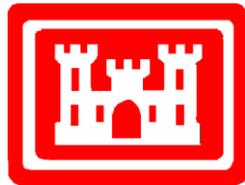


LANDFILL GAS MONITORING PLAN
FOR
THE LAMONT ROAD LCID (CLOSED) AND C&D LANDFILLS
NCDENR LANDFILL PERMIT #26-08
FORT BRAGG, NORTH CAROLINA



Prepared by:

US Army Corps of Engineers
Savannah District
Hazardous, Toxic & Radioactive Waste Section
CESAS-EN-GH
110 W. Oglethorpe Avenue
Savannah, GA 31401

FEBRUARY 2011

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ATTACHMENTS

- Attachment A – Gas Monitoring Well Locations
- Attachment B – Potentiometric Surface Map
- Attachment C – Gas Monitoring Well Construction Diagrams and Boring Logs
- Attachment D – Stopcock Diagram
- Attachment E – Example Field Form

SECTION 1.0 INTRODUCTION

1.1 Background

The purpose of this Landfill Gas Monitoring Plan (Plan) is to provide a program for the quarterly monitoring of landfill gas at the Lamont Road Construction and Demolition Debris (C&D) Landfill within the Fort Bragg Military Reservation in Cumberland County, North Carolina.

This Plan was prepared in accordance with the rules codified under North Carolina Solid Waste Management Rules 15A NCAC 13B .0543, Closure and Post-Closure Requirements for C&DLF Facilities, and .0544, Monitoring Plans and Requirements for C&DLF Facilities, under the guidance of a North Carolina Professional Geologist (or a professional who is exempt from North Carolina Registration as defined in Chapter 89E-9 of the North Carolina General Statutes) and should provide early detection of significant landfill gas releases so as to be protective of public health and the environment.

1.2 Site Hydrogeology

A Design Hydrogeologic Report for the Lamont Road C&D Landfill was submitted with the April 2004 construction permit application which was subsequently approved by NCDENR in September 2004. The following description of site hydrogeology is summarized from 2004 Hydrogeologic Report.

Based on field and laboratory data collected at the site, the uppermost aquifer is comprised of a medium dense to very dense sand unit consisting predominantly of a tan to reddish-brown and gray silty sand with intermittent clay and extends from the ground surface to a depth of at least 125 feet below land surface. The predominant soil classification for this unit is poorly graded sand (SP) with lesser amounts of silty sand (SM). Ground water is first encountered in this unconsolidated residual soil unit over the entire study area. The aquifers within these soils are recharged by precipitation that infiltrates the unsaturated zone to the water table.

In general, the flow of ground water occurs from higher elevations onsite to lower elevations flowing northwest under unconfined (water table) conditions. The horizontal components of groundwater flow are shown by the potentiometric surface contours superimposed on the Monitoring Plan which is attached to the back of this document. Generally, the landfill expansion subgrades are 14 feet above the estimated water table elevations and therefore maintain the minimum 4-foot separation requirement. The locations of the gas monitoring wells are included in Attachment A. A potentiometric surface map generated from data collected during November 2010 is included at Attachment B.

1.3 Regulatory Limits

This Plan is designed in accordance with Rule 15A NCAC 13B .0544(d) to ensure that the concentration of methane gas or other explosive gases generated by the facility does not exceed 25 percent of the lower explosive limit in on-site facility structures, the concentration of methane gas or other explosive gases does not exceed the lower explosive limit for methane or other explosive gases at the facility property boundary, and the facility does not release methane gas or other explosive gases in any concentration that can be detected in offsite structures.

SECTION 2.0 LANDFILL GAS MONITORING

2.1 Landfill Gas Monitoring Probe Locations

The locations of the existing network of landfill gas monitoring probes are shown on the attached Monitoring Plan. The network consists of 13 probes spaced around the perimeter of the landfill. Locations were based on the ability to adequately monitor the potential for off-site landfill gas migration and site accessibility. Probe depths were based on site geology, depth to groundwater, and surface water features. All locations are readily accessible using four-wheel drive vehicles (see Attachment A). Table 2-1 lists the gas probe ID, depth, screen length, and depth to groundwater for each probe within the network. The boring logs and well construction diagrams are included as Attachment C.

Table 2-1 Monitoring Probe Summary

Probe ID	Total Depth (feet bls)	Screen Length (feet)	Depth to Groundwater (feet bls)
GP-1	30	25	NE
GP-2	25	20	NE
GP-3	60	55	NE
GP-4	60	55	NE
GP-5	60	55	NE
GP-6	60	55	NE
GP-7	60	55	NE
GP-8	30	25	NE
GP-9	30	25	NE
GP-10	30	25	NE
GP-11	30	25	NE
GP-12	30	25	NE
GP-13	30	25	NE

bls =below land surface, NE= Not Encountered

2.2 Structure Sampling

There are three on-site structures currently monitored for explosive gases. These include the scale house, a maintenance building also known as Building 0-3533, and the office trailer. The transfer station located on-site is an open structure that is well ventilated and therefore is not susceptible to the build-up of explosive gases.

2.3 Landfill Gas Monitoring Frequency

The on-site gas probes and structures included in this Plan are monitored quarterly in accordance with Rule 15A NCAC 13B .0544(d).

SECTION 3.0 LANDFILL GAS SAMPLING PROCEDURES

3.1 Detection Equipment Used

The landfill gas monitoring will be performed using a Landtec GEM™2000 portable gas analyzer (GEM™2000), or equivalent type meter. The selected meter shall be capable of measuring percent oxygen, percent carbon dioxide, and percent methane and shall have a current factory calibration.

Field calibrations should be performed before the landfill gas monitoring begins. Per the manufacturer's recommendations for the GEM™2000 a zero calibration for methane shall be used for most cases. If the ambient operating temperature is expected to change by more than 20 degrees Fahrenheit during the time that the meter shall be used, a span calibration should be performed per the manufacturer's recommendations. The span-calibration gas used for the span calibration shall be selected based on the expected levels of methane.

Before performing the zero calibration, the user should supply the zero calibration gas to the meter for a minimum of two minutes. The user should ensure that the meter has stabilized at its lowest value and should then select the zero function from the field calibration menu.

Before performing the span calibration, the user should supply the certified know span calibration gas to the meter for a minimum of two minutes. The user shall edit the target calibration values to match the supplied gas. This shall be performed each time the meter is calibrated (even if the same calibration gas is used), as it is important to confirm that the concentration of the calibration used matches the calibration values. The user should ensure that the meter has stabilized and should then select the appropriate calibration function from the field calibration menu.

3.2 Landfill Gas Sampling Procedure

The landfill gas monitoring will be performed in the afternoon when gas pressures are likely to be high. The GEM™2000 will be turned on and allowed to warm up prior to gas sampling. The meter will perform a series of self-tests that will take approximately 30 seconds to complete. Any errors that are identified during the self-tests shall be noted on the sampling log and corrected. The field personnel shall perform a field calibration (Section 3.1) after the completion of the unit self-test.

The sample tube shall be purged for at least one minute prior to connecting the sample tube to the stopcock. Then the tube will be connected to the stopcock, the valve will be opened, and the initial reading will be recorded. The gas monitoring will continue until the readings have stabilized for 5 seconds (considered to be +/- 0.5% by volume for each of the gases). Once the readings have stabilized, the final readings will be recorded, the stopcock will be closed, and the tubing will be disconnected from the valve. These steps will then be repeated at each sampling location. A diagram of the stopcock valve installed on each of the wells is included as Attachment D.

SECTION 4.0 RECORD KEEPING AND REPORTING

4.1 Landfill Gas Monitoring Data Form

A sample landfill gas monitoring form is included as Attachment E.

4.2 Sampling Reports

The landfill gas monitoring reports will be prepared in accordance with Rule 15A NCAC 13B. In general, the reports will detail the methods used for sampling, exceptions noted during sampling, and the results of each sampling event. The monitoring that is performed concurrently with the requisite semi-annual groundwater sampling will be included in the groundwater monitoring reports. The reports for stand-alone events will be presented as a short letter report that includes the date, methods, exceptions, and results of the sampling. The reports will be signed, certified, and stamped by a North Carolina licensed professional geologist or engineer except when the person who performs those actions is exempt as defined in Chapter 89E-9 of the North Carolina General Statutes. Each of the reports will be accompanied by NCDENR Environmental Monitoring Report Form.

4.3 Permanent Record Keeping

The daily activities performed during each of the sampling events will be entered into a field logbook. Information entered into the field book will be done so with an indelible marker (one that cannot be washed off with water). Mistakes will be crossed out with a single line and initialed. A copy of the field book will be maintained in the project file.

A copy of the landfill gas methane monitoring reports (described in Section 4.2) will be maintained in the operating record for the landfill. The operating record will be maintained at the facility or an approved location near the facility in accordance with Rule 15A NCAC 13B.

SECTION 5.0 CONTINGENCY PLAN

If methane or explosive gas levels exceeding the regulatory limits specified in Subparagraph (d)(1) of Rule 15A NCAC 13B .0544 are detected, the owner and operator will take the following measures to notify the state and address the exceedance:

- The operator will immediately take all steps necessary to ensure protection of human health;
- The operator will notify the Division within seven days of detection;
- The operator will place in the operating record the methane or explosive gas levels detected and a description of the steps taken to protect human health;
- The operator will create a remediation plan to address the methane within 60 days of detection (the plan will describe the nature and extent of the problem and will detail the proposed remedy) and will place a copy of the plan in the operating record; and
- The operator will implement the remediation plan and notify the Division that the plan has been implemented.

SECTION 6.0 CERTIFICATION OF PROFESSIONAL GEOLOGIST

The landfill gas monitoring plan for this facility has been prepared by a qualified geologist who is licensed to practice in the State of North Carolina or is exempt as defined in Chapter 89E-9 of the North Carolina General Statutes. The plan has been prepared based on first-hand knowledge of site conditions and familiarity with North Carolina solid waste rules and industry standard protocol. This certification is made in accordance with North Carolina Solid Waste Regulations, indicating this Landfill Gas Monitoring Plan should provide early detection of any release of hazardous constituents to the uppermost aquifer, so as to be protective of public health and the environment. No other warranties, expressed or implied, are made.

Signed 

Printed Kevin G. Haborak, P.G.

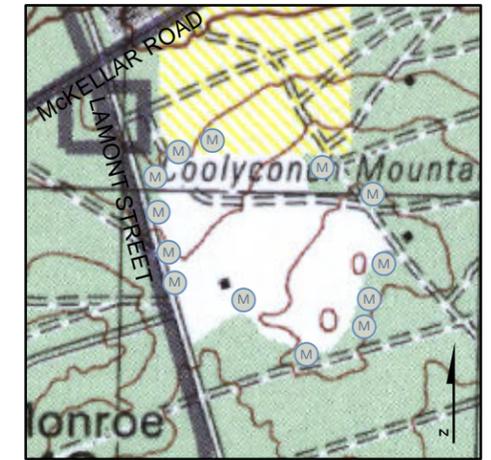
Date 2/24/11



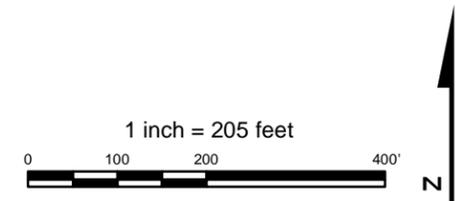
SECTION 7.0 CERTIFICATION OF REGISTERED LAND SURVEYOR

Coordinates and elevations for each of the gas probes were obtained at the time of installation in 2005. This information is provided in the gas monitoring well construction diagrams provided in Attachment C.

ATTACHMENT A - GAS MONITORING WELL LOCATIONS



M METHANE SAMPLE



U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

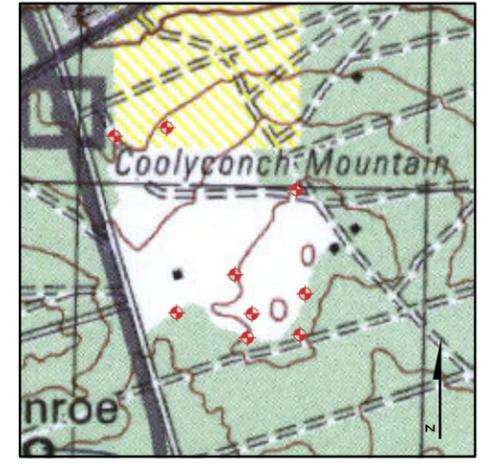
METHANE MONITORING
WELL LOCATIONS

LAMONT STREET LANDFILL
FT. BRAGG, NC

DATE: FEB 2011

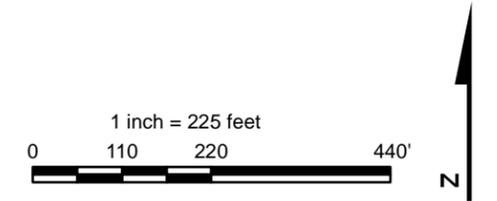
ATTACHMENT A

ATTACHMENT B – POTENTIOMETRIC SURFACE MAP



-  Monitoring Wells
-  Groundwater Contour
-  Groundwater Direction

Note: Monitoring wells used for potentiometric surface are displayed with elevations in feet above MSL in parenthesis below the label.



 U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

LAMONT ST LANDFILL, FORT BRAGG, NC

POTENTIOMETRIC MAP

**ATTACHMENT C – GAS MONITORING WELL CONSTRUCTION DIAGRAMS AND
BORING LOGS**

MONITORING WELL COMPLETION FORM

HOLE NO.

GP-1

COMPANY NAME:

FORT BRAGG

SHEET 1

OF 1 SHEETS

DRILLING CONTRACTOR:

AMERICAN ENVIRONMENTAL DRILLING, INC.

PROJECT:

LAMONT LANDFILL

LOCATION:

FORT BRAGG, NORTH CAROLINA

NAME OF DRILLER / INSPECTOR:

L. MARTIN SHAVER

COORDINATES:

N35° 08.695'

W079° 04.657'

ELEVATION TOP OF CASING: 380'

ELEVATION GROUND SURFACE: 377'

INSTALLATION DATE:

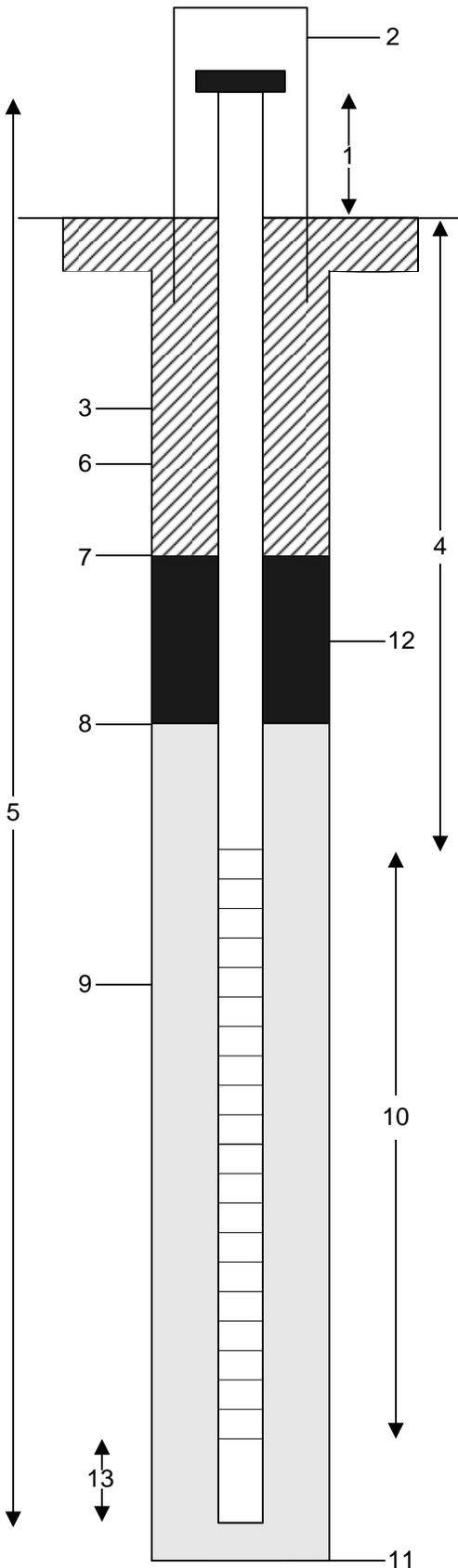
START: 4/28/05

COMPLETE: 4/28/05

WELL CONSTRUCTION DETAILS

1. HEIGHT OF CASING ABOVE GROUND: 3.0'
2. TYPE OF WELL PROTECTION: 4" X 4" X 5' STAND UP WELL COVER ON A 22" X 22" X 6" CONCRETE PAD
3. GROUT MIXTURE / METHOD OF PLACEMENT: NA
4. LENGTH OF RISER PIPE FROM GROUND SURFACE TO TOP OF SCREEN: 5.0'
5. TOTAL LENGTH OF PIPE: 33.0'
6. DIAMETER OF BORING / PVC WELL CASING AND SCREEN: NA / 1.0" SCHEDULE 40 PVC CASING AND 0.010" SLOT SCHEDULE 40 PVC SCREEN.
7. DEPTH TO TOP OF SEAL: 3.0'
8. DEPTH TO TOP OF FILTER PACK: 4.0'
9. TYPE OF FILTER PACK: #2 SAND
10. LENGTH OF SCREEN / DEPTH INTERVAL: 25.0' / 5.0' – 30.0'
11. BORING DEPTH: 31.0'
12. TYPE OF SEAL / QUANTITY USED: BENTONITE / NA
13. LENGTH OF SUMP: NA

COMMENTS:



NOT TO SCALE

MONITORING WELL COMPLETION FORM

HOLE NO.
GP-2

COMPANY NAME:

FORT BRAGG

SHEET 1

OF 1 SHEETS

DRILLING CONTRACTOR:

AMERICAN ENVIRONMENTAL DRILLING, INC.

PROJECT:

LAMONT LANDFILL

LOCATION:

FORT BRAGG, NORTH CAROLINA

NAME OF DRILLER / INSPECTOR:

L. MARTIN SHAVER

COORDINATES:

N35° 08.624'

W079° 04.503'

ELEVATION TOP OF CASING: 400'

ELEVATION GROUND SURFACE: 397'

INSTALLATION DATE:

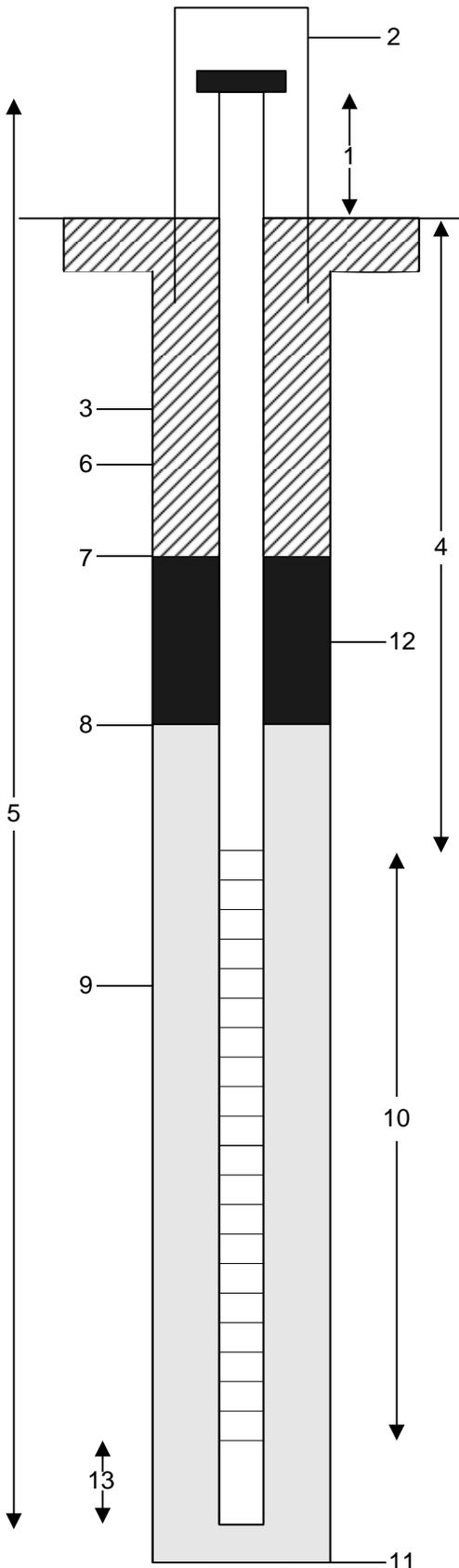
START: 4/28/05

COMPLETE: 4/28/05

WELL CONSTRUCTION DETAILS

1. HEIGHT OF CASING ABOVE GROUND: 3.0'
2. TYPE OF WELL PROTECTION: 4" X 4" X 5' STAND UP WELL COVER ON A 22" X 22" X 6" CONCRETE PAD
3. GROUT MIXTURE / METHOD OF PLACEMENT: NA
4. LENGTH OF RISER PIPE FROM GROUND SURFACE TO TOP OF SCREEN: 5.0'
5. TOTAL LENGTH OF PIPE: 28.0'
6. DIAMETER OF BORING / PVC WELL CASING AND SCREEN: NA / 1.0" SCHEDULE 40 PVC CASING AND 0.010" SLOT SCHEDULE 40 PVC SCREEN.
7. DEPTH TO TOP OF SEAL: 3.0'
8. DEPTH TO TOP OF FILTER PACK: 4.0'
9. TYPE OF FILTER PACK: #2 SAND
10. LENGTH OF SCREEN / DEPTH INTERVAL: 20.0' / 5.0' – 25.0'
11. BORING DEPTH: 26.0'
12. TYPE OF SEAL / QUANTITY USED: BENTONITE / NA
13. LENGTH OF SUMP: NA

COMMENTS:



MONITORING WELL COMPLETION FORM

HOLE NO.
GP-3

COMPANY NAME:

FORT BRAGG

SHEET 1

OF 1 SHEETS

DRILLING CONTRACTOR:

AMERICAN ENVIRONMENTAL DRILLING, INC.

PROJECT:

LAMONT LANDFILL

LOCATION:

FORT BRAGG, NORTH CAROLINA

NAME OF DRILLER / INSPECTOR:

L. MARTIN SHAVER

COORDINATES:

N35° 08.554'

W079° 04.397'

ELEVATION TOP OF CASING: 431'

ELEVATION GROUND SURFACE: 428'

INSTALLATION DATE:

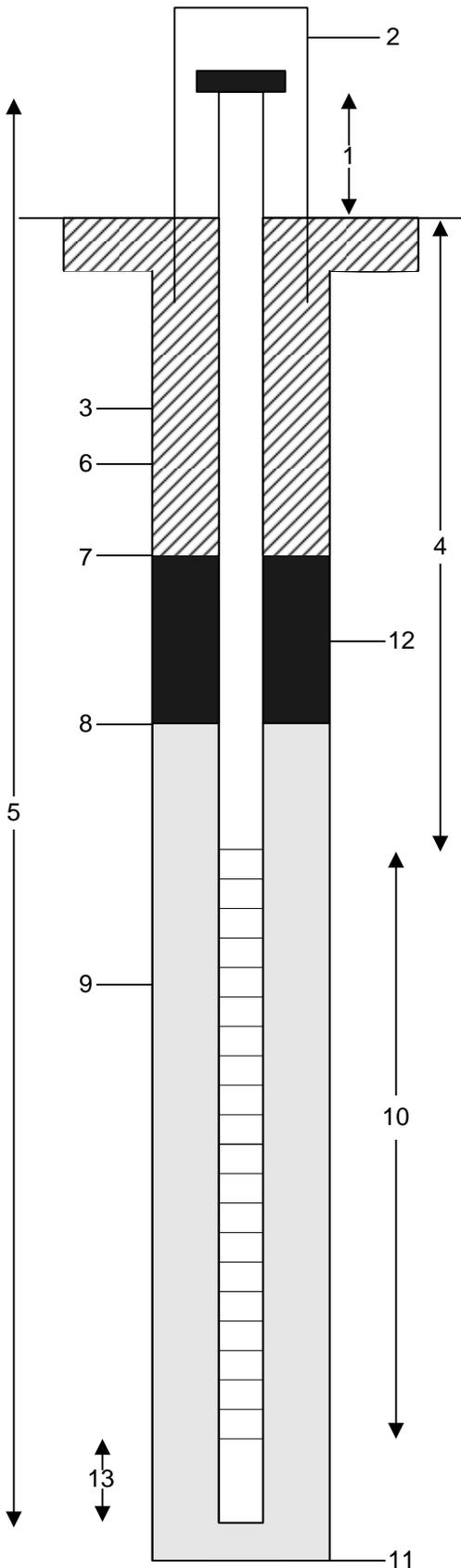
START: 4/28/05

COMPLETE: 4/28/05

WELL CONSTRUCTION DETAILS

1. HEIGHT OF CASING ABOVE GROUND: 3.0'
2. TYPE OF WELL PROTECTION: 4" X 4" X 5' STAND UP WELL COVER ON A 22" X 22" X 6" CONCRETE PAD
3. GROUT MIXTURE / METHOD OF PLACEMENT: NA
4. LENGTH OF RISER PIPE FROM GROUND SURFACE TO TOP OF SCREEN: 5.0'
5. TOTAL LENGTH OF PIPE: 63.0'
6. DIAMETER OF BORING / PVC WELL CASING AND SCREEN: NA / 1.0" SCHEDULE 40 PVC CASING AND 0.010" SLOT SCHEDULE 40 PVC SCREEN.
7. DEPTH TO TOP OF SEAL: 3.0'
8. DEPTH TO TOP OF FILTER PACK: 4.0'
9. TYPE OF FILTER PACK: #2 SAND
10. LENGTH OF SCREEN / DEPTH INTERVAL: 55.0' / 5.0' - 60.0'
11. BORING DEPTH: 61.0'
12. TYPE OF SEAL / QUANTITY USED: BENTONITE / NA
13. LENGTH OF SUMP: NA

COMMENTS:



NOT TO SCALE

MONITORING WELL COMPLETION FORM

HOLE NO.
GP-4

COMPANY NAME:
FORT BRAGG

SHEET 1
OF 1 SHEETS

DRILLING CONTRACTOR:
AMERICAN ENVIRONMENTAL DRILLING, INC.

PROJECT:
LAMONT LANDFILL

LOCATION:
FORT BRAGG, NORTH CAROLINA

NAME OF DRILLER / INSPECTOR:
L. MARTIN SHAVER

COORDINATES:
N35° 08.573' W079° 04.282'

ELEVATION TOP OF CASING: 560'

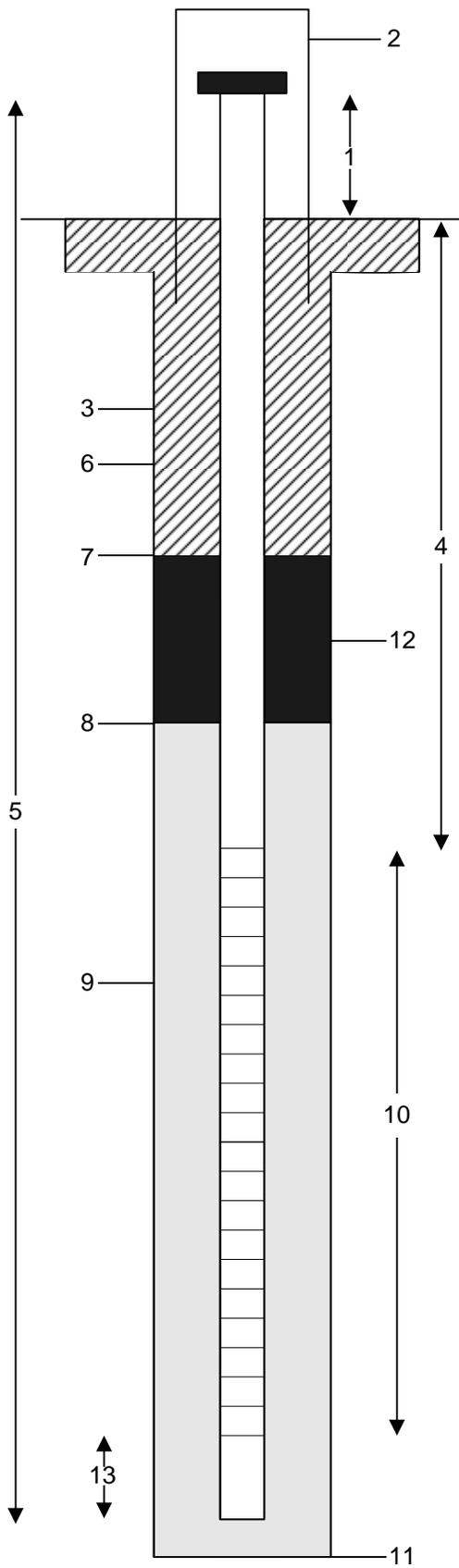
ELEVATION GROUND SURFACE: 557'

INSTALLATION DATE:
START: 4/28/05 COMPLETE: 4/28/05

WELL CONSTRUCTION DETAILS

1. HEIGHT OF CASING ABOVE GROUND: 3.0'
2. TYPE OF WELL PROTECTION: 4" X 4" X 5' STAND UP WELL COVER ON A 22" X 22" X 6" CONCRETE PAD
3. GROUT MIXTURE / METHOD OF PLACEMENT: NA
4. LENGTH OF RISER PIPE FROM GROUND SURFACE TO TOP OF SCREEN: 5.0'
5. TOTAL LENGTH OF PIPE: 63.0'
6. DIAMETER OF BORING / PVC WELL CASING AND SCREEN: NA / 1.0" SCHEDULE 40 PVC CASING AND 0.010" SLOT SCHEDULE 40 PVC SCREEN.
7. DEPTH TO TOP OF SEAL: 3.0'
8. DEPTH TO TOP OF FILTER PACK: 4.0'
9. TYPE OF FILTER PACK: #2 SAND
10. LENGTH OF SCREEN / DEPTH INTERVAL: 55.0' / 5.0' - 60.0'
11. BORING DEPTH: 61.0'
12. TYPE OF SEAL / QUANTITY USED: BENTONITE / NA
13. LENGTH OF SUMP: NA

COMMENTS:



NOT TO SCALE

MONITORING WELL COMPLETION FORM

HOLE NO.
GP-5

COMPANY NAME:
FORT BRAGG

SHEET 1
OF 1 SHEETS

DRILLING CONTRACTOR:
AMERICAN ENVIRONMENTAL DRILLING, INC.

PROJECT:
LAMONT LANDFILL

LOCATION:
FORT BRAGG, NORTH CAROLINA

NAME OF DRILLER / INSPECTOR:
L. MARTIN SHAVER

COORDINATES:
N35° 08.635' W079° 04.279'

ELEVATION TOP OF CASING: 448'

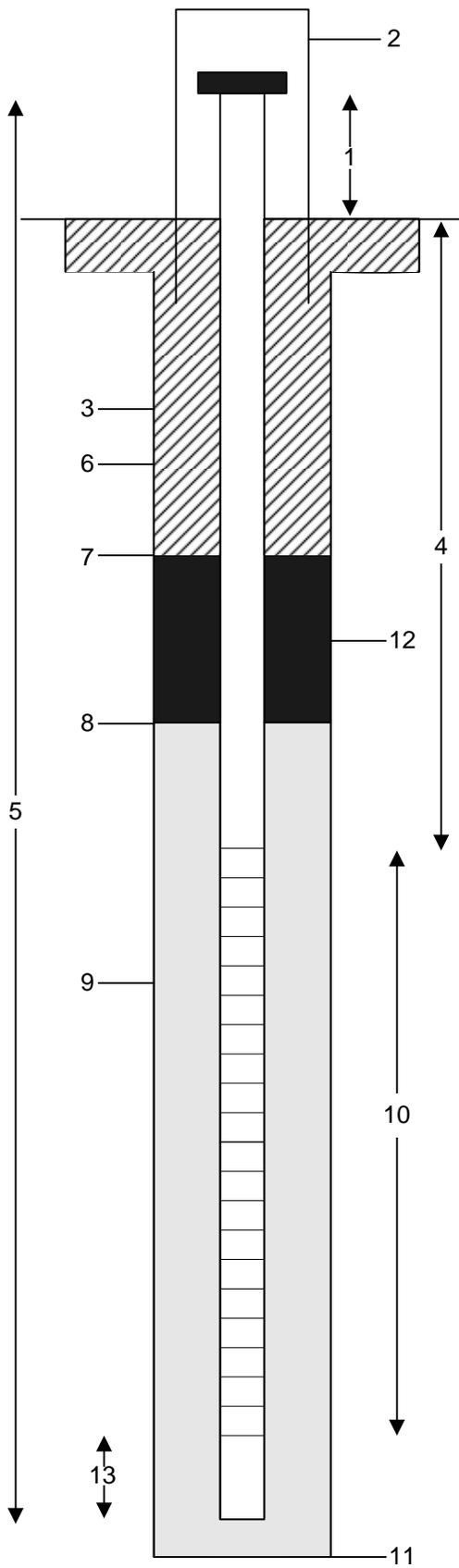
ELEVATION GROUND SURFACE: 445'

INSTALLATION DATE:
START: 4/28/05 COMPLETE: 4/28/05

WELL CONSTRUCTION DETAILS

1. HEIGHT OF CASING ABOVE GROUND: 3.0'
2. TYPE OF WELL PROTECTION: 4" X 4" X 5' STAND UP WELL COVER ON A 22" X 22" X 6" CONCRETE PAD
3. GROUT MIXTURE / METHOD OF PLACEMENT: NA
4. LENGTH OF RISER PIPE FROM GROUND SURFACE TO TOP OF SCREEN: 5.0'
5. TOTAL LENGTH OF PIPE: 63.0'
6. DIAMETER OF BORING / PVC WELL CASING AND SCREEN: NA / 1.0" SCHEDULE 40 PVC CASING AND 0.010" SLOT SCHEDULE 40 PVC SCREEN.
7. DEPTH TO TOP OF SEAL: 3.0'
8. DEPTH TO TOP OF FILTER PACK: 4.0'
9. TYPE OF FILTER PACK: #2 SAND
10. LENGTH OF SCREEN / DEPTH INTERVAL: 55.0' / 5.0' - 60.0'
11. BORING DEPTH: 61.0'
12. TYPE OF SEAL / QUANTITY USED: BENTONITE / NA
13. LENGTH OF SUMP: NA

COMMENTS:



NOT TO SCALE

MONITORING WELL COMPLETION FORM

HOLE NO.
GP-6

COMPANY NAME:
FORT BRAGG

SHEET 1
OF 1 SHEETS

DRILLING CONTRACTOR:
AMERICAN ENVIRONMENTAL DRILLING, INC.

PROJECT:
LAMONT LANDFILL

LOCATION:
FORT BRAGG, NORTH CAROLINA

NAME OF DRILLER / INSPECTOR:
L. MARTIN SHAVER

COORDINATES:
N35° 08.687' W079° 04.256'

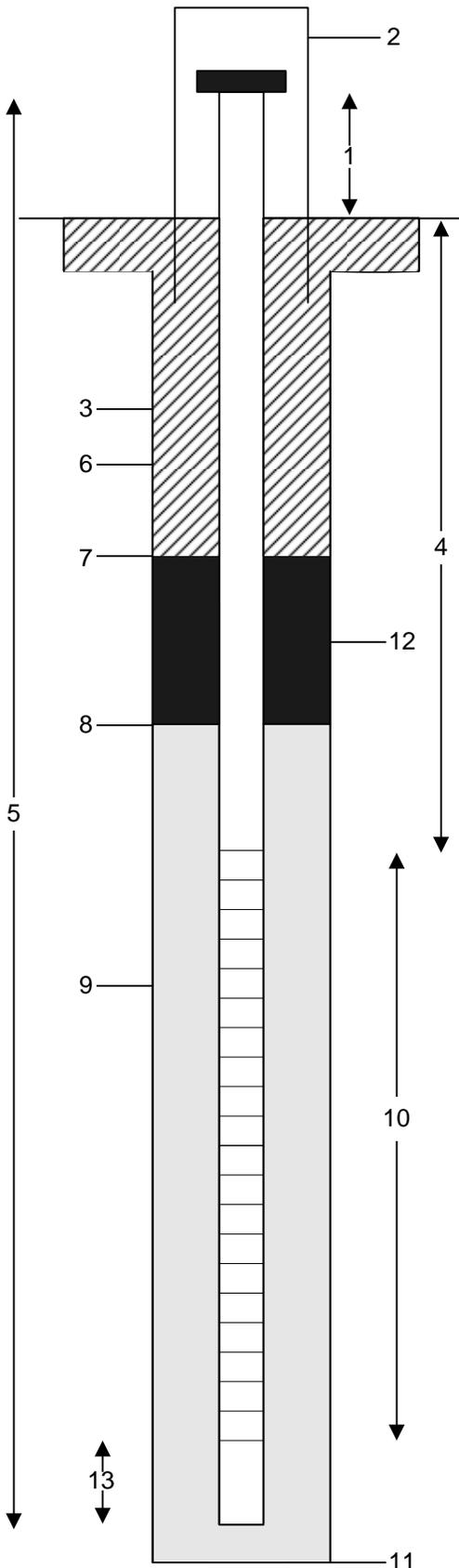
ELEVATION TOP OF CASING: 435'
ELEVATION GROUND SURFACE: 432'

INSTALLATION DATE:
START: 4/28/05 COMPLETE: 4/28/05

WELL CONSTRUCTION DETAILS

1. HEIGHT OF CASING ABOVE GROUND: 3.0'
2. TYPE OF WELL PROTECTION: 4" X 4" X 5' STAND UP WELL COVER ON A 22" X 22" X 6" CONCRETE PAD
3. GROUT MIXTURE / METHOD OF PLACEMENT: NA
4. LENGTH OF RISER PIPE FROM GROUND SURFACE TO TOP OF SCREEN: 5.0'
5. TOTAL LENGTH OF PIPE: 63.0'
6. DIAMETER OF BORING / PVC WELL CASING AND SCREEN: NA / 1.0" SCHEDULE 40 PVC CASING AND 0.010" SLOT SCHEDULE 40 PVC SCREEN.
7. DEPTH TO TOP OF SEAL: 3.0'
8. DEPTH TO TOP OF FILTER PACK: 4.0'
9. TYPE OF FILTER PACK: #2 SAND
10. LENGTH OF SCREEN / DEPTH INTERVAL: 55.0' / 5.0' – 60.0'
11. BORING DEPTH: 61.0'
12. TYPE OF SEAL / QUANTITY USED: BENTONITE / NA
13. LENGTH OF SUMP: NA

COMMENTS:



NOT TO SCALE

MONITORING WELL COMPLETION FORM

HOLE NO.
GP-7

COMPANY NAME:

FORT BRAGG

SHEET 1

OF 1 SHEETS

DRILLING CONTRACTOR:

AMERICAN ENVIRONMENTAL DRILLING, INC.

PROJECT:

LAMONT LANDFILL

LOCATION:

FORT BRAGG, NORTH CAROLINA

NAME OF DRILLER / INSPECTOR:

L. MARTIN SHAVER

COORDINATES:

N35° 08.801' W079° 04.277'

ELEVATION TOP OF CASING: 409'

ELEVATION GROUND SURFACE: 406'

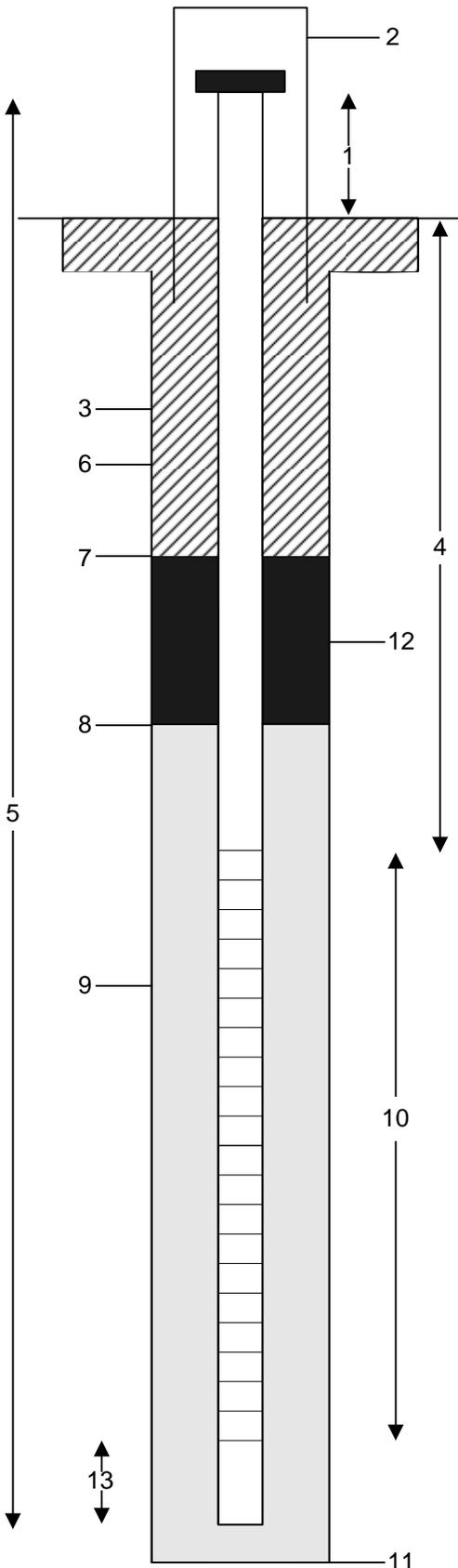
INSTALLATION DATE:

START: 4/28/05 COMPLETE: 4/28/05

WELL CONSTRUCTION DETAILS

1. HEIGHT OF CASING ABOVE GROUND: 3.0'
2. TYPE OF WELL PROTECTION: 4" X 4" X 5' STAND UP WELL COVER ON A 22" X 22" X 6" CONCRETE PAD
3. GROUT MIXTURE / METHOD OF PLACEMENT: NA
4. LENGTH OF RISER PIPE FROM GROUND SURFACE TO TOP OF SCREEN: 5.0'
5. TOTAL LENGTH OF PIPE: 63.0'
6. DIAMETER OF BORING / PVC WELL CASING AND SCREEN: NA / 1.0" SCHEDULE 40 PVC CASING AND 0.010" SLOT SCHEDULE 40 PVC SCREEN.
7. DEPTH TO TOP OF SEAL: 3.0'
8. DEPTH TO TOP OF FILTER PACK: 4.0'
9. TYPE OF FILTER PACK: #2 SAND
10. LENGTH OF SCREEN / DEPTH INTERVAL: 55.0' / 5.0' - 60.0'
11. BORING DEPTH: 61.0'
12. TYPE OF SEAL / QUANTITY USED: BENTONITE / NA
13. LENGTH OF SUMP: NA

COMMENTS:



NOT TO SCALE

MONITORING WELL COMPLETION FORM

HOLE NO.
GP-8

COMPANY NAME:
FORT BRAGG

SHEET 1
OF 1 SHEETS

DRILLING CONTRACTOR:
AMERICAN ENVIRONMENTAL DRILLING, INC.

PROJECT:
LAMONT LANDFILL

LOCATION:
FORT BRAGG, NORTH CAROLINA

NAME OF DRILLER / INSPECTOR:
L. MARTIN SHAVER

COORDINATES:
N35° 08.850' W079° 04.386'

ELEVATION TOP OF CASING: 456'

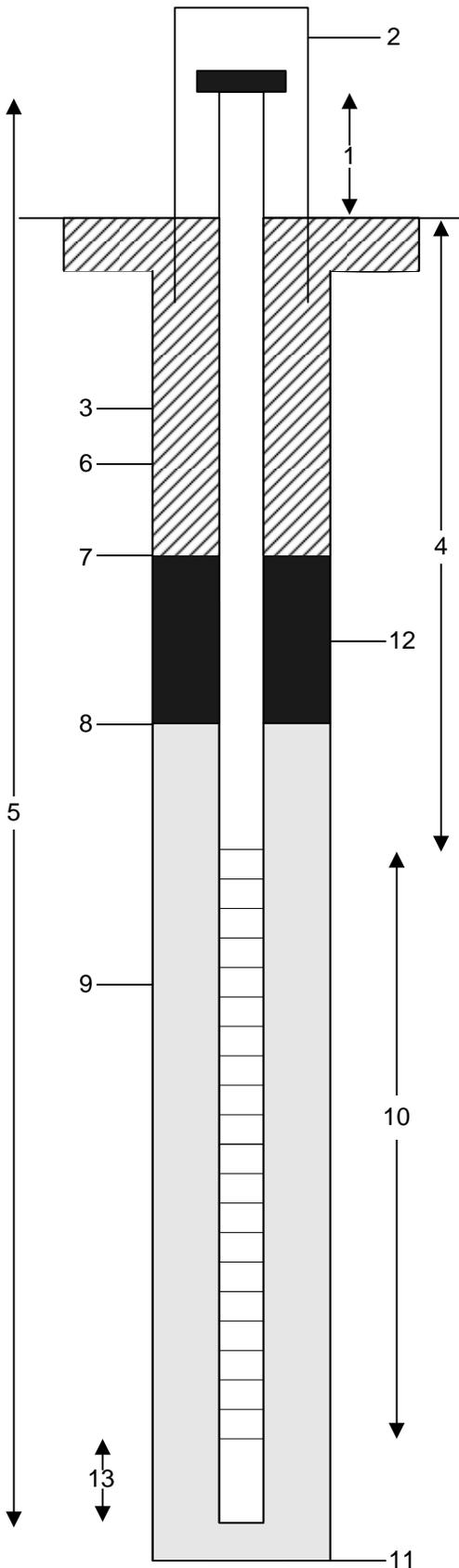
ELEVATION GROUND SURFACE: 453'

INSTALLATION DATE:
START: 4/28/05 COMPLETE: 4/28/05

WELL CONSTRUCTION DETAILS

1. HEIGHT OF CASING ABOVE GROUND: 3.0'
2. TYPE OF WELL PROTECTION: 4" X 4" X 5' STAND UP WELL COVER ON A 22" X 22" X 6" CONCRETE PAD
3. GROUT MIXTURE / METHOD OF PLACEMENT: NA
4. LENGTH OF RISER PIPE FROM GROUND SURFACE TO TOP OF SCREEN: 5.0'
5. TOTAL LENGTH OF PIPE: 33.0'
6. DIAMETER OF BORING / PVC WELL CASING AND SCREEN: NA / 1.0" SCHEDULE 40 PVC CASING AND 0.010" SLOT SCHEDULE 40 PVC SCREEN.
7. DEPTH TO TOP OF SEAL: 3.0'
8. DEPTH TO TOP OF FILTER PACK: 4.0'
9. TYPE OF FILTER PACK: #2 SAND
10. LENGTH OF SCREEN / DEPTH INTERVAL: 25.0' / 5.0' – 30.0'
11. BORING DEPTH: 31.0'
12. TYPE OF SEAL / QUANTITY USED: BENTONITE / NA
13. LENGTH OF SUMP: NA

COMMENTS:



NOT TO SCALE

MONITORING WELL COMPLETION FORM

HOLE NO.
GP-9

COMPANY NAME:

FORT BRAGG

SHEET 1

OF 1 SHEETS

DRILLING CONTRACTOR:

AMERICAN ENVIRONMENTAL DRILLING, INC.

PROJECT:

LAMONT LANDFILL

LOCATION:

FORT BRAGG, NORTH CAROLINA

NAME OF DRILLER / INSPECTOR:

L. MARTIN SHAVER

COORDINATES:

N35° 08.896'

W079° 04.573'

ELEVATION TOP OF CASING: 503'

ELEVATION GROUND SURFACE: 500'

INSTALLATION DATE:

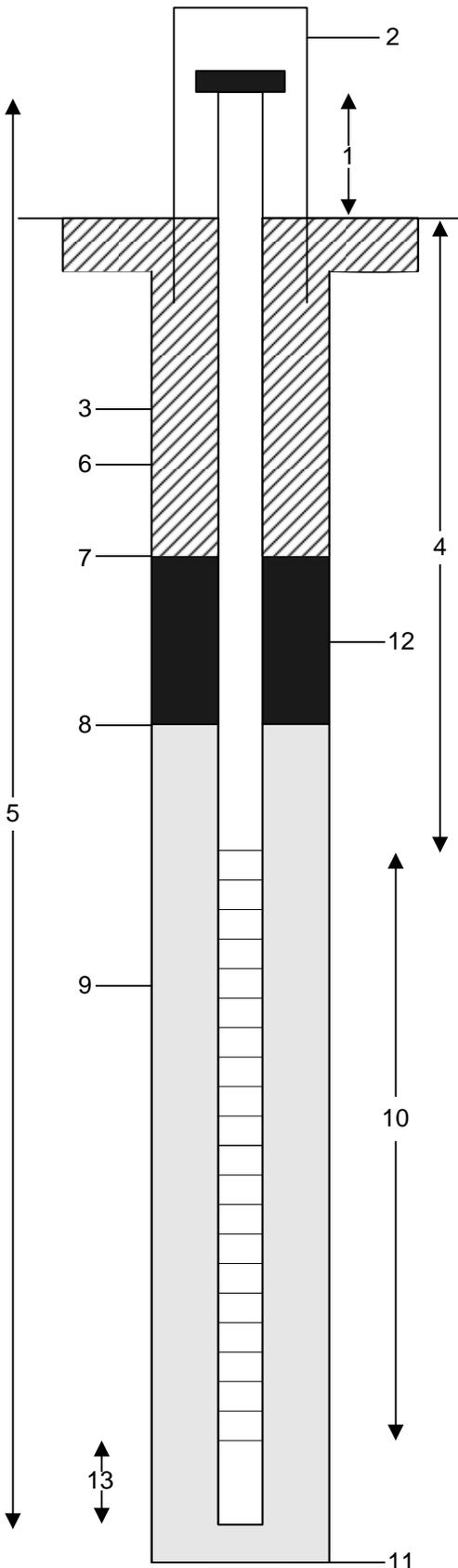
START: 4/28/05

COMPLETE: 4/28/05

WELL CONSTRUCTION DETAILS

1. HEIGHT OF CASING ABOVE GROUND: 3.0'
2. TYPE OF WELL PROTECTION: 4" X 4" X 5' STAND UP WELL COVER ON A 22" X 22" X 6" CONCRETE PAD
3. GROUT MIXTURE / METHOD OF PLACEMENT: NA
4. LENGTH OF RISER PIPE FROM GROUND SURFACE TO TOP OF SCREEN: 5.0'
5. TOTAL LENGTH OF PIPE: 33.0'
6. DIAMETER OF BORING / PVC WELL CASING AND SCREEN: NA / 1.0" SCHEDULE 40 PVC CASING AND 0.010" SLOT SCHEDULE 40 PVC SCREEN.
7. DEPTH TO TOP OF SEAL: 3.0'
8. DEPTH TO TOP OF FILTER PACK: 4.0'
9. TYPE OF FILTER PACK: #2 SAND
10. LENGTH OF SCREEN / DEPTH INTERVAL: 25.0' / 5.0' – 30.0'
11. BORING DEPTH 31.0'
12. TYPE OF SEAL / QUANTITY USED: BENTONITE / NA
13. LENGTH OF SUMP: NA

COMMENTS:



NOT TO SCALE

MONITORING WELL COMPLETION FORM

HOLE NO.

GP-10

COMPANY NAME:

FORT BRAGG

SHEET 1

OF 1 SHEETS

DRILLING CONTRACTOR:

AMERICAN ENVIRONMENTAL DRILLING, INC.

PROJECT:

LAMONT LANDFILL

LOCATION:

FORT BRAGG, NORTH CAROLINA

NAME OF DRILLER / INSPECTOR:

L. MARTIN SHAVER

COORDINATES:

N35° 08.856'

W079° 04.641'

ELEVATION TOP OF CASING: 322'

ELEVATION GROUND SURFACE: 319'

INSTALLATION DATE:

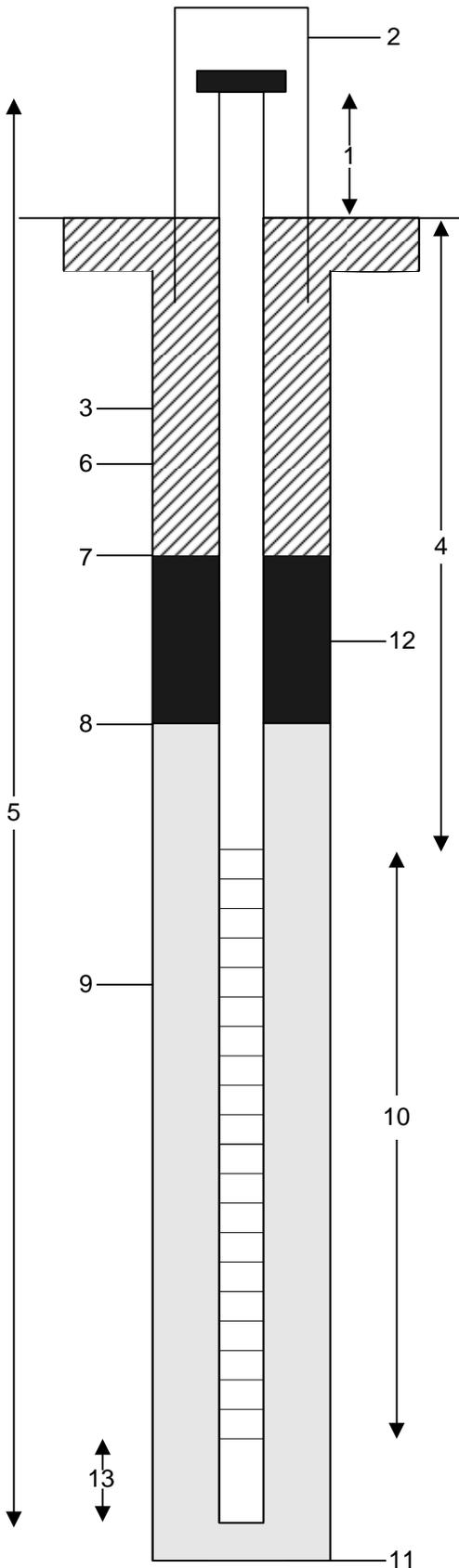
START: 4/28/05

COMPLETE: 4/28/05

WELL CONSTRUCTION DETAILS

1. HEIGHT OF CASING ABOVE GROUND: 3.0'
2. TYPE OF WELL PROTECTION: 4" X 4" X 5' STAND UP WELL COVER ON A 22" X 22" X 6" CONCRETE PAD
3. GROUT MIXTURE / METHOD OF PLACEMENT: NA
4. LENGTH OF RISER PIPE FROM GROUND SURFACE TO TOP OF SCREEN: 5.0'
5. TOTAL LENGTH OF PIPE: 33.0'
6. DIAMETER OF BORING / PVC WELL CASING AND SCREEN: NA / 1.0" SCHEDULE 40 PVC CASING AND 0.010" SLOT SCHEDULE 40 PVC SCREEN.
7. DEPTH TO TOP OF SEAL: 3.0'
8. DEPTH TO TOP OF FILTER PACK: 4.0'
9. TYPE OF FILTER PACK: #2 SAND
10. LENGTH OF SCREEN / DEPTH INTERVAL: 25.0' / 5.0' – 30.0'
11. BORING DEPTH: 31.0'
12. TYPE OF SEAL / QUANTITY USED: BENTONITE / NA
13. LENGTH OF SUMP: NA

COMMENTS:



NOT TO SCALE

MONITORING WELL COMPLETION FORM

HOLE NO.
GP-11

COMPANY NAME:
FORT BRAGG

SHEET 1
OF 1 SHEETS

DRILLING CONTRACTOR:
AMERICAN ENVIRONMENTAL DRILLING, INC.

PROJECT:
LAMONT LANDFILL

LOCATION:
FORT BRAGG, NORTH CAROLINA

NAME OF DRILLER / INSPECTOR:
L. MARTIN SHAVER

COORDINATES:
N35° 08.815' W079° 04.665'

ELEVATION TOP OF CASING: 386'

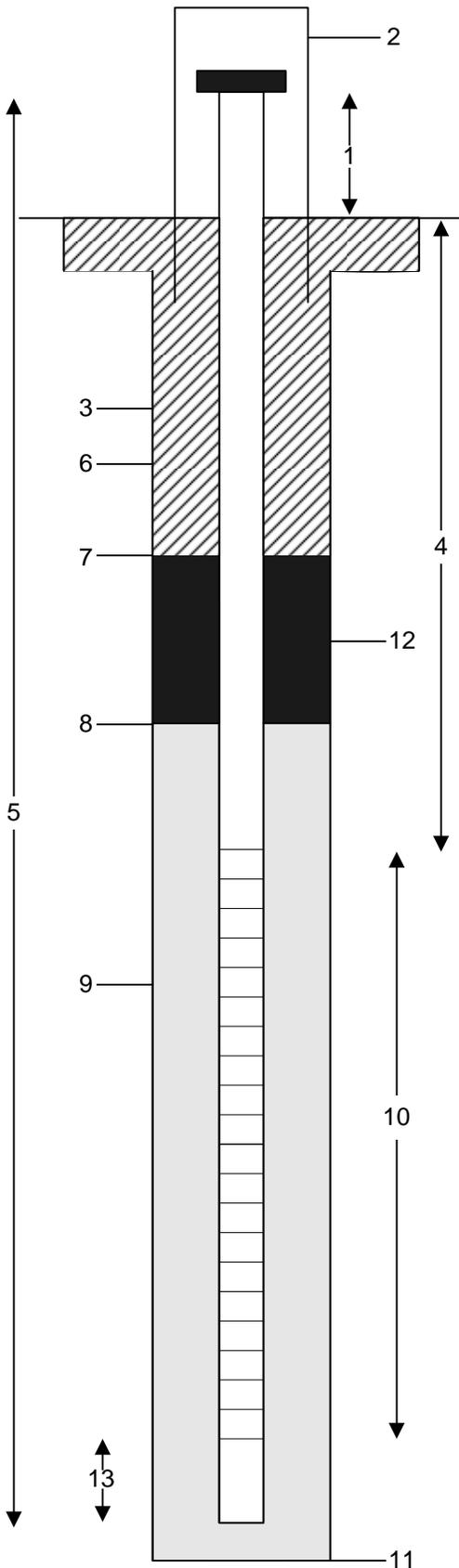
ELEVATION GROUND SURFACE: 383'

INSTALLATION DATE:
START: 4/28/05 COMPLETE: 4/28/05

WELL CONSTRUCTION DETAILS

1. HEIGHT OF CASING ABOVE GROUND: 3.0'
2. TYPE OF WELL PROTECTION: 4" X 4" X 5' STAND UP WELL COVER ON A 22" X 22" X 6" CONCRETE PAD
3. GROUT MIXTURE / METHOD OF PLACEMENT: NA
4. LENGTH OF RISER PIPE FROM GROUND SURFACE TO TOP OF SCREEN: 5.0'
5. TOTAL LENGTH OF PIPE: 33.0'
6. DIAMETER OF BORING / PVC WELL CASING AND SCREEN: NA / 1.0" SCHEDULE 40 PVC CASING AND 0.010" SLOT SCHEDULE 40 PVC SCREEN.
7. DEPTH TO TOP OF SEAL: 3.0'
8. DEPTH TO TOP OF FILTER PACK: 4.0'
9. TYPE OF FILTER PACK: #2 SAND
10. LENGTH OF SCREEN / DEPTH INTERVAL: 25.0' / 5.0' – 30.0'
11. BORING DEPTH: 31.0'
12. TYPE OF SEAL / QUANTITY USED: BENTONITE / NA
13. LENGTH OF SUMP: NA

COMMENTS:



NOT TO SCALE

MONITORING WELL COMPLETION FORM

HOLE NO.
GP-12

COMPANY NAME:
FORT BRAGG

SHEET 1
OF 1 SHEETS

DRILLING CONTRACTOR:
AMERICAN ENVIRONMENTAL DRILLING, INC.

PROJECT:
LAMONT LANDFILL

LOCATION:
FORT BRAGG, NORTH CAROLINA

NAME OF DRILLER / INSPECTOR:
L. MARTIN SHAVER

COORDINATES:
N35° 08.769' W079° 04.668'

ELEVATION TOP OF CASING: 365'

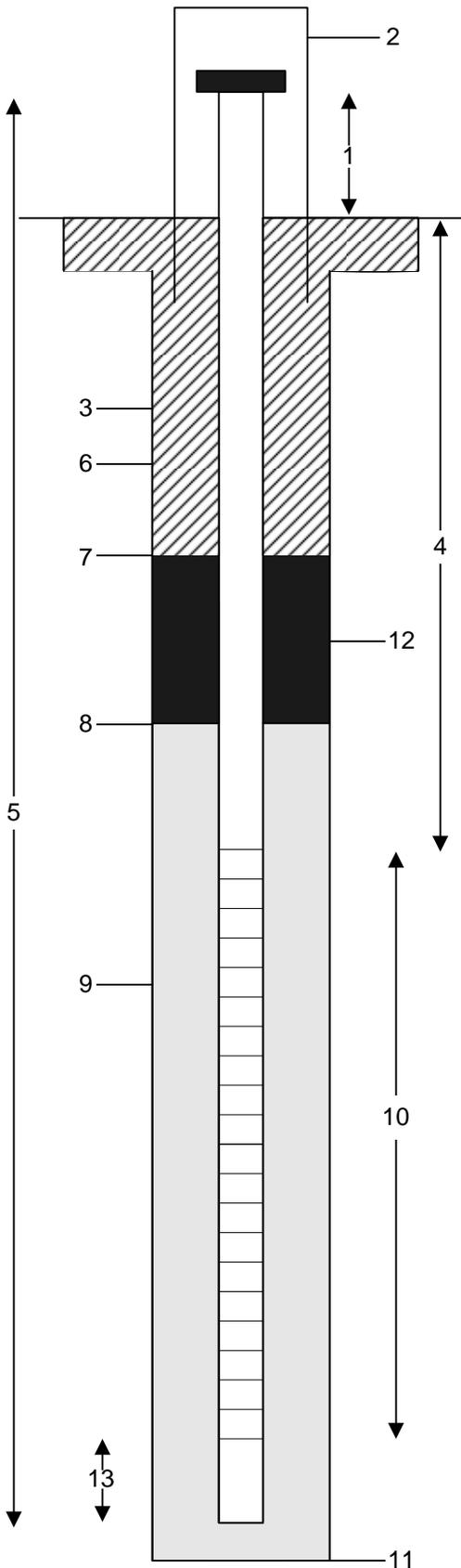
ELEVATION GROUND SURFACE: 362'

INSTALLATION DATE:
START: 4/28/05 COMPLETE: 4/28/05

WELL CONSTRUCTION DETAILS

1. HEIGHT OF CASING ABOVE GROUND: 3.0'
2. TYPE OF WELL PROTECTION: 4" X 4" X 5' STAND UP WELL COVER ON A 22" X 22" X 6" CONCRETE PAD
3. GROUT MIXTURE / METHOD OF PLACEMENT: NA
4. LENGTH OF RISER PIPE FROM GROUND SURFACE TO TOP OF SCREEN: 5.0'
5. TOTAL LENGTH OF PIPE: 33.0'
6. DIAMETER OF BORING / PVC WELL CASING AND SCREEN: NA / 1.0" SCHEDULE 40 PVC CASING AND 0.010" SLOT SCHEDULE 40 PVC SCREEN.
7. DEPTH TO TOP OF SEAL: 3.0'
8. DEPTH TO TOP OF FILTER PACK: 4.0'
9. TYPE OF FILTER PACK: #2 SAND
10. LENGTH OF SCREEN / DEPTH INTERVAL: 25.0' / 5.0' – 30.0'
11. BORING DEPTH: 31.0'
12. TYPE OF SEAL / QUANTITY USED: BENTONITE / NA
13. LENGTH OF SUMP: NA

COMMENTS:



NOT TO SCALE

MONITORING WELL COMPLETION FORM

HOLE NO.
GP-13

COMPANY NAME:
FORT BRAGG

SHEET 1
OF 1 SHEETS

DRILLING CONTRACTOR:
AMERICAN ENVIRONMENTAL DRILLING, INC.

PROJECT:
LAMONT LANDFILL

LOCATION:
FORT BRAGG, NORTH CAROLINA

NAME OF DRILLER / INSPECTOR:
L. MARTIN SHAVER

COORDINATES:
N35° 08.712' W079° 04.647'

ELEVATION TOP OF CASING: 380'

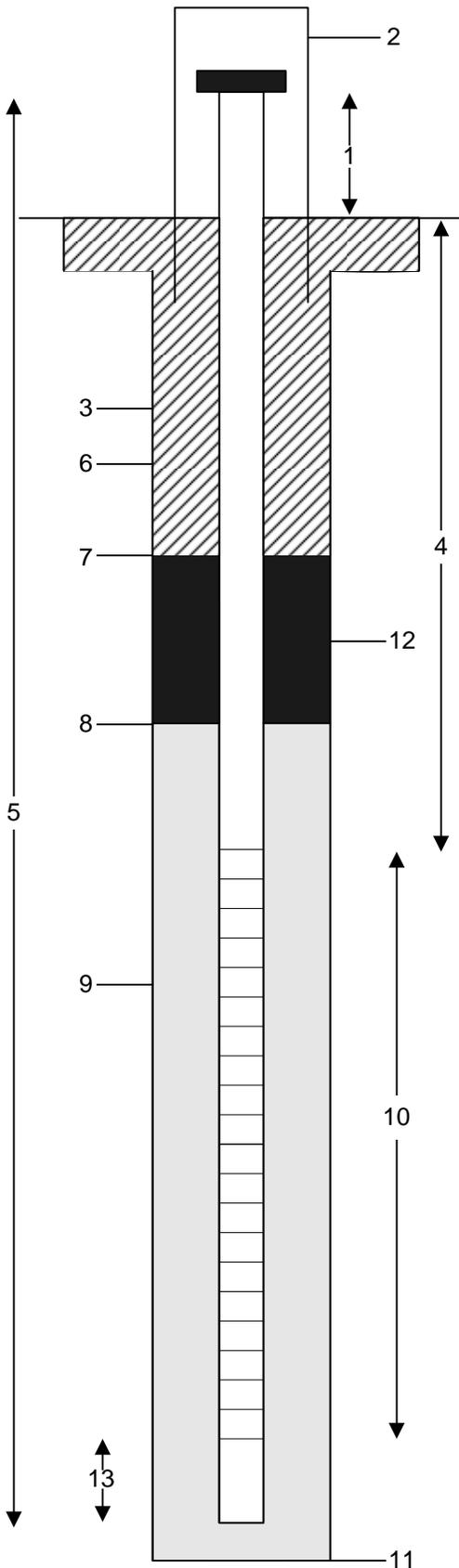
ELEVATION GROUND SURFACE: 377'

INSTALLATION DATE:
START: 4/28/05 COMPLETE: 4/28/05

WELL CONSTRUCTION DETAILS

1. HEIGHT OF CASING ABOVE GROUND: 3.0'
2. TYPE OF WELL PROTECTION: 4" X 4" X 5' STAND UP WELL COVER ON A 22" X 22" X 6" CONCRETE PAD
3. GROUT MIXTURE / METHOD OF PLACEMENT: NA
4. LENGTH OF RISER PIPE FROM GROUND SURFACE TO TOP OF SCREEN: 5.0'
5. TOTAL LENGTH OF PIPE: 33.0'
6. DIAMETER OF BORING / PVC WELL CASING AND SCREEN: NA / 1.0" SCHEDULE 40 PVC CASING AND 0.010" SLOT SCHEDULE 40 PVC SCREEN.
7. DEPTH TO TOP OF SEAL: 3.0'
8. DEPTH TO TOP OF FILTER PACK: 4.0'
9. TYPE OF FILTER PACK: #2 SAND
10. LENGTH OF SCREEN / DEPTH INTERVAL: 25.0' / 5.0' – 30.0'
11. BORING DEPTH: 31.0'
12. TYPE OF SEAL / QUANTITY USED: BENTONITE / NA
13. LENGTH OF SUMP: NA

COMMENTS:



NOT TO SCALE

VOS-146

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL NAME) (print) L. Martin Shaver CERTIFICATION #2986
WELL CONTRACTOR COMPANY NAME AMERICAN ENVIRONMENTAL DRILLING, INC PHONE # (910) 944-3140
STATE WELL CONSTRUCTION PERMIT # (if applicable) ASSOCIATED WQ PERMIT # (if applicable)

1. WELL USE (Check Applicable Box): Residential [] Municipal/Public [] Industrial [] Agricultural []
Monitoring [x] Recovery [] Heat Pump Water Injection [] Other [] If Other, List Use

2. WELL LOCATION:
Nearest Town: Fayetteville County Cumberland
Lamont Road
(Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
[] Ridge [x] Slope [] Valley [] Flat
(check appropriate box)

Latitude/longitude of well location
Elev. 377' N35°08.695' W079°04.657
(degrees/minutes/seconds)

Latitude/longitude source: [x] GPS [] Topographic map

3. OWNER: Director of public works US Army
Address: LCID & CND Landfill Lamont Road
(Street or Route No.)
Fort Bragg NC 28310
City or Town State Zip Code

DEPTH DRILLING LOG
Formation Description

Table with 3 columns: From, To, Formation Description. Rows include 0' to 9', 9' to 14', 14' to 16', and 16' to 30' with descriptions like Orange Sandy Clay, Tan Sandy Clay, Yellow Sandy Clay, and Orange Sandy Clay.

4. DATE DRILLED 4-28-2005

5. TOTAL DEPTH 30'

6. DOES WELL REPLACE EXISTING WELL? Yes [] No [x]

7. STATIC WATER LEVEL Below Top of Casing: N/A FT.
(Use "+" if Above Top of Casing)

8. TOP OF CASING IS 3' FT. Above Land Surface*
*Top of casing terminated at/below land surface requires a variance in accordance with 15A NCAC 2C .0118

9. YIELD (gpm) METHOD OF TEST

10. WATER ZONES (depth):

11. DISINFECTION: Type Amount

12. CASING:
From +3' To 5' Ft. 1" Diameter SCH40 Wall Thickness or Weight/Ft. Material PVC

LOCATION SKETCH

Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

GROUT:
From 0' To 3' Ft. Grout Material Method Pour
From 3' To 4' Ft. Bentonite Material Method Pour

13. SCREEN:
From 5' To 30' Ft. 1" in. .010 in. Diameter Slot Size Material PVC

14. SAND/GRAVEL PACK:
From 4' To 31' Ft. #2 Size Material Sand

15. REMARKS: GP#1

DO HERBY 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

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE 4-28-2005

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days. GW-1 REV. 07/2001

V05-146

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL NAME) (print) L. Martin Shaver CERTIFICATION #2986
WELL CONTRACTOR COMPANY NAME AMERICAN ENVIRONMENTAL DRILLING, INC PHONE # (919) 944-3140
STATE WELL CONSTRUCTION PERMIT # (if applicable) ASSOCIATED WQ PERMIT # (if applicable)

1. WELL USE (Check Applicable Box): Residential [] Municipal/Public [] Industrial [] Agricultural []
Monitoring [x] Recovery [] Heat Pump Water Injection [] Other [] If Other, List Use

2. WELL LOCATION:
Nearest Town: Fayetteville County Cumberland
Lamont Road
(Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
[] Ridge [x] Slope [] Valley [] Flat
(check appropriate box)
Latitude/longitude of well location
Elev. 397' N35*08.624' W079*04.503
(degrees/minutes/seconds)
Latitude/longitude source: [x] GPS [] Topographic map

3. OWNER: Director of public works US Army
Address: LCID & CND Landfill Lamont Road
(Fort Bragg NC 28310)
City or Town State Zip Code
Area Code- Phone number

Table with columns: DEPTH, DRILLING LOG, Formation Description. Rows show depth intervals (0-3', 3-7', 7-18', 18-25') and corresponding log entries (Fill Dirt, Orange Sandy Clay, Tannish Sandy Clay, Orange Sandy Clay).

4. DATE DRILLED 4-28-2005
5. TOTAL DEPTH 25'
6. DOES WELL REPLACE EXISTING WELL? Yes [] No [x]
7. STATIC WATER LEVEL Below Top of Casing: N/A FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3' FT. Above Land Surface*
*Top of casing terminated at/below land surface requires a variance in accordance with 15A NCAC 2C .0118
9. YIELD (gpm) METHOD OF TEST
10. WATER ZONES (depth):

11. DISINFECTION: Type Amount

12. CASING:
Depth Diameter Wall Thickness Material
From +3' To 5' Ft. 1" SCH40 PVC
From To Ft.
From To Ft.

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

GROUT:
Depth Material Method
From 0' To 3' Ft. Grout Pour
From 3' To 4' Ft. Bentonite Pour

13. SCREEN:
Depth Diameter Slot Size Material
From 5' To 25' Ft. 1" in. .010 in. PVC
From To Ft. in. in.

14. SAND/GRAVEL PACK:
Depth Size Material
From 4' To 26' Ft. #2 Sand
From To Ft.

15. REMARKS: GP#2

DO HERBY 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

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE 4-28-2005

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mall Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days. GW-1 REV. 07/2001

VOS-146

WELL CONSTRUCTION RECORD

North Carolina – Department of Environmental and Natural Resources – Division of Water Quality – Groundwater Section

WELL CONTRACTOR (INDIVIDUAL NAME) (print) L. Martin Shaver CERTIFICATION #2986
 WELL CONTRACTOR COMPANY NAME AMERICAN ENVIRONMENTAL DRILLING, INC PHONE # (910) 944-3140
 STATE WELL CONSTRUCTION PERMIT # _____ ASSOCIATED WQ PERMIT # _____
 (if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential Municipal/Public Industrial Agricultural
 Monitoring Recovery Heat Pump Water Injection Other If Other, List Use _____

2. WELL LOCATION:
 Nearest Town: Fayetteville County Cumberland
Lamont Road
 (Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting:
 Ridge Slope Valley Flat
 (check appropriate box)

3. OWNER: Director of public works US Army
 Address: LCID & CND Landfill Lamont Road
 (Street or Route No.)
Fort Bragg NC 28310
 City or Town State Zip Code

Latitude/longitude of well location
Elev 428' N35°08.554' W079°04.397'
 (degrees/minutes/seconds)

Latitude/longitude source: GPS Topographic map

() -
 Area Code- Phone number

4. DATE DRILLED 4-28-2005

5. TOTAL DEPTH 60'

6. DOES WELL REPLACE EXISTING WELL? Yes No

7. STATIC WATER LEVEL Below Top of Casing: N/A FT.
 (Use "+" if Above Top of Casing)

8. TOP OF CASING IS 3' FT. Above Land Surface*
 *Top of casing terminated at/below land surface requires a variance in accordance with 15A NCAC 2C .0118

9. YIELD (gpm) _____ METHOD OF TEST _____

10. WATER ZONES (depth): _____

11. DISINFECTION: Type _____ Amount _____

12. CASING:

From	To	Depth	Diameter	Wall Thickness	Material
From <u>+3'</u>	To <u>5'</u>	Ft. <u>1"</u>	<u>SCH40</u>	<u>PVC</u>	
From _____	To _____	Ft. _____	_____	_____	_____
From _____	To _____	Ft. _____	_____	_____	_____

GROUT:

From	To	Depth	Material	Method
From <u>0'</u>	To <u>3'</u>	Ft. <u>Grout</u>	<u>Bentonite</u>	<u>Pour</u>
From <u>3'</u>	To <u>4'</u>	Ft. _____	_____	_____

13. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
From <u>5'</u>	To <u>60'</u>	Ft. <u>1" in.</u>	<u>.010 in.</u>	<u>PVC</u>	
From _____	To _____	Ft. _____	_____	_____	_____

14. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
From <u>4'</u>	To <u>61'</u>	Ft. <u>#2</u>	<u>Sand</u>	
From _____	To _____	Ft. _____	_____	_____

15. REMARKS: GP#3

DO HERBY 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

L. Martin Shaver
 SIGNATURE OF PERSON CONSTRUCTING THE WELL

4-28-2005
 DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mall Service Center – Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days.

GW-1 REV. 07/2001

LOCATION SKETCH

Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

V05-146

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL NAME) (print) L. Martin Shaver CERTIFICATION #2986
WELL CONTRACTOR COMPANY NAME AMERICAN ENVIRONMENTAL DRILLING, INC PHONE # (919) 944-3140
STATE WELL CONSTRUCTION PERMIT # (if applicable) ASSOCIATED WQ PERMIT # (if applicable)

1. WELL USE (Check Applicable Box): Residential [] Municipal/Public [] Industrial [] Agricultural []
Monitoring [x] Recovery [] Heat Pump Water Injection [] Other [] If Other, List Use

2. WELL LOCATION:
Nearest Town: Fayetteville County Cumberland
Lamont Road
(Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
[] Ridge [x] Slope [] Valley [] Flat
(check appropriate box)

3. OWNER: Director of public works US Army
Address: LCID & CND Landfill Lamont Road
(Fort Bragg NC 28310)
City or Town State Zip Code

Latitude/longitude of well location
Elev. 557' N35*08.573' W079*04.282'
(degrees/minutes/seconds)

Latitude/longitude source: [] GPS [] Topographic map

() - Area Code- Phone number

4. DATE DRILLED 4-28-2005

5. TOTAL DEPTH 60'

6. DOES WELL REPLACE EXISTING WELL? Yes [] No [x]

7. STATIC WATER LEVEL Below Top of Casing: N/A FT.
(Use "+" if Above Top of Casing)

8. TOP OF CASING IS 3' FT. Above Land Surface*
*Top of casing terminated at/below land surface requires a variance in accordance with 15A NCAC 2C .0118

9. YIELD (gpm) METHOD OF TEST

10. WATER ZONES (depth):

Table with columns: DEPTH (From, To), DRILLING LOG (Formation Description). Rows include: 0' to 2' Fill Dirt; 2' to 19' Orange Sandy Clay; 19' to 36' Brown/Orange Sandy Clay; 36' to 60' Orange Sandy Clay.

11. DISINFECTION: Type Amount

12. CASING:
From +3' To 5' Depth Diameter Ft. 1" Wall Thickness SCH40 Material PVC

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

GROUT:
From 0' To 3' Depth Material Grout Method Pour
From 3' To 4' Depth Material Bentonite Method Pour

13. SCREEN:
From 5' To 60' Depth Diameter Ft. 1" in. Slot Size .010 in. Material PVC

14. SAND/GRAVEL PACK:
From 4' To 61' Depth Size #2 Material Sand

15. REMARKS: GP#4

DO HERBY 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

SIGNATURE OF PERSON CONSTRUCTING THE WELL

DATE 4-28-2005

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mall Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days.

GW-1 REV. 07/2001

V05-146

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL NAME) (print) L. Martin Shaver CERTIFICATION #2986
WELL CONTRACTOR COMPANY NAME AMERICAN ENVIRONMENTAL DRILLING, INC PHONE # (910) 944-3140
STATE WELL CONSTRUCTION PERMIT # (if applicable) ASSOCIATED WQ PERMIT # (if applicable)

1. WELL USE (Check Applicable Box): Residential [] Municipal/Public [] Industrial [] Agricultural []
Monitoring [x] Recovery [] Heat Pump Water Injection [] Other [] If Other, List Use

2. WELL LOCATION:
Nearest Town: Fayetteville County Cumberland
Lamont Road
(Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
[] Ridge [x] Slope [] Valley [] Flat
(check appropriate box)

Latitude/longitude of well location
Elev. 445' N35*08.635' W079*04.279'
(degrees/minutes/seconds)

3. OWNER: Director of public works US Army
Address: LCID & CND Landfill Lamont Road
Fort Bragg NC 28310
City or Town State Zip Code

Latitude/longitude source: [] GPS [] Topographic map

Table with columns: DEPTH, DRILLING LOG Formation Description. Rows: 0' to 2', 2' to 19', 19' to 36', 36' to 60'. Descriptions: Fill Dirt, Orange Sandy Clay, Brown/Orange Sandy Clay, Orange Sandy Clay.

() - Area Code- Phone number

4. DATE DRILLED 4-28-2005

5. TOTAL DEPTH 60'

6. DOES WELL REPLACE EXISTING WELL? Yes [] No [x]

7. STATIC WATER LEVEL Below Top of Casing: N/A FT.
(Use "+" if Above Top of Casing)

8. TOP OF CASING IS 3' FT. Above Land Surface*
*Top of casing terminated at/below land surface requires a variance in accordance with 15A NCAC 2C .0118

9. YIELD (gpm) METHOD OF TEST

10. WATER ZONES (depth):

11. DISINFECTION: Type Amount

12. CASING:
From +3' To 5' Ft. 1" Diameter Wall Thickness SCH40 Material PVC
From To Ft.
From To Ft.

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

GROUT:
From 0' To 3' Ft. Grout Material Method Pour
From 3' To 4' Ft. Bentonite Method Pour

13. SCREEN:
From 5' To 60' Ft. 1" in. Diameter Slot Size .010 in. Material PVC
From To Ft. in. in.

14. SAND/GRAVEL PACK:
From 4' To 61' Ft. #2 Size Sand Material
From To Ft.

15. REMARKS: GP#5

DO HERBY 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

SIGNATURE OF PERSON CONSTRUCTING THE WELL

DATE 4-28-2005

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mall Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days.

GW-1 REV. 07/2001

VOS-146

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL NAME) (print) L. Martin Shaver CERTIFICATION #2986
WELL CONTRACTOR COMPANY NAME AMERICAN ENVIRONMENTAL DRILLING, INC PHONE # (910) 944-3140
STATE WELL CONSTRUCTION PERMIT # (if applicable) ASSOCIATED WQ PERMIT # (if applicable)

1. WELL USE (Check Applicable Box): Residential [] Municipal/Public [] Industrial [] Agricultural []
Monitoring [x] Recovery [] Heat Pump Water Injection [] Other [] If Other, List Use

2. WELL LOCATION:
Nearest Town: Fayetteville County Cumberland
Lamont Road
(Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
[] Ridge [x] Slope [] Valley [] Flat
(check appropriate box)
Latitude/longitude of well location
Elev. 432' N35*08.687' W079*04.256'
(degrees/minutes/seconds)
Latitude/longitude source: [] GPS [] Topographic map

3. OWNER: Director of public works US Army
Address: LCID & CND Landfill Lamont Road
Fort Bragg NC 28310
City or Town State Zip Code
() -
Area Code- Phone number

Table with columns: DEPTH, DRILLING LOG, Formation Description. Rows show depth intervals from 0' to 60' and corresponding log descriptions like 'Fill Dirt', 'Orange Sandy Clay', 'Brown/Orange Sandy Clay'.

4. DATE DRILLED 4-28-2005
5. TOTAL DEPTH 60'
6. DOES WELL REPLACE EXISTING WELL? Yes [] No [x]
7. STATIC WATER LEVEL Below Top of Casing: N/A FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3' FT. Above Land Surface*
*Top of casing terminated at/below land surface requires a variance in accordance with 15A NCAC 2C .0118
9. YIELD (gpm) METHOD OF TEST
10. WATER ZONES (depth):

11. DISINFECTION: Type Amount

12. CASING:
From +3' To 5' Ft. 1" Diameter SCH40 Material PVC
From To Ft.
From To Ft.

GROUT:
From 0' To 3' Ft. Grout Material Pour Method
From 3' To 4' Ft. Bentonite Material Pour Method

13. SCREEN:
From 5' To 60' Ft. 1" in. Slot Size .010 in. Material PVC
From To Ft. in. in.

14. SAND/GRAVEL PACK:
From 4' To 61' Ft. #2 Size Sand Material
From To Ft.

15. REMARKS: GP#6

DO HERBY 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.

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE 4-28-2005

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days. GW-1 REV. 07/2001

VOS-146

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL NAME) (print) L. Martin Shaver CERTIFICATION #2986
 WELL CONTRACTOR COMPANY NAME AMERICAN ENVIRONMENTAL DRILLING, INC PHONE # (910) 944-3140
 STATE WELL CONSTRUCTION PERMIT # _____ ASSOCIATED WQ PERMIT # _____
 (if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential Municipal/Public Industrial Agricultural
 Monitoring Recovery Heat Pump Water Injection Other If Other, List Use _____

2. WELL LOCATION:
 Nearest Town: Fayetteville County Cumberland
Lamont Road
 (Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
 Ridge Slope Valley Flat
 (check appropriate box)

3. OWNER: Director of public works US Army
 Address: LCID & CND Landfill Lamont Road
 (Street or Route No.)

Latitude/longitude of well location
Elev. 406' N35°08.801' W079°04.277'
 (degrees/minutes/seconds)

Fort Bragg NC 28310
 City or Town State Zip Code

Latitude/longitude source: GPS Topographic map

() -
 Area Code- Phone number

4. DATE DRILLED 4-28-2005

5. TOTAL DEPTH 60'

6. DOES WELL REPLACE EXISTING WELL? Yes No

7. STATIC WATER LEVEL Below Top of Casing: N/A FT.
 (Use "+" if Above Top of Casing)

8. TOP OF CASING IS 3' FT. Above Land Surface*
 *Top of casing terminated at/below land surface requires a variance in accordance with 15A NCAC 2C .0118

9. YIELD (gpm) _____ METHOD OF TEST _____

10. WATER ZONES (depth): _____

DEPTH		DRILLING LOG
From	To	Formation Description
0'	2'	Fill Dirt
2'	19'	Orange Sandy Clay
19'	36'	Brown/Orange Sandy Clay
36'	60'	Orange Sandy Clay

11. DISINFECTION: Type _____ Amount _____

12. CASING:

From	To	Depth	Diameter	Wall Thickness	Material
			Ft. or Weight/Ft.		
From +3'	To 5'	Depth	1"	SCH40	PVC
From _____	To _____				
From _____	To _____				

LOCATION SKETCH

Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

GROUT:

From	To	Depth	Material	Method
From 0'	To 3'	Depth	Grout	Pour
From 3'	To 4'	Depth	Bentonite	Pour

13. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
			Ft. or in.	in.	
From 5'	To 60'	Depth	1" in.	.010 in.	PVC
From _____	To _____				

14. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
From 4'	To 61'	Depth	#2	Sand
From _____	To _____			

15. REMARKS: GP#7

DO HERBY 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

[Signature] 4-28-2005
 SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mall Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days. GW-1 REV. 07/2001

V05-146

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL NAME) (print) L. Martin Shaver CERTIFICATION #2986
WELL CONTRACTOR COMPANY NAME AMERICAN ENVIRONMENTAL DRILLING, INC. PHONE # (910) 944-3140
STATE WELL CONSTRUCTION PERMIT # ASSOCIATED WQ PERMIT #

1. WELL USE (Check Applicable Box): Residential [] Municipal/Public [] Industrial [] Agricultural []
Monitoring [x] Recovery [] Heat Pump Water Injection [] Other [] If Other, List Use

2. WELL LOCATION:
Nearest Town: Fayetteville County Cumberland
Lamont Road
(Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
[] Ridge [x] Slope [] Valley [] Flat
Latitude/longitude of well location
Elev. 453' N35*08.850' W079*04.386
Latitude/longitude source: [x] GPS [] Topographic map

3. OWNER: Director of public works US Army
Address: LCID & CND Landfill Lamont Road
Fort Bragg NC 28310
City or Town State Zip Code

Table with columns: DEPTH, DRILLING LOG, Formation Description. Rows show depth intervals from 0' to 30' and corresponding formation types like Orange Sandy Clay, Tan Sandy Clay, Yellow Sandy Clay.

4. DATE DRILLED 4-28-2005
5. TOTAL DEPTH 30'
6. DOES WELL REPLACE EXISTING WELL? Yes [] No [x]
7. STATIC WATER LEVEL Below Top of Casing: N/A FT
8. TOP OF CASING IS 3' FT. Above Land Surface*

11. DISINFECTION: Type Amount
12. CASING: Depth Diameter Wall Thickness Material

GROUT: Depth Material Method
From 0' To 3' Ft. Grout Pour
From 3' To 4' Ft. Bentonite Pour

13. SCREEN: Depth Diameter Slot Size Material
From 5' To 30' Ft. 1" in. .010 in. PVC

14. SAND/GRAVEL PACK: Depth Size Material
From 4' To 31' Ft. #2 Sand

15. REMARKS: GP#8

DO HERBY 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

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE 4-28-2005

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days. GW-1 REV. 07/2001

V05-146

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL NAME) (print) L. Martin Shaver CERTIFICATION #2986
 WELL CONTRACTOR COMPANY NAME AMERICAN ENVIRONMENTAL DRILLING, INC PHONE # (919) 944-3140
 STATE WELL CONSTRUCTION PERMIT # _____ ASSOCIATED WQ PERMIT # _____
 (if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential Municipal/Public Industrial Agricultural
 Monitoring Recovery Heat Pump Water Injection Other If Other, List Use _____

2. WELL LOCATION:
 Nearest Town: Fayetteville County Cumberland
Lamont Road
 (Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
 Ridge Slope Valley Flat
 (check appropriate box)

3. OWNER: Director of public works US Army
 Address: LCID & CND Landfill Lamont Road
 (Street or Route No.)

Latitude/longitude of well location
Elev. 500' N35°08.896' W079°04.573
 (degrees/minutes/seconds)

Fort Bragg NC 28310
 City or Town State Zip Code

Latitude/longitude source: GPS Topographic map

() - _____
 Area Code- Phone number

4. DATE DRILLED 4-28-2005

5. TOTAL DEPTH 30'

6. DOES WELL REPLACE EXISTING WELL? Yes No

7. STATIC WATER LEVEL Below Top of Casing: N/A FT.
 (Use "+" if Above Top of Casing)

8. TOP OF CASING IS 3' FT. Above Land Surface*
 *Top of casing terminated at/below land surface requires a variance in accordance with 15A NCAC 2C .0118

9. YIELD (gpm) _____ METHOD OF TEST _____

10. WATER ZONES (depth): _____

11. DISINFECTION: Type _____ Amount _____

12. CASING:

From	To	Depth	Diameter	Wall Thickness or Weight/Ft.	Material
From +3'	To 5'	Ft. 1"	SCH40	PVC	
From _____	To _____	Ft. _____	_____	_____	
From _____	To _____	Ft. _____	_____	_____	

DEPTH		DRILLING LOG
From	To	Formation Description
0'	9'	Orange Sandy Clay
9'	14'	Tan Sandy Clay
14'	16'	Yellow Sandy Clay
16'	30'	Orange Sandy Clay
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

GROUT:

From	To	Depth	Material	Method
From 0'	To 3'	Ft. Grout	Bentonite	Pour
From 3'	To 4'	Ft. Bentonite	_____	Pour

13. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
From 5'	To 30'	Ft. 1" in.	.010 in.	PVC	
From _____	To _____	Ft. _____ in.	_____ in.	_____	

14. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
From 4'	To 31'	Ft. #2	Sand	_____
From _____	To _____	Ft. _____	_____	_____

15. REMARKS: GP#9

DO HERBY 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

L. Martin Shaver
 SIGNATURE OF PERSON CONSTRUCTING THE WELL

4-28-2005
 DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mall Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days.

GW-1 REV. 07/2001

U05-146

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL NAME) (print) L. Martin Shaver CERTIFICATION #2986
 WELL CONTRACTOR COMPANY NAME AMERICAN ENVIRONMENTAL DRILLING, INC PHONE # (910) 944-3140
 STATE WELL CONSTRUCTION PERMIT # _____ ASSOCIATED WQ PERMIT # _____
 (if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential Municipal/Public Industrial Agricultural
 Monitoring Recovery Heat Pump Water Injection Other If Other, List Use _____

2. WELL LOCATION:
 Nearest Town: Fayetteville County Cumberland
Lamont Road
 (Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
 Ridge Slope Valley Flat
 (check appropriate box)

3. OWNER: Director of public works US Army
 Address: LCID & CND Landfill Lamont Road
 (Street or Route No.)
Fort Bragg NC 28310
 City or Town State Zip Code

Latitude/longitude of well location
Elev. 319' N35°08.856' W079°04.641
 (degrees/minutes/seconds)

Latitude/longitude source: GPS Topographic map

4. DATE DRILLED 4-28-2005

5. TOTAL DEPTH 30'

6. DOES WELL REPLACE EXISTING WELL? Yes No

7. STATIC WATER LEVEL Below Top of Casing: N/A FT.
 (Use "+" if Above Top of Casing)

8. TOP OF CASING IS 3' FT. Above Land Surface*
 *Top of casing terminated at/below land surface requires a variance in accordance with 15A NCAC 2C .0118

9. YIELD (gpm) _____ METHOD OF TEST _____

10. WATER ZONES (depth): _____

11. DISINFECTION: Type _____ Amount _____

12. CASING:
 From +3' To 5' Ft. 1" Diameter SCH40 Wall Thickness or Weight/Pt. PVC Material

GROUT:
 From 0' To 3' Ft. Grout Material Pour Method
 From 3' To 4' Ft. Bentonite Pour

13. SCREEN:
 From 5' To 30' Ft. 1" Diameter .010 Slot Size PVC Material
 From _____ To _____ Ft. _____ in. _____ in.

14. SAND/GRAVEL PACK:
 From 4' To 31' Ft. #2 Size Sand Material
 From _____ To _____ Ft. _____ _____

DEPTH		DRILLING LOG
From	To	Formation Description
0'	9'	Orange Sandy Clay
9'	14'	Tan Sandy Clay
14'	16'	Yellow Sandy Clay
16'	30'	Orange Sandy Clay

LOCATION SKETCH
 Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

15. REMARKS: GP#10

DO HERBY 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

L. Martin Shaver SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE 4-28-2005

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mall Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days. GW-1 REV. 07/2001

VOS-146

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL NAME) (print) L. Martin Shaver CERTIFICATION #2986
 WELL CONTRACTOR COMPANY NAME AMERICAN ENVIRONMENTAL DRILLING, INC PHONE # (910) 944-3140
 STATE WELL CONSTRUCTION PERMIT # _____ ASSOCIATED WQ PERMIT # _____
 (if applicable) (if applicable)

1. WELL USE (Check Applicable Box): Residential Municipal/Public Industrial Agricultural
 Monitoring Recovery Heat Pump Water Injection Other If Other, List Use _____

2. WELL LOCATION:
 Nearest Town: Fayetteville County Cumberland
Lamont Road
 (Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
 Ridge Slope Valley Flat
 (check appropriate box)
 Latitude/longitude of well location
Elev 383' N35°08.815' W079°04.665
 (degrees/minutes/seconds)
 Latitude/longitude source: GPS Topographic map

3. OWNER: Director of public works US Army
 Address: LCID & CND Landfill Lamont Road
 (Street or Route No.)
Fort Bragg NC 28310
 City or Town State Zip Code
 () -
 Area Code- Phone number

4. DATE DRILLED 4-28-2005
 5. TOTAL DEPTH 30'
 6. DOES WELL REPLACE EXISTING WELL? Yes No
 7. STATIC WATER LEVEL Below Top of Casing: N/A FT.
 (Use "+" if Above Top of Casing)
 8. TOP OF CASING IS 3' FT. Above Land Surface*
 *Top of casing terminated at/below land surface requires a variance in accordance with 15A NCAC 2C .0118

DEPTH		DRILLING LOG
From	To	Formation Description
0'	9'	Orange Sandy Clay
9'	14'	Tan Sandy Clay
14'	16'	Yellow Sandy Clay
16'	30'	Orange Sandy Clay

9. YIELD (gpm) _____ METHOD OF TEST _____
 10. WATER ZONES (depth): _____

11. DISINFECTION: Type _____ Amount _____

12. CASING:

From	To	Depth	Diameter	Wall Thickness	Material
From +3'	To 5'	Ft. 1"	SCH40	PVC	
From _____	To _____	Ft. _____	_____	_____	_____
From _____	To _____	Ft. _____	_____	_____	_____

GROUT:

From	To	Depth	Material	Method
From 0'	To 3'	Ft. Grout	Pour	
From 3'	To 4'	Ft. Bentonite	Pour	

13. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
From 5'	To 30'	Ft. 1" in.	.010 in.	PVC	
From _____	To _____	Ft. _____ in.	_____ in.	_____	_____

14. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
From 4'	To 31'	Ft. #2	Sand	
From _____	To _____	Ft. _____	_____	_____

15. REMARKS: GP#11

DO HERBY 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

L. Martin Shaver 4-28-2005
 SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days. GW-1 REV. 07/2001

V05-146

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL NAME) (print) L. Martin Shaver CERTIFICATION #2986
WELL CONTRACTOR COMPANY NAME AMERICAN ENVIRONMENTAL DRILLING, INC PHONE # (910) 944-3140
STATE WELL CONSTRUCTION PERMIT # (if applicable) ASSOCIATED WQ PERMIT # (if applicable)

1. WELL USE (Check Applicable Box): Residential [] Municipal/Public [] Industrial [] Agricultural []
Monitoring [x] Recovery [] Heat Pump Water Injection [] Other [] If Other, List Use

2. WELL LOCATION:
Nearest Town: Fayetteville County Cumberland
Lamont Road
(Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
[] Ridge [x] Slope [] Valley [] Flat
Latitude/longitude of well location
Elev. 362' N35°08.769' W079°04.668
Latitude/longitude source: [x] GPS [] Topographic map

3. OWNER: Director of public works US Army
Address: LCID & CND Landfill Lamont Road
Fort Bragg NC 28310
City or Town State Zip Code

Table with columns: DEPTH, DRILLING LOG, Formation Description. Rows show depth intervals (0-9, 9-14, 14-16, 16-30) and corresponding formation types (Orange Sandy Clay, Tan Sandy Clay, Yellow Sandy Clay, Orange Sandy Clay).

4. DATE DRILLED 4-28-2005
5. TOTAL DEPTH 30'
6. DOES WELL REPLACE EXISTING WELL? Yes [] No [x]
7. STATIC WATER LEVEL Below Top of Casing: N/A FT.
8. TOP OF CASING IS 3' FT. Above Land Surface*
9. YIELD (gpm) METHOD OF TEST
10. WATER ZONES (depth):

11. DISINFECTION: Type Amount

12. CASING:
From +3' To 5' Ft. 1" Diameter or Weight/Ft. SCH40 Wall Thickness Material PVC

GROUT:
From 0' To 3' Ft. Grout Material Method Pour
From 3' To 4' Ft. Bentonite Method Pour

13. SCREEN:
From 5' To 30' Ft. 1" in. Slot Size .010 in. Material PVC

14. SAND/GRAVEL PACK:
From 4' To 31' Ft. #2 Size Material Sand

15. REMARKS: GP#12

DO HERBY 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

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE 4-28-2005

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days. GW-1 REV. 07/2001

V05-146

WELL CONSTRUCTION RECORD

North Carolina - Department of Environmental and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL NAME) (print) L. Martin Shaver CERTIFICATION #2986
WELL CONTRACTOR COMPANY NAME AMERICAN ENVIRONMENTAL DRILLING, INC PHONE # (910) 944-3140
STATE WELL CONSTRUCTION PERMIT # (if applicable) ASSOCIATED WQ PERMIT # (if applicable)

1. WELL USE (Check Applicable Box): Residential [] Municipal/Public [] Industrial [] Agricultural []
Monitoring [x] Recovery [] Heat Pump Water Injection [] Other [] If Other, List Use

2. WELL LOCATION:
Nearest Town: Fayetteville County Cumberland
Lamont Road
(Street Name, Number, Community, Subdivision, Lot No., Zip Code)

Topographic/Land setting
[] Ridge [x] Slope [] Valley [] Flat
(check appropriate box)

Latitude/longitude of well location
Elev. 377' N35*08.712' W079*04.647
(degrees/minutes/seconds)

3. OWNER: Director of public works US Army
Address: LCID & CND Landfill Lamont Road
(Street or Route No.)
Fort Bragg NC 28310
City or Town State Zip Code
() -
Area Code- Phone number

Latitude/longitude source: [x] GPS [] Topographic map

4. DATE DRILLED 4-28-2005

5. TOTAL DEPTH 30'

6. DOES WELL REPLACE EXISTING WELL? Yes [] No [x]

7. STATIC WATER LEVEL Below Top of Casing: N/A FT.
(Use "+" if Above Top of Casing)

8. TOP OF CASING IS 3' FT. Above Land Surface*
*Top of casing terminated at/below land surface requires a variance in accordance with 15A NCAC 2C .0118

9. YIELD (gpm) METHOD OF TEST

10. WATER ZONES (depth):

Table with columns: DEPTH, DRILLING LOG, Formation Description. Rows show depth intervals (0-9, 9-14, 14-16, 16-30) and corresponding soil types (Orange Sandy Clay, Tan Sandy Clay, Yellow Sandy Clay, Orange Sandy Clay).

11. DISINFECTION: Type Amount

12. CASING:
From +3' To 5' Ft. 1" Diameter SCH40 Wall Thickness Material PVC
From To Ft.
From To Ft.

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

GROUT:
From 0' To 3' Ft. Grout Material Method Pour
From 3' To 4' Ft. Bentonite Method Pour

13. SCREEN:
From 5' To 30' Ft. 1" in. Diameter 010 in. Slot Size Material PVC
From To Ft. in. in.

14. SAND/GRAVEL PACK:
From 4' To 31' Ft. #2 Size Material Sand
From To Ft.

15. REMARKS: GP#13

DO HERBY 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

SIGNATURE OF PERSON CONSTRUCTING THE WELL

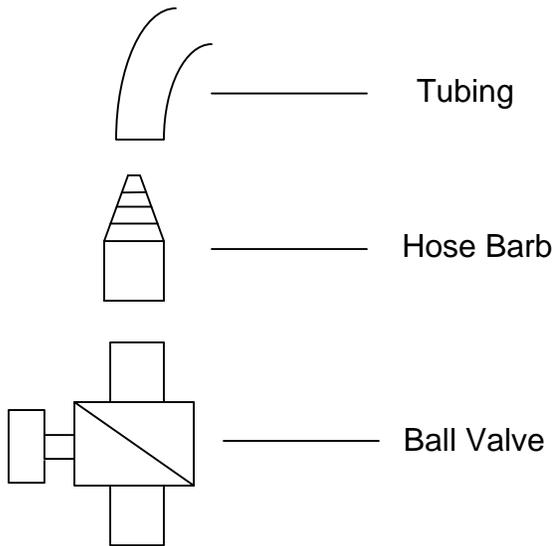
4-28-2005 DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 733-3221, within 30 days.

GW-1 REV. 07/2001

ATTACHMENT D - STOPCOCK DIAGRAM

Generalized Schematic for Methane Well Cap



Long Stem Mechanical Test Plug with Bypass

Specifications:

Height: 10 in

Diameter: 1.75 to 2.25 in

Bypass: 0.5 in

Material: Cast Iron

Drawing not to scale

ATTACHMENT E - EXAMPLE FIELD FORM

Periodic Methane Monitoring Report

Monitoring Date:		Facility Name:	Lamont Road LCID and C&D Landfills
Facility Permit #'s:	#26G and #26-08	Monitoring Personnel (Name/Position):	
NC Landfill Rule:	0.0500	Monitoring Personnel (Name/Position):	
County (Location):	Cumberland	Equipment Field Calibrated by:	
Equipment Type:		Manufacturer Cal/Service Date:	
Equipment Serial #:		Date/Time of Field Calibration:	
Calibration Gas:		Cal Gas Expiration Date:	
Meter pump rate:			

Gas Monitoring Wells

Monitoring Point ID	Time	Initial %CH4	Initial %LEL	Purge Time	Stable %CH4	Stable %LEL	Stable %O2	Stable %CO2
GP-1								
GP-2								
GP-3								
GP-4								
GP-5								
GP-6								
GP-7								
GP-8								
GP-9								
GP-10								
GP-11								
GP-12								
GP-13								

Notes:

Facility Structures

Monitoring Point ID	Time	Initial %CH4	Initial %LEL	Purge Time	Stable %CH4	Stable %LEL	Stable %O2	Stable %CO2
Office								
Scale House								
O-3533								

Drawings identifying location where each building sampled (include north arrow):

Office	Scale House	O-3533
		

Climatic/Physical Conditions at Site

Samples must be collected under normal/average conditions of temperature, pressure, and climate for the season. Barhole punch sampling should not be performed during or immediately after rain events, or when soils are saturated or frozen. **All sampling must be performed after 12:00 pm** (subsurface gases have a diurnal cycle and generally are at a maximum during the afternoon), and preferably when barometric conditions are not rising (subsurface gas pressures will be less than atmospheric pressure under these conditions and gas will therefore not migrate), or representative samples may not be obtained. Barometric information can be obtained from many locations (i.e. <http://weather.noaa.gov>).

a. Soil Conditions: _____

b. Weather Conditions: _____

c. Temperature: _____

d. Barometric Conditions: Rising Falling Steady x Reading mmHg

e. Relative Humidity within range of 10%-90%? Value: _____

f. Condition and Access: Are all monitoring points identified in the field (signage) in accordance with approved monitoring plan; are they secured; has the owner/operator maintained access?

If no, explain in space provided below.

g. If stressed vegetation is noted, describe the extent and location in the space provided below.

Description of Sampling Techniques: (e.g., wells are vented or not, barhole punch methodology, etc.)

Additional Comments:

Certification:

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of a fine and imprisonment.

SIGNATURE

TITLE