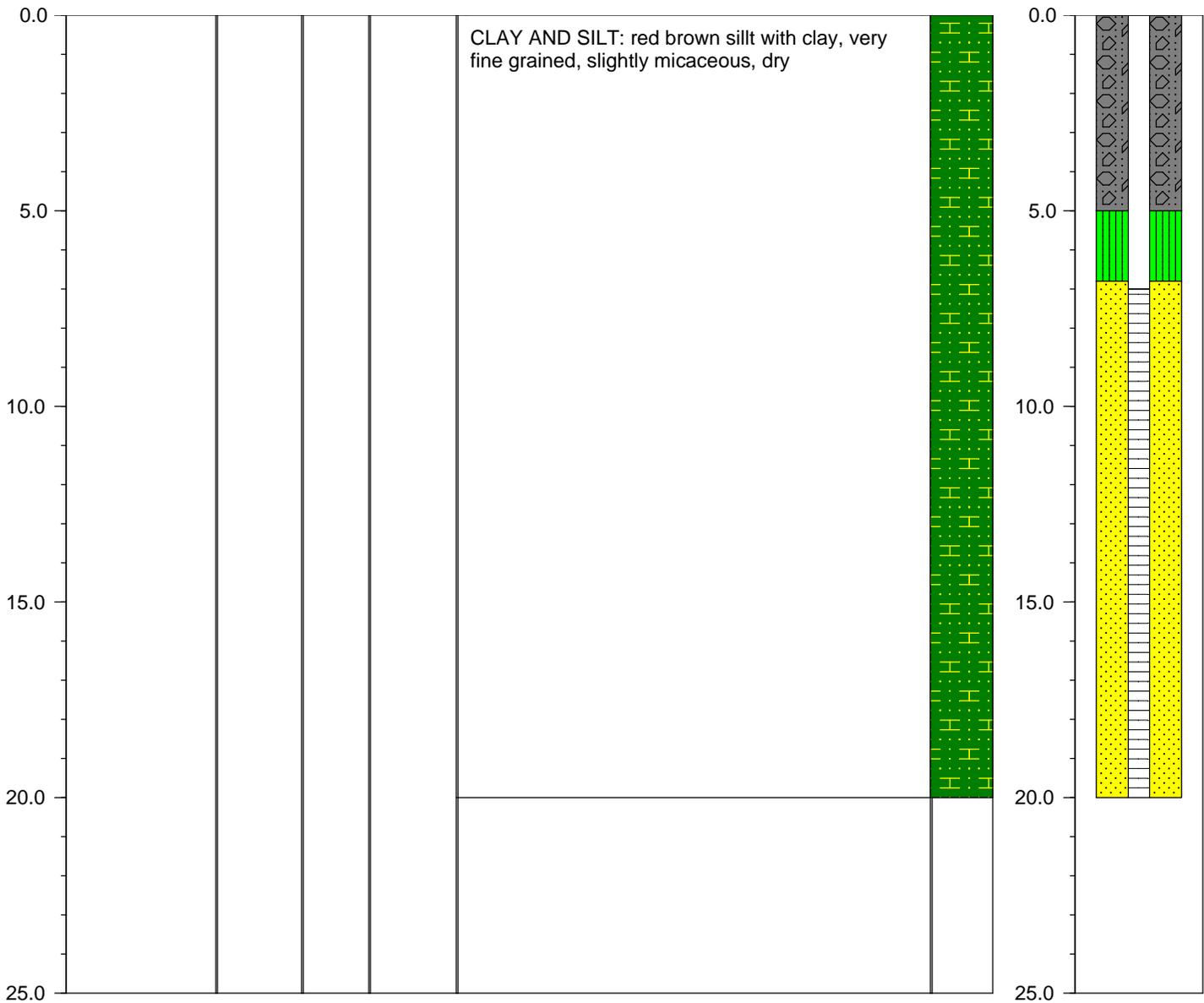
BOREHOLE NUMBER **LFG-3** Page 1 of 1

PROJECT NAME: **Closed MSW Landfill**  
 LOCATION: **Warren County**  
 DRILLING CO: **GeoTechnologies, Inc.**  
 DRILLING METHOD: **Hollow Stem Auger**  
 FIELD PARTY: **Martin Moulds**  
 GEOLOGIST: **M. German**  
 DATE BEGUN: **5/19/15** COMPLETED: **5/19/15**

TOTAL DEPTH: **20**  
 TOP OF CASING ELEV.: GROUND ELEV.:  
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (from ground)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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# NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources - Division of Water Quality

WELL CONTRACTOR CERTIFICATION # NC 4000-B

### 1. WELL CONTRACTOR:

Martin David Moulds  
Well Contractor (Individual) Name

Geotechnologies Drilling Inc.  
Well Contractor Company Name

STREET ADDRESS 3000 Wollington Ct. Suite 108  
Raleigh NC 27615  
City or Town State Zip Code

919-815-4572  
Area code - Phone number

### 2. WELL INFORMATION:

SITE WELL ID #(if applicable) LFG 3

STATE WELL PERMIT #(if applicable)

DWQ or OTHER PERMIT #(if applicable)

WELL USE (Check Applicable Box) Monitoring  Municipal/Public

Industrial/Commercial  Agricultural  Recovery  Injection

Irrigation  Other  (list use)

DATE DRILLED 5-19-15

TIME COMPLETED 7:18 AM  PM

### 3. WELL LOCATION:

CITY: Liberty COUNTY Warren  
559 Baltimore Rd 27589  
(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

#### TOPOGRAPHIC / LAND SETTING:

Slope  Valley  Flat  Ridge  Other  
(check appropriate box)

LATITUDE 36 38966

LONGITUDE 78 15170

May be in degrees, minutes; seconds or in a decimal format

Latitude/longitude source:  GPS  Topographic map  
(location of well must be shown on a USGS topo map and attached to this form if not using GPS)

### 4. FACILITY - Is the name of the business where the well is located.

FACILITY ID #(if applicable)

NAME OF FACILITY Warren Co Landfill

STREET ADDRESS 559 Baltimore Rd

Warrenton NC 27589  
City or Town State Zip Code

CONTACT PERSON Marshall

MAILING ADDRESS

Same as Above  
City or Town State Zip Code

(252) - 257-2711  
Area code - Phone number

### 5. WELL DETAILS:

a. TOTAL DEPTH: 20

b. DOES WELL REPLACE EXISTING WELL? YES  NO

c. WATER LEVEL Below Top of Casing: 0 FT.  
(Use "+" if Above Top of Casing)

d. TOP OF CASING IS +2.5 FT. Above Land Surface\*

\*Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. YIELD (gpm): \_\_\_\_\_ METHOD OF TEST \_\_\_\_\_

f. DISINFECTION: Type \_\_\_\_\_ Amount \_\_\_\_\_

### g. WATER ZONES (depth):

From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

### 6. CASING:

Depth Diameter Thickness/Weight Material  
From 20 To +2.5 Ft. 2" PVC

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

### 7. GROUT:

Depth Material Method

From 5 To 2 Ft. Portland Borrow

From 0 To +4" Ft. Concrete Borrow

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

### 8. SCREEN:

Depth Diameter Slot Size Material

From 20 To 7 Ft. 2 in. 010 in. PVC

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_ in. \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_ in. \_\_\_\_\_

### 9. SAND/GRAVEL PACK:

Depth Size Material

From 20 To 6 Ft. 1/2" Sand

From 6 To 5 Ft. 3/8" Bentonite

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

### 10. DRILLING LOG

From To Formation Description

0 10.0 fill br gr cl

10.0 20.0 br si

### 11. REMARKS:

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Martin David Moulds 5-19-15  
SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

Martin David Moulds  
PRINTED NAME OF PERSON CONSTRUCTING THE WELL

LFG3

4x5 Locking Cover + Lock

5 foot Portland

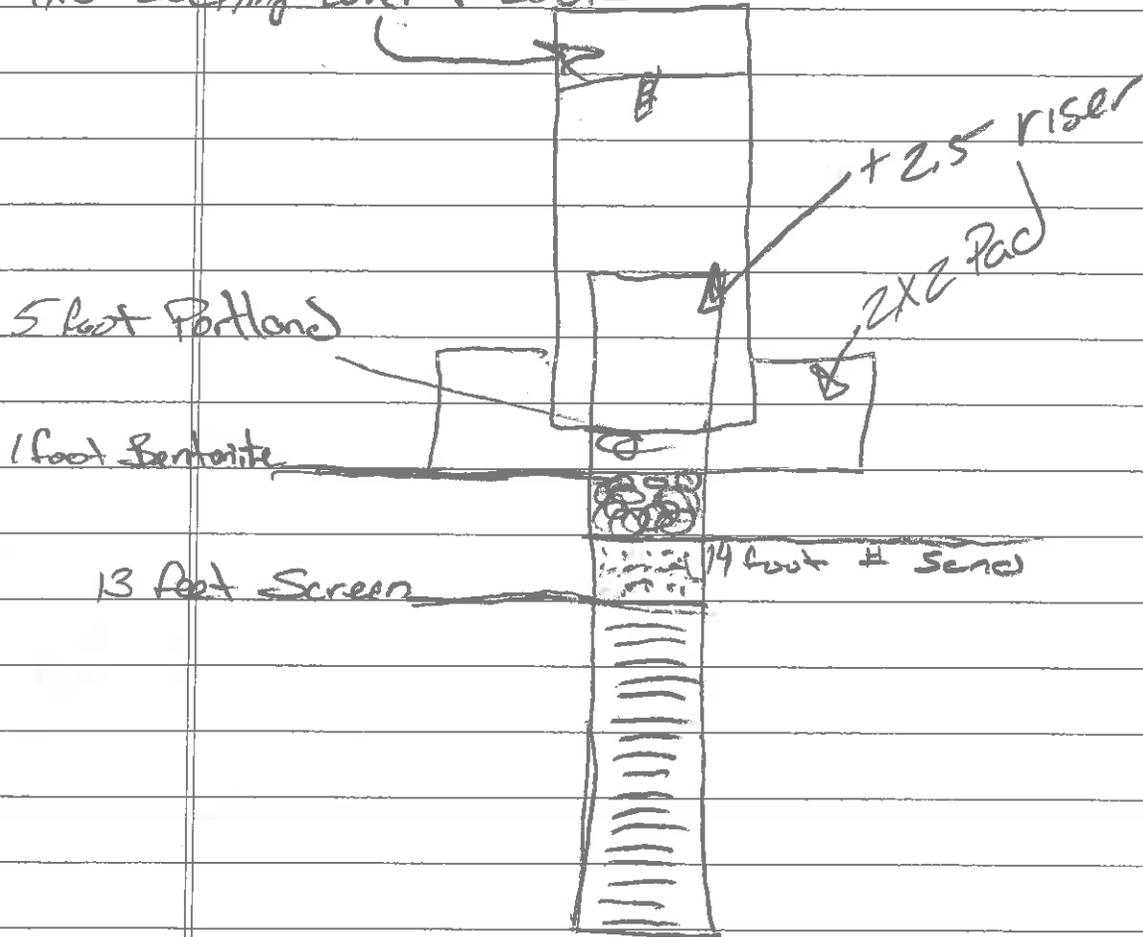
1 foot Bentonite

13 foot Screen

14 foot # Sand

+ 2.5 riser

2x2 Pac



**Smith Gardner, Inc.**  
 14 North Boylan Avenue, Raleigh NC 27603  
 (919) 828-0577

**FIELD BOREHOLE LOG**

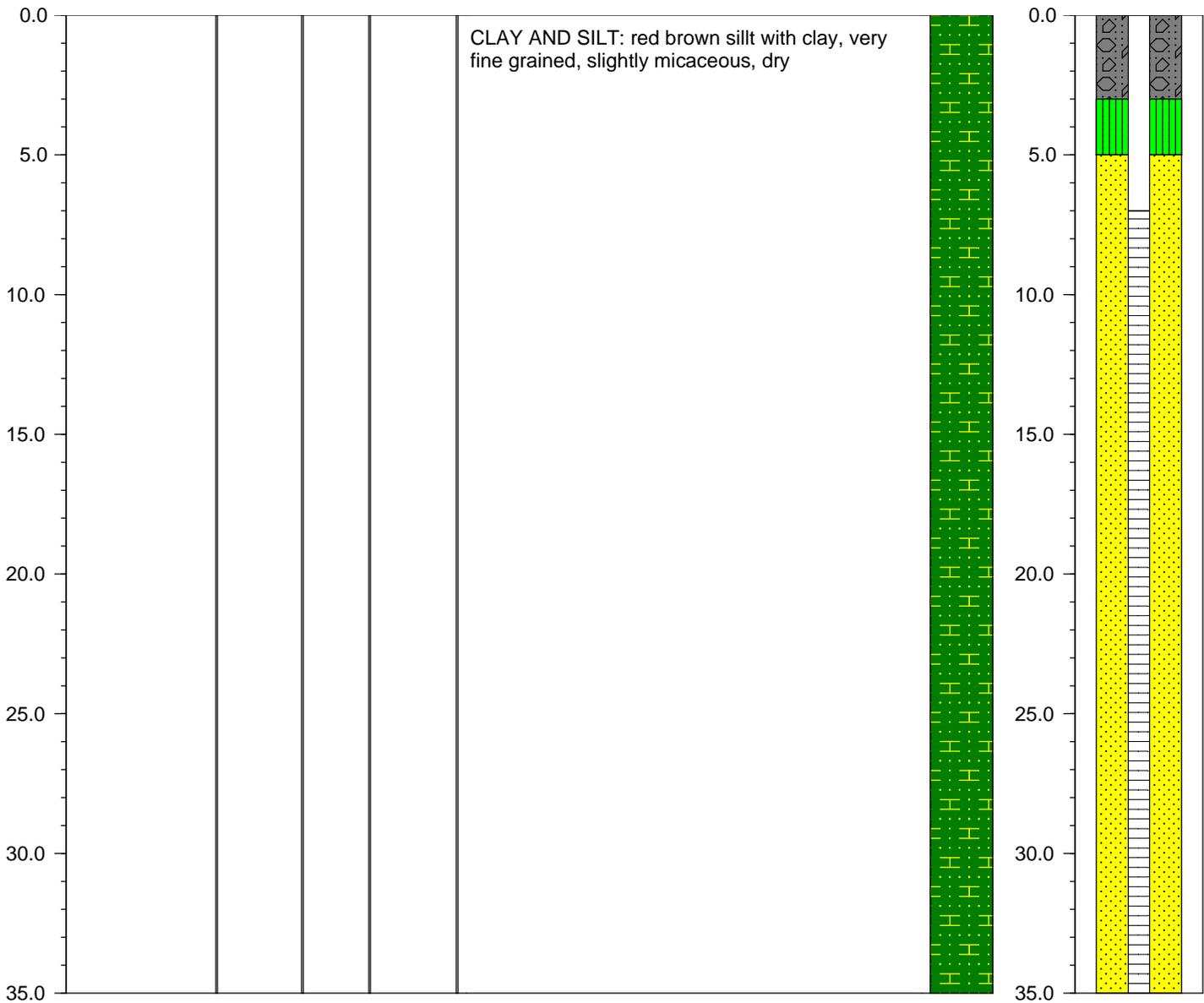
BOREHOLE NUMBER **LFG-4** Page 1 of 1

PROJECT NAME: **Closed MSW Landfill**  
 LOCATION: **Warren County**  
 DRILLING CO: **GeoTechnologies, Inc.**  
 DRILLING METHOD: **Hollow Stem Auger**  
 FIELD PARTY: **Martin Moulds**  
 GEOLOGIST: **M. German**  
 DATE BEGUN: **5/18/15** COMPLETED: **5/18/15**

TOTAL DEPTH: **35**  
 TOP OF CASING ELEV.: GROUND ELEV.:  
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (from ground)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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# NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources - Division of Water Quality

WELL CONTRACTOR CERTIFICATION # NC 4000-B

### 1. WELL CONTRACTOR:

Martin David Maulds  
Well Contractor (Individual) Name

GeoTechnologies Drilling Inc  
Well Contractor Company Name

STREET ADDRESS 3200 Wellington Ct, Suite 108

Raleigh NC 27615  
City or Town State Zip Code

(919) 815-4572  
Area code - Phone number

### 2. WELL INFORMATION:

SITE WELL ID #(if applicable) LEG 4

STATE WELL PERMIT #(if applicable)

DWQ or OTHER PERMIT #(if applicable)

WELL USE (Check Applicable Box) Monitoring  Municipal/Public

Industrial/Commercial  Agricultural  Recovery  Injection

Irrigation  Other  (list use)

DATE DRILLED 5-8-15

TIME COMPLETED 8:36 AM  PM

### 3. WELL LOCATION:

CITY: Warrenton COUNTY Warren

559 Baltimore Rd 27589  
(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

TOPOGRAPHIC / LAND SETTING:

Slope  Valley  Flat  Ridge  Other  
(check appropriate box)

LATITUDE 3 6 39054

LONGITUDE 7 8 14168

May be in degrees, minutes; seconds or in a decimal format

Latitude/longitude source:  GPS  Topographic map  
(location of well must be shown on a USGS topo map and attached to this form if not using GPS)

### 4. FACILITY - Is the name of the business where the well is located.

FACILITY ID #(if applicable)

NAME OF FACILITY Warren Co Landfill

STREET ADDRESS 559 Baltimore Rd

Warrenton NC 27589  
City or Town State Zip Code

CONTACT PERSON Marshall

MAILING ADDRESS

Same as above  
City or Town State Zip Code

(752) 257-2711  
Area code - Phone number

### 5. WELL DETAILS:

a. TOTAL DEPTH: 35.0

b. DOES WELL REPLACE EXISTING WELL? YES  NO

c. WATER LEVEL Below Top of Casing: 21.5 FT.  
(Use "+" if Above Top of Casing)

d. TOP OF CASING IS 2.5 FT. Above Land Surface\*

\*Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. YIELD (gpm): \_\_\_\_\_ METHOD OF TEST \_\_\_\_\_

f. DISINFECTION: Type \_\_\_\_\_ Amount \_\_\_\_\_

g. WATER ZONES (depth):

From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

### 6. CASING:

Depth Diameter Thickness/Weight Material  
From 35 To 21.5 Ft. 2 PVC

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

### 7. GROUT:

Depth Material Method

From 3.0 To 0 Ft. Portland Barrow

From 0 To 141 Ft. Sabrete Barrow

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

### 8. SCREEN:

Depth Diameter Slot Size Material

From 25 To 710 Ft. 2 in. .010 in. PVC

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_ in. \_\_\_\_\_ in. \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_ in. \_\_\_\_\_ in. \_\_\_\_\_

### 9. SAND/GRAVEL PACK:

Depth Size Material

From 35 To 5 Ft. #2 Sand

From 5 To 3 Ft. 3/8 Barfordite

From \_\_\_\_\_ To \_\_\_\_\_ Ft. \_\_\_\_\_

### 10. DRILLING LOG

From To Formation Description

0 2 1/2 Top Soil

2 1/2 8' red br c1

8' 35.0 br si mic

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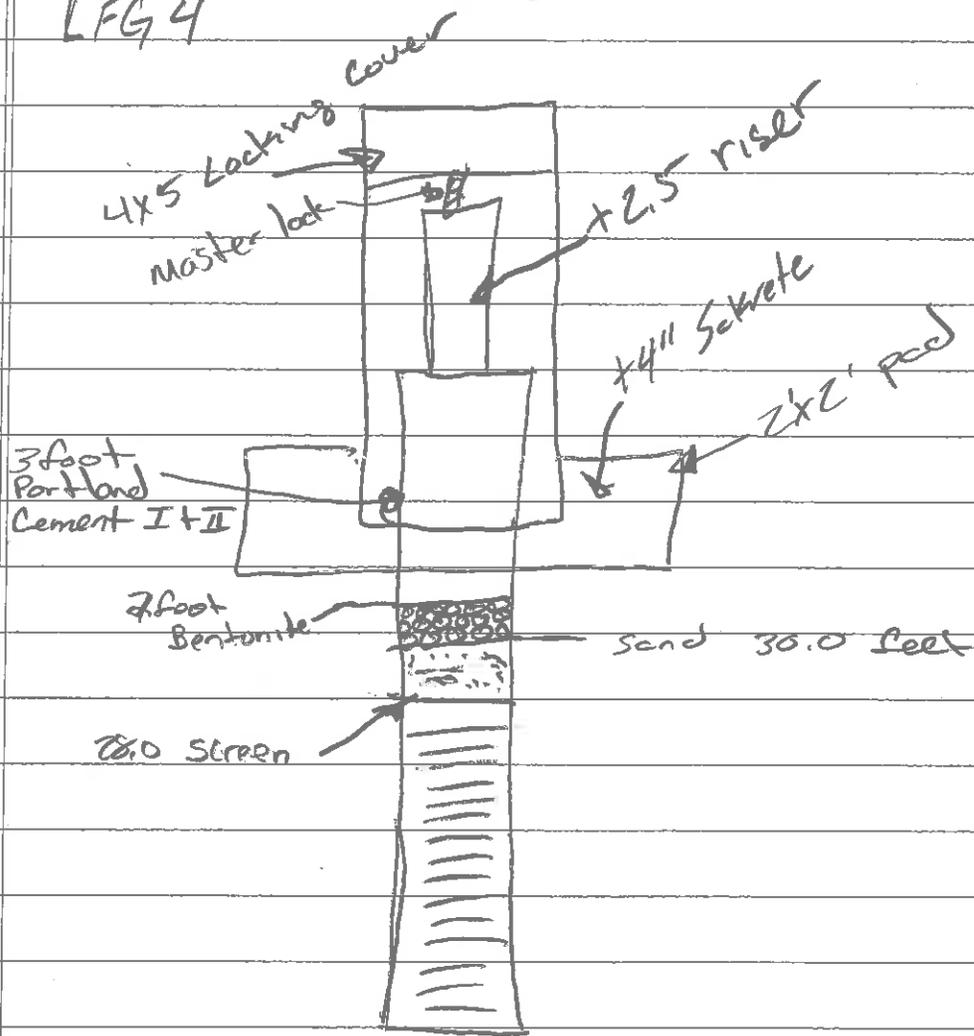
\_\_\_\_\_

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Martin David Maulds 5-18-15  
SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

Martin David Maulds  
PRINTED NAME OF PERSON CONSTRUCTING THE WELL

LFG 4



**Smith Gardner, Inc.**  
 14 North Boylan Avenue, Raleigh NC 27603  
 (919) 828-0577

**FIELD BOREHOLE LOG**

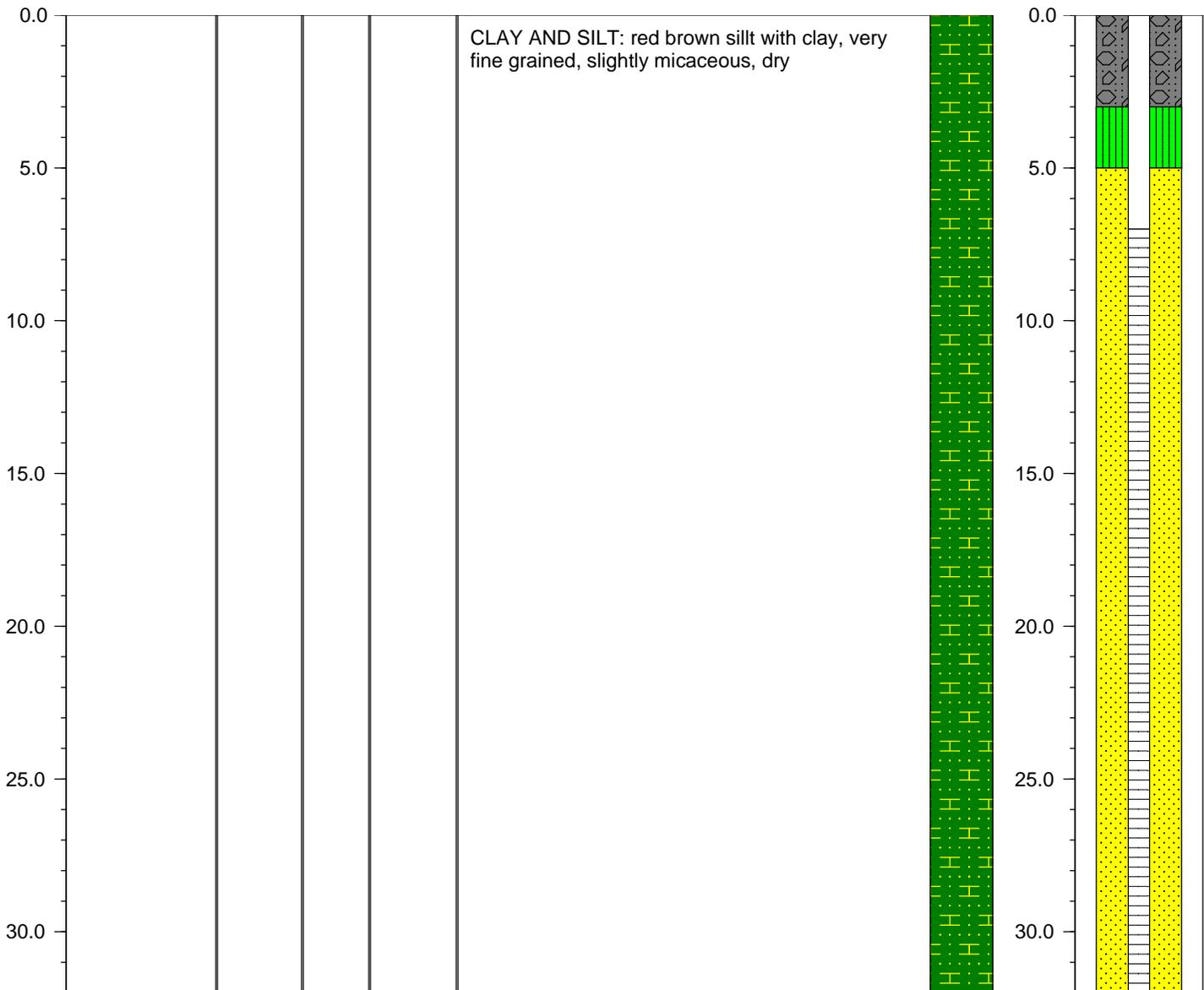
BOREHOLE NUMBER **LFG-5** Page 1 of 1

PROJECT NAME: **Closed MSW Landfill**  
 LOCATION: **Warren County**  
 DRILLING CO: **GeoTechnologies, Inc.**  
 DRILLING METHOD: **Hollow Stem Auger**  
 FIELD PARTY: **Martin Moulds**  
 GEOLOGIST: **M. German**  
 DATE BEGUN: **5/18/15** COMPLETED: **5/18/15**

TOTAL DEPTH: **32**  
 TOP OF CASING ELEV.: GROUND ELEV.:  
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (from ground)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
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LFG 5

