

October 2, 2015

Mr. Ming-Tai Chao, P.E., Engineer
North Carolina DENR, Division of Waste Management
217 West Jones Street
Raleigh, North Carolina 27603

Permit No.	Date	Document ID No.
9606	October 26, 2015,	25197

Received by a hand delivery
Date: **October 21, 2015**
Solid Waste Section
Raleigh Central Office

RE: **Construction Record – Wayne County Landfill**
2015 Gas Collection System Modifications
Unit 1/Unit 3, Phase I & Phase 3

Dear Mr. Chao:

Smith + Gardner (S+G) would like to submit documentation of the construction activities performed during modification of the landfill gas collection and control system (GCCS) at Unit 1/Unit 3 Phase1 & Phase 3 of the Wayne County Landfill, located in Dudley, North Carolina in accordance with the submitted Landfill Gas Collection & Control System Design Plan¹, dated October 2012. To provide appropriate documentation as required by the Letter of Authorization² received from Ming-Tai Chao, P.E. (NCDENR-DWM), the following is provided:

S+G performed the following Construction Quality Assurance (CQA) duties during this landfill gas (LFG) system modification project:

- Provided on-site CQA representation to ensure proper LFG extraction well re-drilling and installation.
- Provided on-site CQA representation during lateral and other conveyance pipe installation, including pressure testing and tie-ins to existing pipelines.
- Provided correspondence and approvals from the Dept. of Health and Human Services in relation to the approved asbestos work plan;
- Performed surveying services through a qualified subconsultant to S+G.

MP Wayne, LLC contracted with Biogas Energy Solutions, LLC (BES) to perform the LFG system modifications. A brief project description and supporting documentation is presented below. Photographic documentation of the project is provided in **Attachment A**.

¹ Landfill Gas Collection & Control System Design Plan – Wayne County MSW Landfill. Submitted by Smith + Gardner, Inc., July 2012.

² Authorization for the Expansion of the Existing Landfill Gas Collection and Control System (LFGCCs) and Construction of the New Piping to the Proposed Landfill Gas to Energy System (LFGTE) – Wayne County Landfill. By Ming-Tai Chao, P.E. (NCDENR-DWM), October 8, 2010.

LANDFILL GAS EXTRACTION WELLS

S+G observed the drilling and installation of ten (10) re-drilled LFG extraction wells and four (4) new LFG extraction wells. The LFG extraction wells were drilled 36 inches in diameter and constructed using six (6) inch diameter perforated and solid HDPE pipe. The upper ten (10) feet for each well included solid piping with two bentonite seals and soil backfill. Following well completion, an approximately three (3) foot solid pipe section was installed above ground as a stickup. Boring logs were recorded for each well location and are provided as **(Attachment B)**. Well locations are provided on the As-Built Drawing presented in **(Attachment C)**.

LANDFILL GAS LATERAL AND ADDITIONAL COMPONENT INSTALLATION

BES installed the following GCCS system components in the locations shown on the As-Built Drawing provided in **Attachment C**:

1. Four (4) 4" diameter HDPE lateral connections from the new LFG extraction wells to existing LFG laterals;
2. Three (3) 2" diameter HDPE tie-ins condensate line connections from existing lines to new LFG extraction wells; and
3. Three (3) 1" diameter HDPE tie-ins to existing compressed air piping
4. One 8" isolation installation on Unit 3.

Survey Solutions, P.C. prepared "as-built" surveys of all installations, including gas lines, condensate and compressed air lines, and the isolation valve. It is noted that due to differential settlement and lateral shifting of the landfill topography as waste degrades, the location of surveyed components may change significantly over time. The As-Built Drawing is provided as **Attachment C**.

Gas conveyance and compressed air lines were pressure tested in accordance with ASTM F-1417. Condensate drain lines were hydrostatically tested in accordance with ASTM F-2164. Copies of the tests are provided as **Attachment D**.

Spoils generated from excavations were inspected by an accredited asbestos inspector in accordance with the approved Asbestos Work Plan **(Attachment E)**. No suspect asbestos containing materials were found.

SUMMARY

The construction methods, materials, locations of components, and testing methods are in general agreement with the submitted Landfill Gas Collection & Control System Design Plan. Please note that S+G's acceptance of the landfill gas collection and control system is limited to the items addressed in this report. Beyond this acceptance, additional issues that arise during operations of the system shall be addressed by the system owner/operator and/or the manufacturer under system warranty.

Mr. Ming-Tai Chao, P.E., Engineer

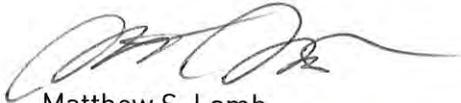
October 2, 2015

Page 3

Should you have any questions or require clarification, please contact us at (919) 828-0577 or by email below.

Sincerely,

SMITH GARDNER, INC.



Matthew S. Lamb
Project Manager ext. 121
matt@smithgardnerinc.com



Stacey A. Smith,
Senior Engineer, ext. 121
stacey@smithgardnerinc.com

Attachments:

- A - Photographic Log
- B - Boring Logs
- C - As-Built Drawings
- D - Pressure Tests
- E - Approved Asbestos Workplan

CC: Tim Rogers, Wayne County
Steve Laliberty, Biogas Energy Solutions
Wes Hare, NCDENR

File

H:\Projects\Methane Power\MP Wayne County, LLC\BES-14-2 (Wayne Expansion 2014)\Record Report\report\2015 Final Record Report-Wayne County Landfill-072215.docx

This page intentionally left blank.

ATTACHMENT A

This page intentionally left blank.

Client Name:
Methane Power**Site Location:**
Wayne County Landfill**Project No.**
BES 14-1**Photo No.**
1**Date:**
1/13/15**Direction Photo Taken:**

East

Description:

Drill rig set up on Unit 3.

**Photo No.**
2**Date:**
1/30/15**Direction Photo Taken:**

N/A

Description:

Approved stone for landfill gas extraction well construction.



Client Name: Methane Power	Site Location: Wayne County Landfill	Project No. BES 14-1
--------------------------------------	--	--------------------------------

Photo No. 3	Date: 1/30/15
------------------------------	-------------------------

Direction Photo Taken:

N/A

Description:

Drill rig and excavated waste.



Photo No. 4	Date: 1/30/15
------------------------------	-------------------------

Direction Photo Taken:

N/A

Description:

Landfill gas extraction well being constructed on Unit 3.



Client Name: Methane Power	Site Location: Wayne County Landfill	Project No.: BES 14-1
--------------------------------------	--	---------------------------------

Photo No.: 5	Date: 1/30/15
------------------------	-------------------------

Direction Photo Taken:
N/A

Description:
Stone being added during landfill gas extraction well construction.



Photo No.: 6	Date: 1/30/15
------------------------	-------------------------

Direction Photo Taken:
N/A

Description:
Bentonite being added during landfill gas extraction well construction.



Client Name: Methane Power		Site Location: Wayne County Landfill		Project No. BES 14-1	
Photo No. 7	Date: 2/21/15				
Direction Photo Taken: West					
Unit 3. Trench being excavated from existing 6" HDPE					

Photo No. 8	Date: 2/21/15				
Direction Photo Taken: North					
Description: Excavation of sump at Unit 3 to evaluate sump construction for pressure testing purposes.					

Client Name: Methane Power		Site Location: Wayne County Landfill	Project No. BES 14-1
Photo No. 9	Date: 2/21/15		
Direction Photo Taken: N/A			
Description: Excavation of sump at Unit 3 to evaluate sump construction for pressure testing purposes. Sump stickups have been cut and an inflatable test ball inserted.			

Photo No. 10	Date: 6/18/15		
Direction Photo Taken: West			
Description: Sump at Unit 3 repaired and backfilled after attempts to pressure test at this location.			

Client Name: Methane Power		Site Location: Wayne County Landfill	Project No.: BES 14-1
Photo No.: 11	Date: 2/21/15		
Direction Photo Taken: N/A			
Description: Low pressure air testing gauge inflated to 5 psi.			

Photo No.: 12	Date: 6/18/15		
Direction Photo Taken: South			
Description: Completed re-drilled extraction well on Unit 3.			

ATTACHMENT B

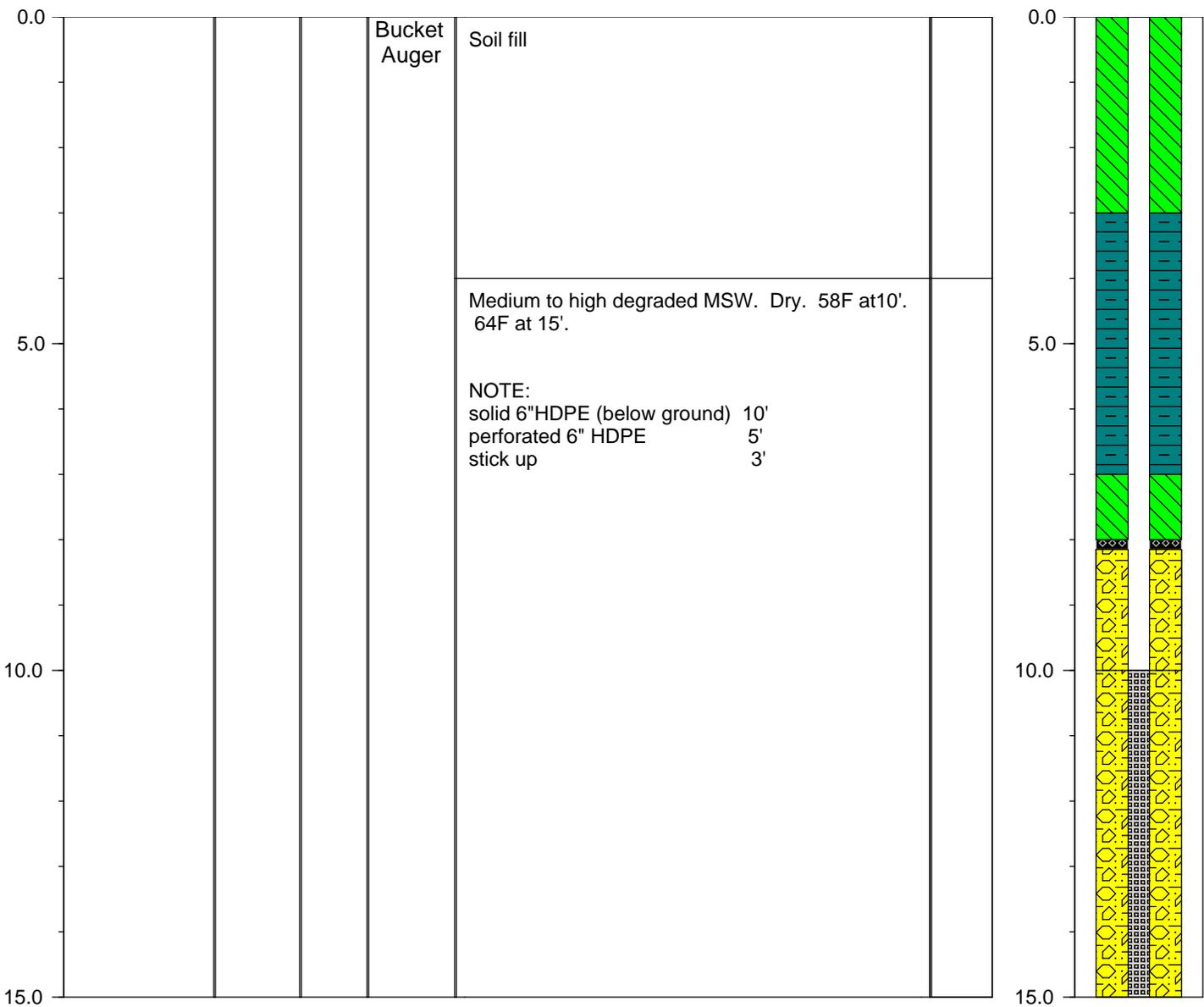
This page intentionally left blank.

PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **1/30/15** COMPLETED: **1/30/15**

TOTAL DEPTH: **15**
 TOP OF CASING ELEV.: GROUND ELEV.:
 NORTHING: **0** EASTING: **0**

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

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



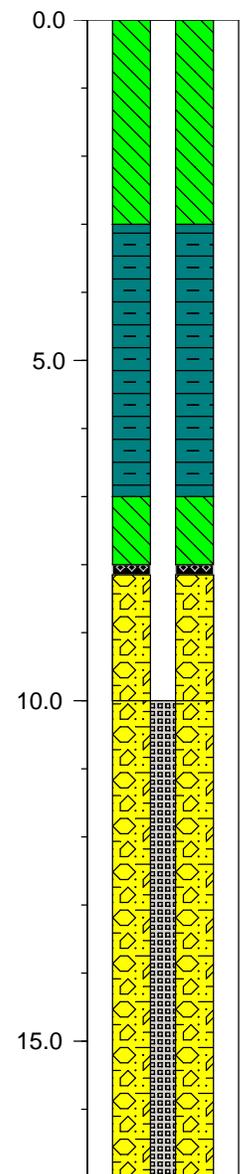
PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **1/30/15** COMPLETED: **1/30/15**

TOTAL DEPTH: **17**
 TOP OF CASING ELEV.: **GROUND ELEV.:**
 NORTHING: **0** EASTING: **0**

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

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

0.0				Bucket Auger	Soil fill			
					Low to medium degraded MSW. Soil plug from 12' to 15'. Moist. 60F at 10'. 72F at 17'.			
5.0					NOTE: solid 6"HDPE (below ground) 10' perforated 6" HDPE 7' stick up 3'			
10.0								
15.0								

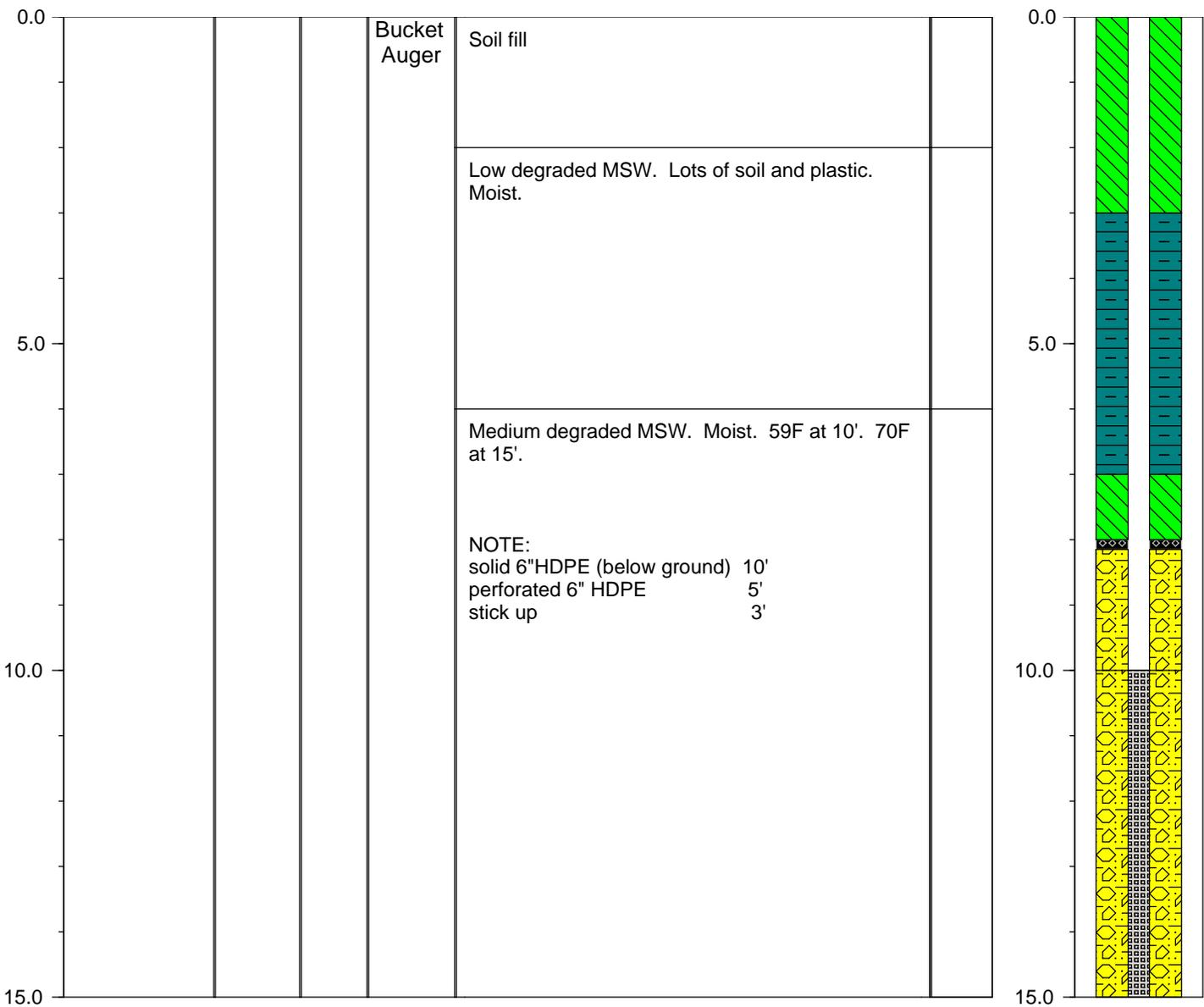


PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **1/30/15** COMPLETED: **1/30/15**

TOTAL DEPTH: **15**
 TOP OF CASING ELEV.: **GROUND ELEV.:**
 NORTHING: **0** EASTING: **0**

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

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



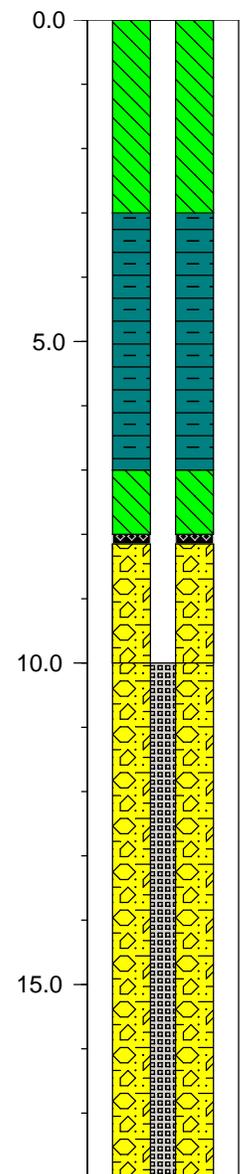
PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **1/30/15** COMPLETED: **1/30/15**

TOTAL DEPTH: **18**
 TOP OF CASING ELEV.: GROUND ELEV.:
 NORTHING: **0** EASTING: **0**

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

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

0.0				Bucket Auger	Soil fill			
					Low to medium degraded MSW. Lots of soil mixed in. Dry to moist. 76F at 10'. 84F at 18'.			
5.0					NOTE: solid 6"HDPE (below ground) 10' perforated 6" HDPE 8' stick up 3'			
10.0								
15.0								



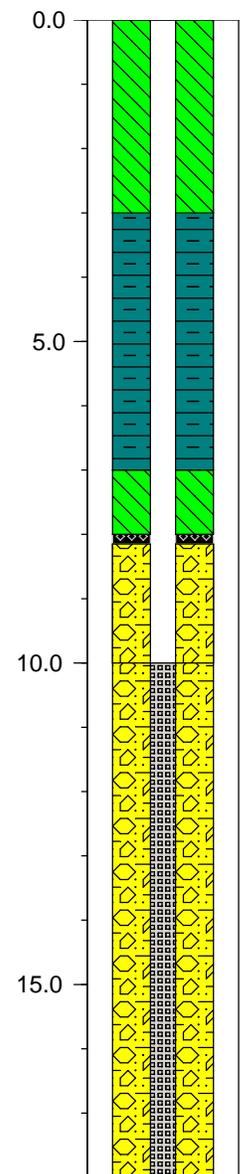
PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **1/30/15** COMPLETED: **1/30/15**

TOTAL DEPTH: **18**
 TOP OF CASING ELEV.: GROUND ELEV.:
 NORTHING: **0** EASTING: **0**

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

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

0.0				Bucket Auger	Soil fill			
					Low degraded MSW. Dry. 74F at 10'. 72F at 18'.			
					NOTE: solid 6"HDPE (below ground) 10' perforated 6" HDPE 8' stick up 3'			
5.0								
10.0								
15.0								



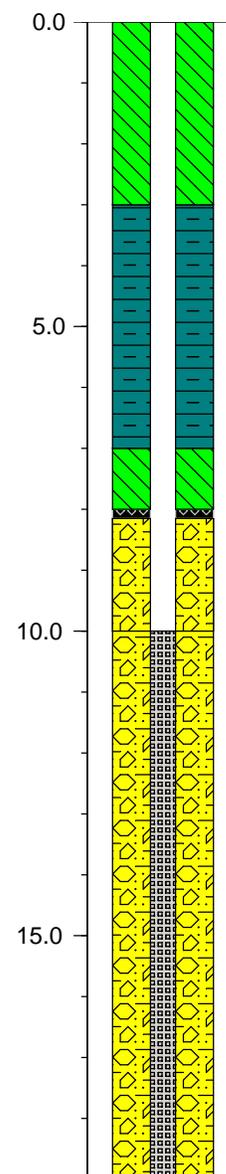
PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **1/30/15** COMPLETED: **1/30/15**

TOTAL DEPTH: **19**
 TOP OF CASING ELEV.: GROUND ELEV.:
 NORTHING: **0** EASTING: **0**

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

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

0.0				Bucket Auger	Soil fill			
					Low to medium degraded MSW. Dry. Soil mixed in. 71F at 10'. 76F at 19'.			
					NOTE: solid 6"HDPE (below ground) 10' perforated 6" HDPE 9' stick up 3'			
5.0								
10.0								
15.0								



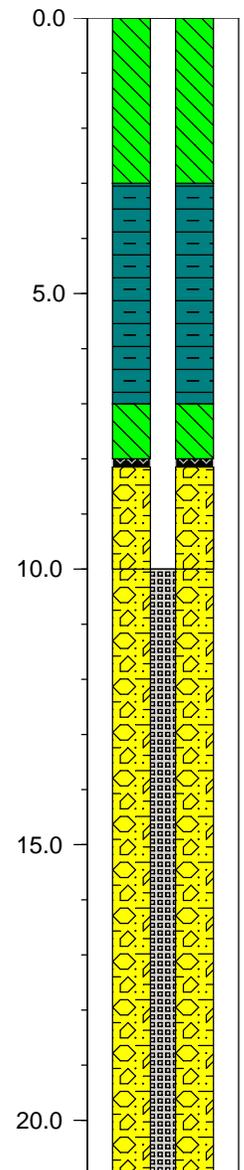
PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **1/30/15** COMPLETED: **1/30/15**

TOTAL DEPTH: **21**
 TOP OF CASING ELEV.: GROUND ELEV.:
 NORTHING: **0** EASTING: **0**

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

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

0.0				Bucket Auger	Soil fill			
					Low to medium degraded MSW. Moist with alot of soil. 68F at 10'. 72F at 21'.			
5.0					NOTE: solid 6"HDPE (below ground) 10' perforated 6" HDPE 11' stick up 3'			
10.0								
15.0								
20.0								

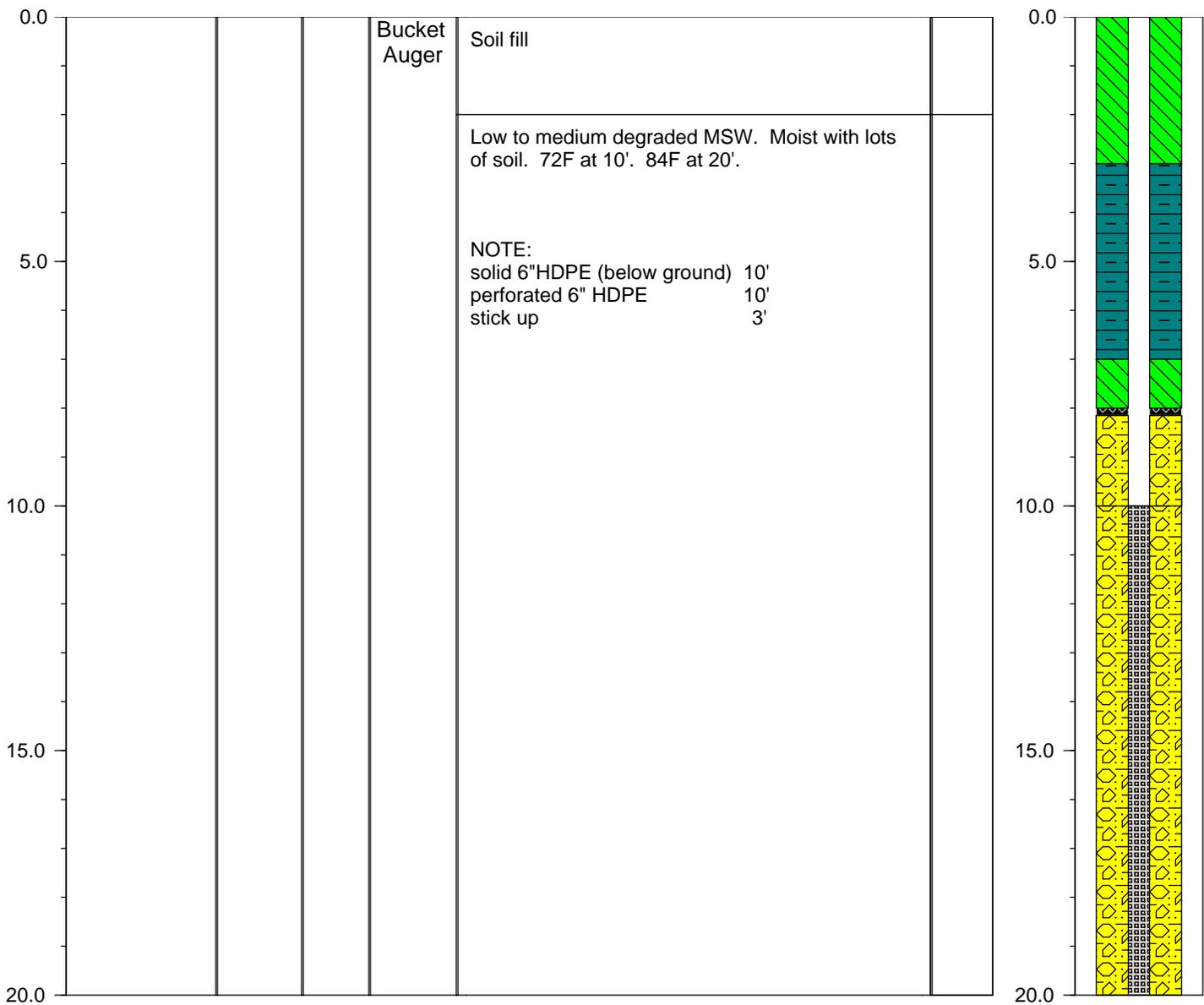


PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **1/30/15** COMPLETED: **1/30/15**

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

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

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



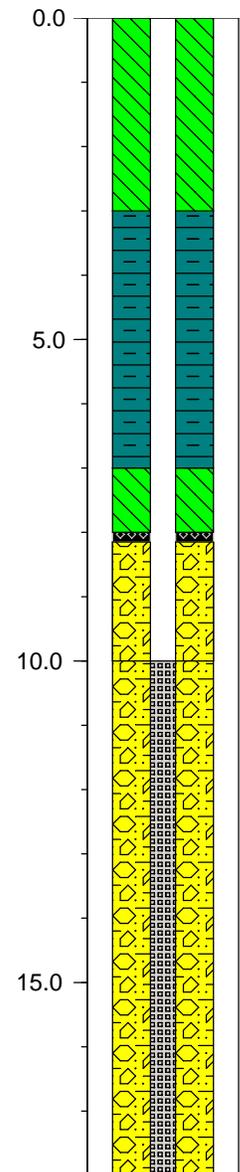
PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **1/31/15** COMPLETED: **1/31/15**

TOTAL DEPTH: **18**
 TOP OF CASING ELEV.: GROUND ELEV.:
 NORTHING: **0** EASTING: **0**

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

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

0.0				Bucket Auger	Soil fill			
					Medium degraded MSW. Dry with alot of soil mixed in. 61F at 10'. 71F at 18'.			
5.0					NOTE: solid 6"HDPE (below ground) 10' perforated 6" HDPE 8' stick up 3'			
10.0								
15.0								

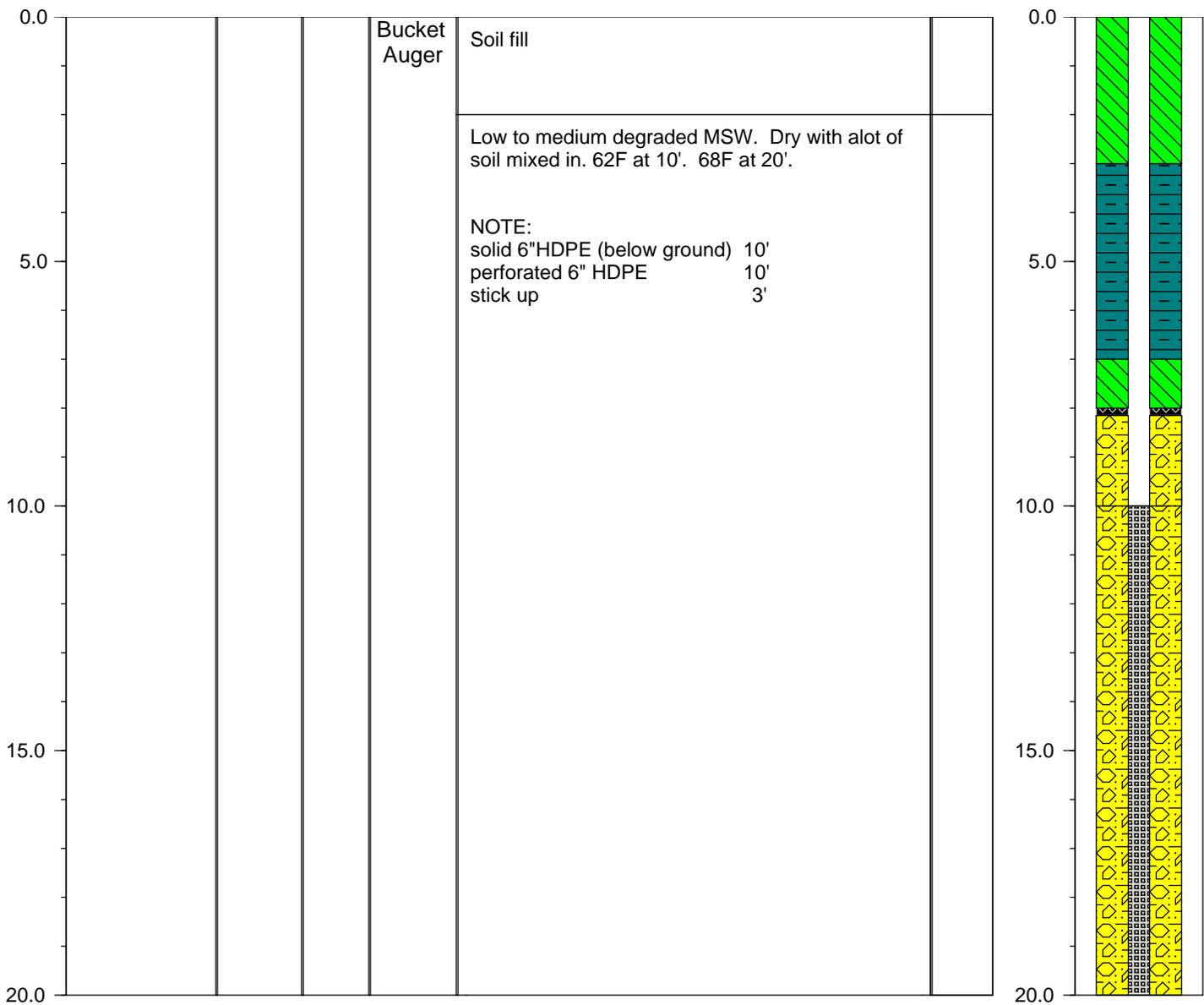


PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **1/31/15** COMPLETED: **1/31/15**

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

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

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



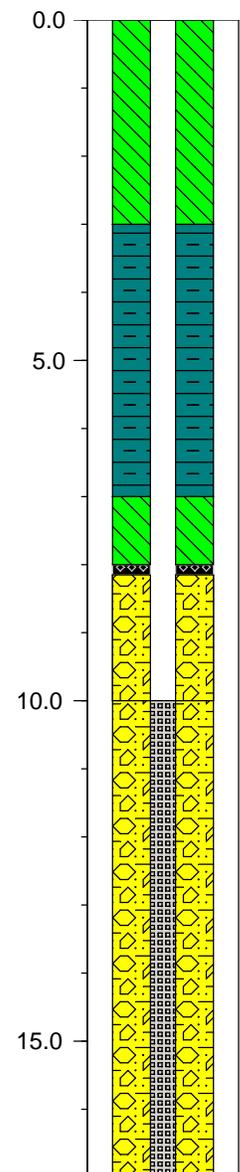
PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **1/31/15** COMPLETED: **1/31/15**

TOTAL DEPTH: **17**
 TOP OF CASING ELEV.: GROUND ELEV.:
 NORTHING: **0** EASTING: **0**

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

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

0.0				Bucket Auger	Soil fill			
					Low degraded MSW. Dry with alot of soil mixed in. 65F at 10'. 75F at 17'.			
5.0					NOTE: solid 6"HDPE (below ground) 10' perforated 6" HDPE 7' stick up 3'			
10.0								
15.0								



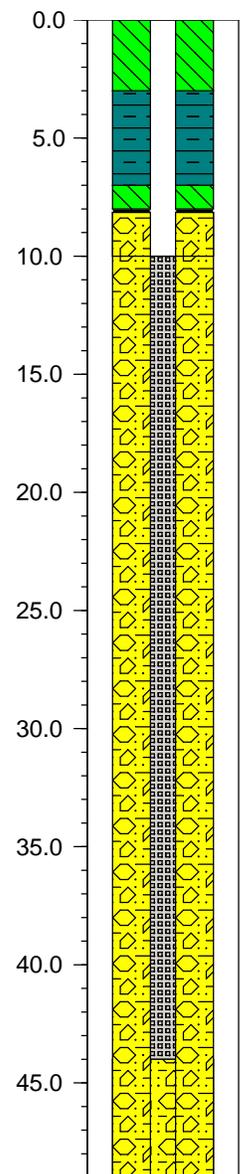
PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **1/31/15** COMPLETED: **1/31/15**

TOTAL DEPTH: **49**
 TOP OF CASING ELEV.: **GROUND ELEV.:**
 NORTHING: **0** EASTING: **0**

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

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

0.0				Bucket Auger	Soil fill			
5.0					Low degraded C&D. Dry			
10.0					Low degraded C&D. Moist. 66F at 10'.			
15.0					Low degraded C&D. Wet at 14'.			
20.0					Soil cap between C&D and MSW			
25.0					Medium to high degraded MSW. Very wet with lots of soil mixed in. 73F at 20'. 72F at 30'. 77F at 40'. 73F at 49'			
30.0					NOTE: solid 6"HDPE (below ground) 10' perforated 6" HDPE 34' stick up 3'			
35.0								
40.0								
45.0								



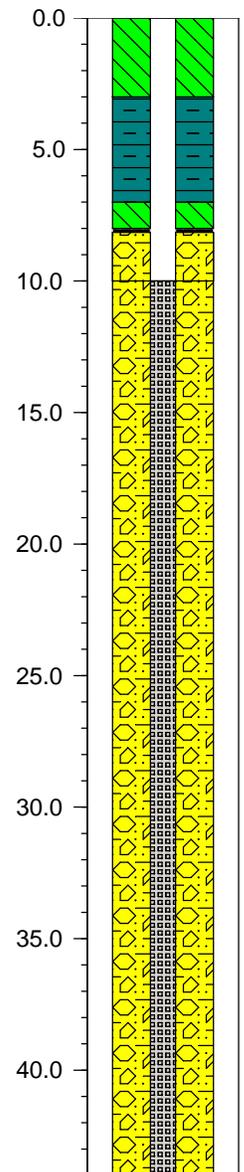
PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **2/2/15** COMPLETED: **2/2/15**

TOTAL DEPTH: **44**
 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
---------------	----------------------	-----------------	--------------------	--------------	-------------	-----------	---------------	----------------------

0.0				Bucket Auger	Soil fill	
5.0					Low degraded C&D. Dry	
10.0					Low degraded C&D. Moist. 72F at 10'.	
15.0					Soil cap between C&D and MSW	
20.0					Medium degraded MSW. Moist with lots of soil mixed in. 76F at 20'. 79F at 30'. 79F at 40'. 76F at 44'	
25.0						
30.0					NOTE: solid 6"HDPE (below ground) 10' perforated 6" HDPE 34' stick up 3'	
35.0						
40.0						



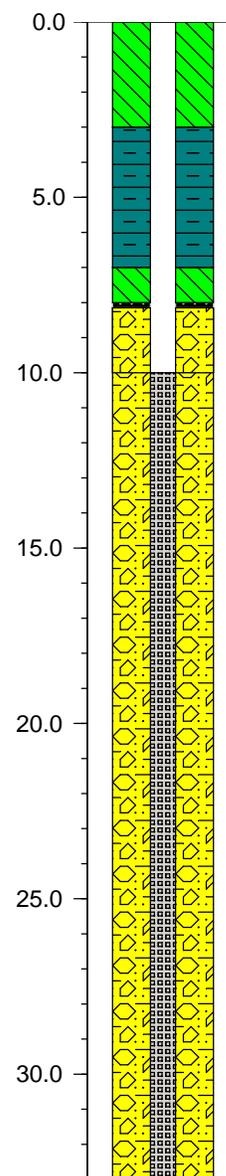
PROJECT NAME: **Landfill GCCS Expansion 2015**
 LOCATION: **Wayne County Landfill**
 DRILLING CO: **CB&I**
 DRILLING METHOD: **36" Bucket Auger**
 FIELD PARTY: **Chip Freshcorn**
 GEOLOGIST: **D. Misenheimer**
 DATE BEGUN: **2/2/15** COMPLETED: **2/2/15**

TOTAL DEPTH: **33**
 TOP OF CASING ELEV.: **GROUND ELEV.:**
 NORTHING: **0** EASTING: **0**

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

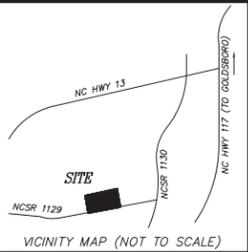
DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
---------------	----------------------	-----------------	--------------------	--------------	-------------	-----------	---------------	----------------------

0.0				Bucket Auger	Soil fill			
5.0					Low degraded C&D. Dry			
10.0					Low degraded C&D. Moist. 78F at 10'.			
15.0					Low degraded C&D. Wet.			
20.0					Soil cap between C&D and MSW			
25.0					Medium to high degraded MSW. Very wet with lots of soil mixed in. 76F at 20'. 72F at 30'. 74F at 33'.			
30.0					NOTE: solid 6"HDPE (below ground) 10' perforated 6" HDPE 23' stick up 3'			



ATTACHMENT C

This page intentionally left blank.



VICINITY MAP (NOT TO SCALE)

I, DWAYNE R. KROEZE, HEREBY CERTIFY THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION, THAT ALL SURVEYED LOCATIONS ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Dwayne R. Kroeze 7/10/15 DATE

DWAYNE R. KROEZE P.L.S. L-3911



NOTES

1. NORTH ESTABLISHED FROM SURVEY CONTROL COORDINATES PROVIDED BY THE WAYNE COUNTY LANDFILL (LOCAL COORDINATE SYSTEM).
2. EXISTING CONTOURS AND GAS SYSTEM STRUCTURES FOR UNIT 3 SHOWN FROM PLANS ENTITLED WAYNE COUNTY LANDFILL GAS COLLECTION SYSTEM MODIFICATIONS DATE OCTOBER 2014.
3. EXISTING GAS SYSTEM STRUCTURES FOR UNIT 1 SHOWN FROM ENTITLED WAYNE COUNTY GAS COLLECTION SYSTEM MODIFICATIONS UNIT 1 DATED OCTOBER 2014. CONTOURS SHOWN IN THE UNIT 1 AREA ARE TAKEN FROM THE WAYNE COUNTY NCDOT SHAPE FILE, 2013 2' CONTOURS.

SURVEY CONTROL

NOTE 1

EXISTING IRON PIPE
N=562208.58
E=2277449.62
ELEV.=173.58

EXISTING IRON STAKE
N=562844.47
E=2277315.06
ELEV.=159.43

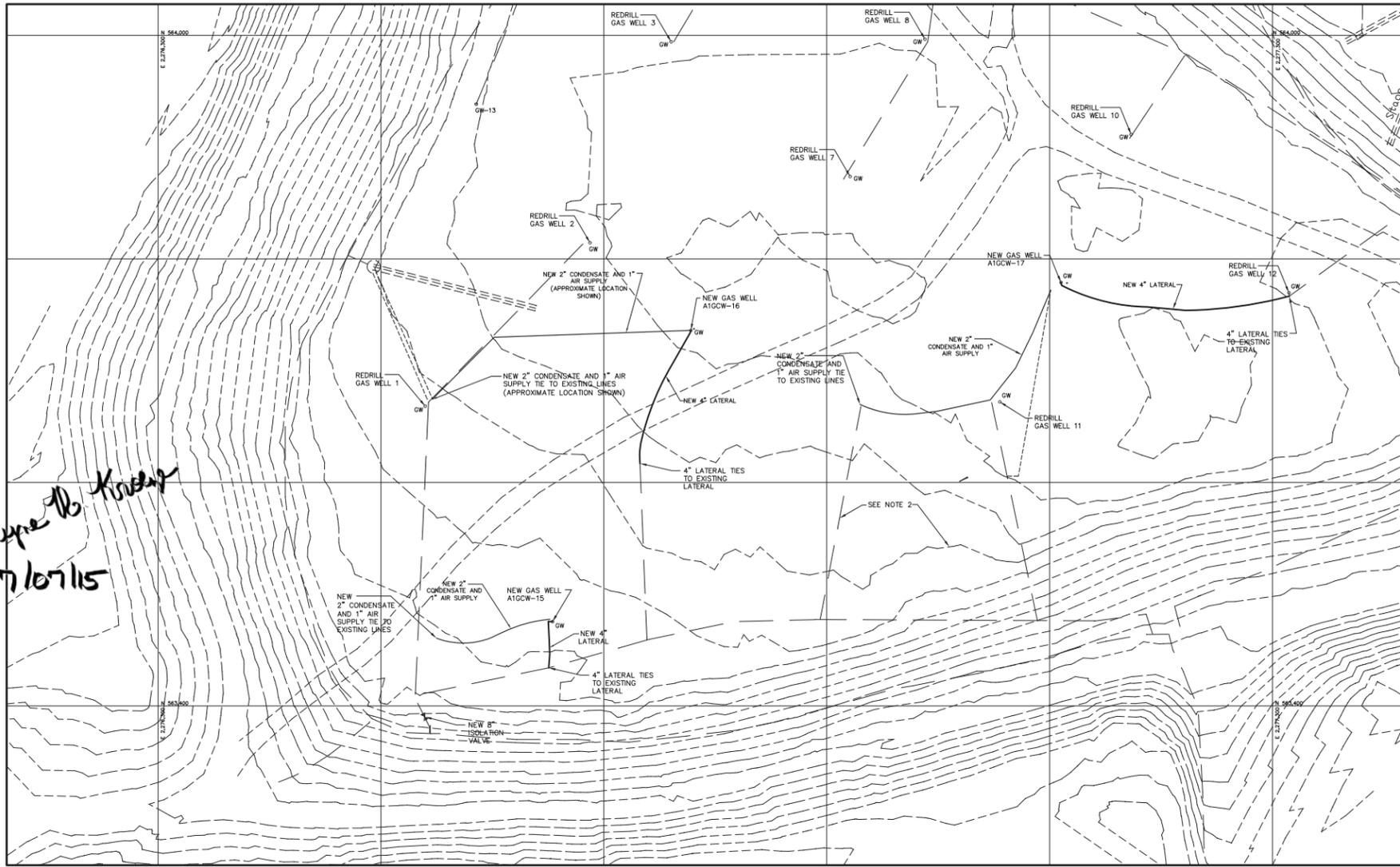
LEGEND

GW GAS WELL

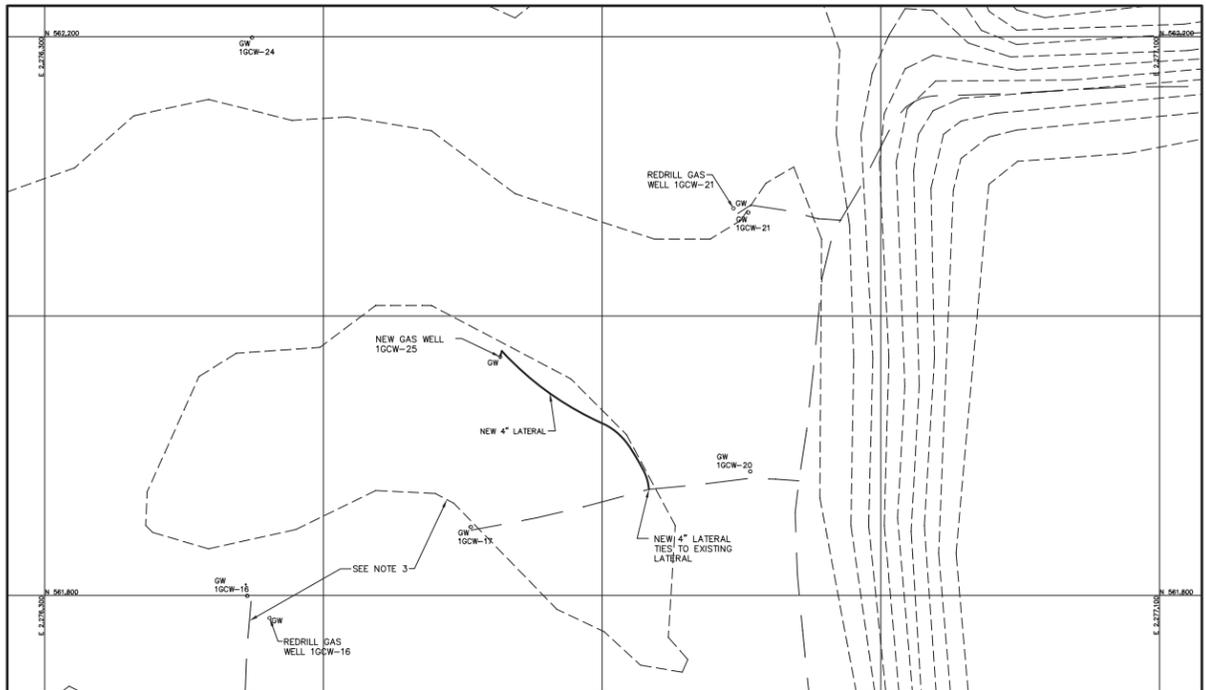
Dwayne R. Kroeze

7/10/15

Dwayne R. Kroeze
7/10/15



UNIT 3-WAYNE COUNTY LANDFILL GAS COLLECTION SYSTEM MODIFICATIONS



UNIT 1-WAYNE COUNTY LANDFILL GAS COLLECTION SYSTEM MODIFICATIONS



<p>SURVEYING SOLUTIONS, P.C. C-1948 295 KINGFISHER WAY P.O. BOX 376 LOUISBURG, NC 27549 (919)-340-2250</p>	<p>AS-BUILT SURVEY WAYNE COUNTY LANDFILL GAS COLLECTION MODIFICATIONS UNIT 1 AND UNIT 3</p>	
	<p>SCALE 1"=60'</p>	<p>WAYNE COUNTY</p>
<p>REVISIONS: 4-03-15-CORRECTED THE LABEL FOR REDRILL GAS WELL 12 ON UNIT 3, REMOVED EXISTING GAS VALVE LOCATIONS, LABELED THE NEW GAS VALVE LOCATION ON UNIT 3 7-07-15-RENAMED UNIT 1 NEW GAS WELL 1 TO NEW GAS WELL 10CW-25</p>	<p>SURVEY DATE: MARCH 4, 2015</p>	<p>PROJECT 14-059</p>

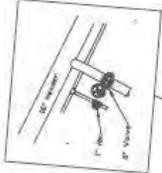
This page intentionally left blank.

ATTACHMENT D

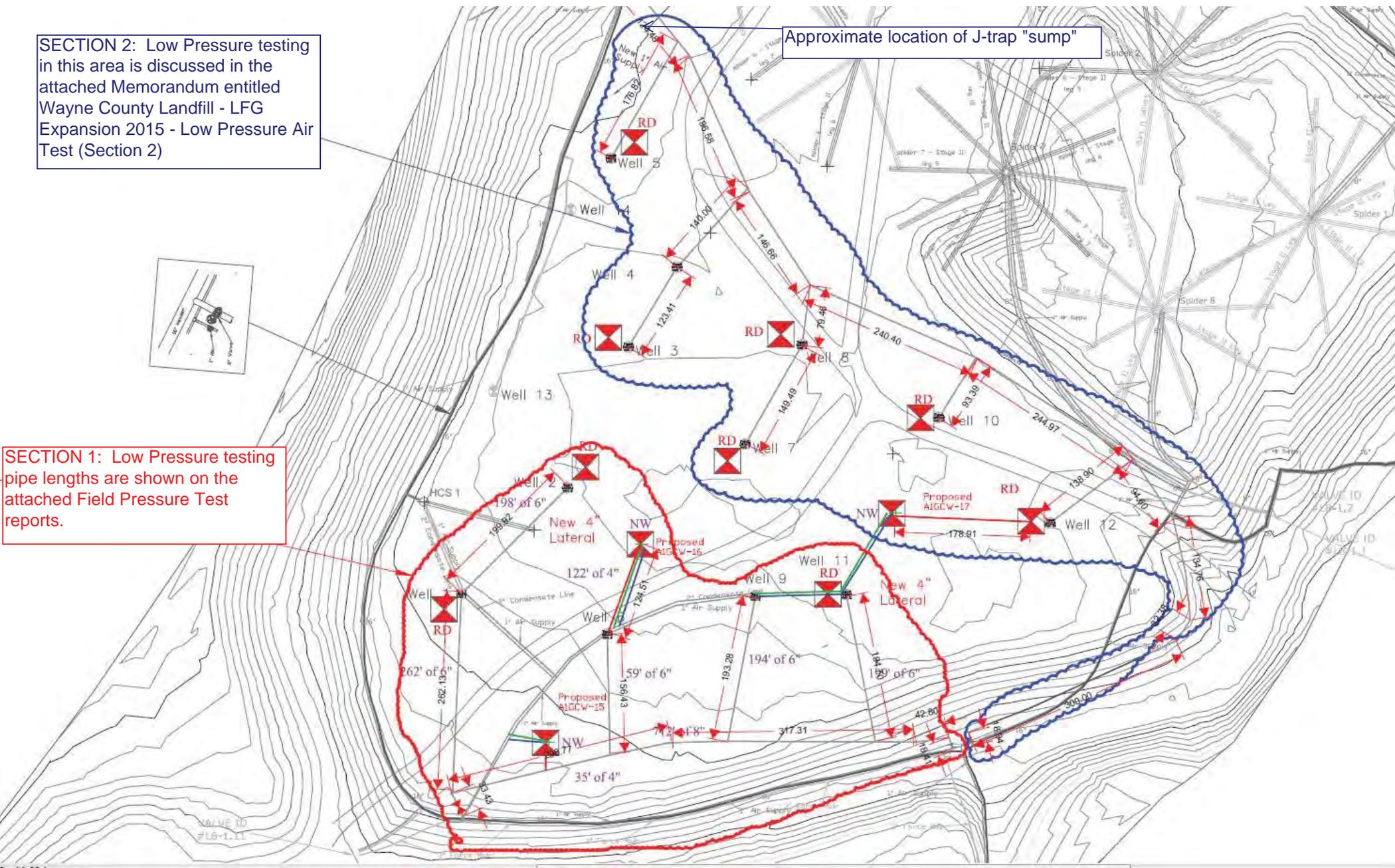
This page intentionally left blank.

SECTION 2: Low Pressure testing in this area is discussed in the attached Memorandum entitled Wayne County Landfill - LFG Expansion 2015 - Low Pressure Air Test (Section 2)

Approximate location of J-trap "sump"



SECTION 1: Low Pressure testing pipe lengths are shown on the attached Field Pressure Test reports.



This page intentionally left blank.

Pressure Test Report

Test Time Calculator: NOTE - This formula should be used for pipes with nominal diameters from 4" to 30". Consult with pipe/fitting manufacturer if pipe size is outside of this range.

Time test (T) is determined using the following formula from **Section 9.2** of **ASTM standard F 1417 - 92**, and modified for **0.5 psig**, as directed in **Section 9.5** of the standard. Input 1) pipe diameter and 2) length for the section tested in the shaded cells below. For multiple diameters, perform this calculation for each pipe diameter being tested, and take the sum total T.

$$T = (0.085 DK/Q)/2$$

where:

D =	4	nominal pipe size, inches
L =	640	length of test section, feet
K =	1.07264	0.000419 DL (not less than 1.0)
Q =	0.0015	leak rate in cfm/square feet of internal surface = 0.0015 CFM/SF
T =	121.57	seconds
	2.03	minutes
	0.03	hours

Pressure Test Field Log

Contractor or Company: BES, Inc.

Pipe Line Description: All 4" DR17 HDPE to be installed during project, welded together.
(material, thickness rating, etc.)

Section Tested: From: All 4" DR17 HDPE to be installed during project, welded together.

To: All 4" DR17 HDPE to be installed during project, welded together.

Test Section: Diameter: 4" Length: 640

Test Start Time/Date: 10:49 AM Maximum Start Pressure (psig): 5

Test End Time/Date: 10:51 AM Maximum End Pressure (psig): 5

Total Test Time: 0:02 Total Pressure Drop (psig): 0

Test Result (circle one): Pass (pressure drop less than 0.5 psig)
Fail (pressure drop greater than 0.5 psig)

Leak Location (if Fail):

MEMORANDUM

Date:	June 17, 2015
To:	File
From:	Don M. Misenheimer Smith Gardner, Inc.
RE:	Wayne County Landfill - LFG Expansion 2015 - Low Pressure Air Test (Section 2)

This memorandum documents S+G's efforts in pressure testing "Section 2" (as shown on the attached drawing) of the Wayne County Landfill Gas (LFG) Extraction System during the 2015 expansion project.

LOW PRESSURE AIR TESTING

The low pressure air testing (ASTM standard F 1417) that was performed and passed throughout the remainder of this expansion project was unable to be performed at this "Section 2" of the expansion project. The portion of the system included in this "Section 2" is shown on the attached drawing and includes the following:

- approximately 900 feet of existing 6" LFG lateral piping;
- approximately 1500 feet of existing 8" LFG header piping;
- approximately 180 feet of newly installed 4" lateral piping; and
- existing connection of current system to existing header piping at existing J-trap, or "sump" location (only location available to isolate "Section 2").

"Section 2" was unable to be sealed off from the rest of the system at the J-trap or "sump" (approximate location shown on the attached drawing). On February 20 and 21, 2015 S+G and BES personnel exhausted efforts to seal the J-trap for testing. Below is a list of attempted methods:

- test balls were used inside both stick-ups of the J-trap, at various depths;
- the area around the sump was excavated around 10' deep and the trap stick-ups were cut, and the test balls were deployed again and various depths, up to over 20' below grade;
- attempts were made to determine the depth of LFG transmission line into the J-trap;

S+G field personnel contacted Mr. Stacey A. Smith, P.E. (S+G) and explained the situation worked through the above methods under his direction. The above methods failed due to depth of the sump, and the absence of as-built detail of this J-trap, which was installed at a much earlier date. S+G also made attempts to locate this detail, including contacting past consultants who worked on the site but was unsuccessful.

CONCLUSION

Due to the majority of this "Section 2" being existing header and lateral piping (except for one section of 4" lateral), the knowledge of the system operations prior to this expansion, and the ability to pinpoint the location of new HDPE connections in this section in case of elevated oxygen readings, **S+G approved the new tie-ins without the Low Pressure Air Test results.**

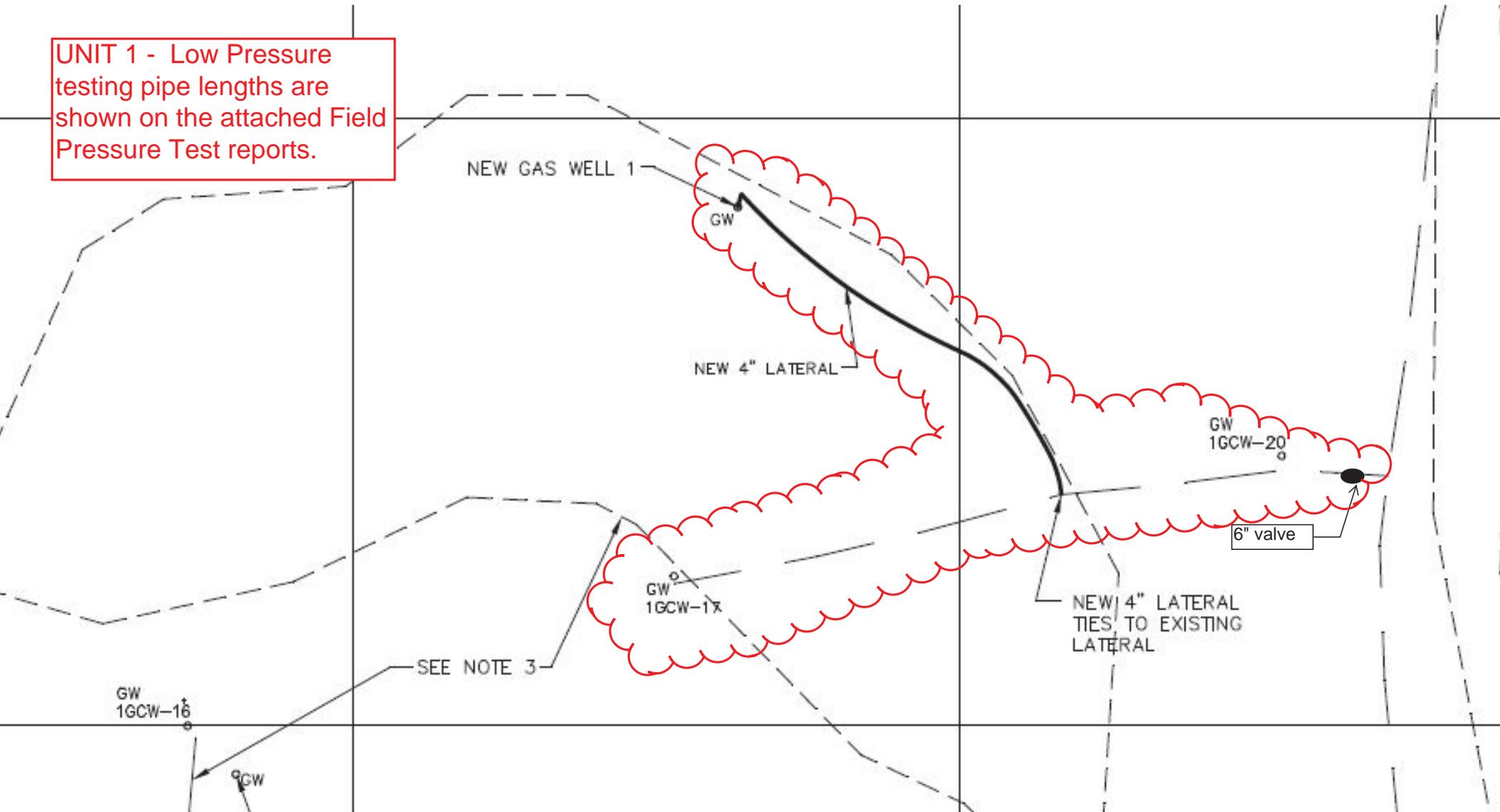
* * * * *

Attachments

K:\Projects\Methane Power\MP Wayne County, LLC\BES-14-2 (Wayne Expansion 2014)\Record Report\report\Attachment D\Memo_061715.docx

This page intentionally left blank.

UNIT 1 - Low Pressure testing pipe lengths are shown on the attached Field Pressure Test reports.



This page intentionally left blank.

Pressure Test Report

Test Time Calculator: NOTE - This formula should be used for pipes with nominal diameters from 4" to 30". Consult with pipe/fitting manufacturer if pipe size is outside of this range.

Time test (T) is determined using the following formula from **Section 9.2** of **ASTM standard F 1417 - 92**, and modified for **0.5 psig**, as directed in **Section 9.5** of the standard. Input 1) pipe diameter and 2) length for the section tested in the shaded cells below. For multiple diameters, perform this calculation for each pipe diameter being tested, and take the sum total T.

$$T = (0.085 DK/Q)/2$$

where:

D =	<u>6</u>	nominal pipe size, inches
L =	<u>410</u>	length of test section, feet
K =	<u>1.03074</u>	0.000419 DL (not less than 1.0)
Q =	<u>0.0015</u>	leak rate in cfm/square feet of internal surface = 0.0015 CFM/SF
T =	<u>175.23</u>	seconds
	<u>2.92</u>	minutes
	<u>0.05</u>	hours

Pressure Test Field Log

Contractor or Company: BES

Pipe Line Description: 233' of 6" HDPE (existing) and 180' of HDPE DR17 (new)
 (material, thickness rating, etc.)

Section Tested: From: 6" section from isolation valve to 1GCW-17 and from 4" tie in to NW

To: _____

Test Section: Diameter: 4" and 6" Length: 180' and 233' respectively

Test Start Time/Date: 2/21/15 5:44pm Maximum Start Pressure (psig): 5

Test End Time/Date: 2/21/15 5:47pm Maximum End Pressure (psig): 5

Total Test Time: 3 min Total Pressure Drop (psig): 0

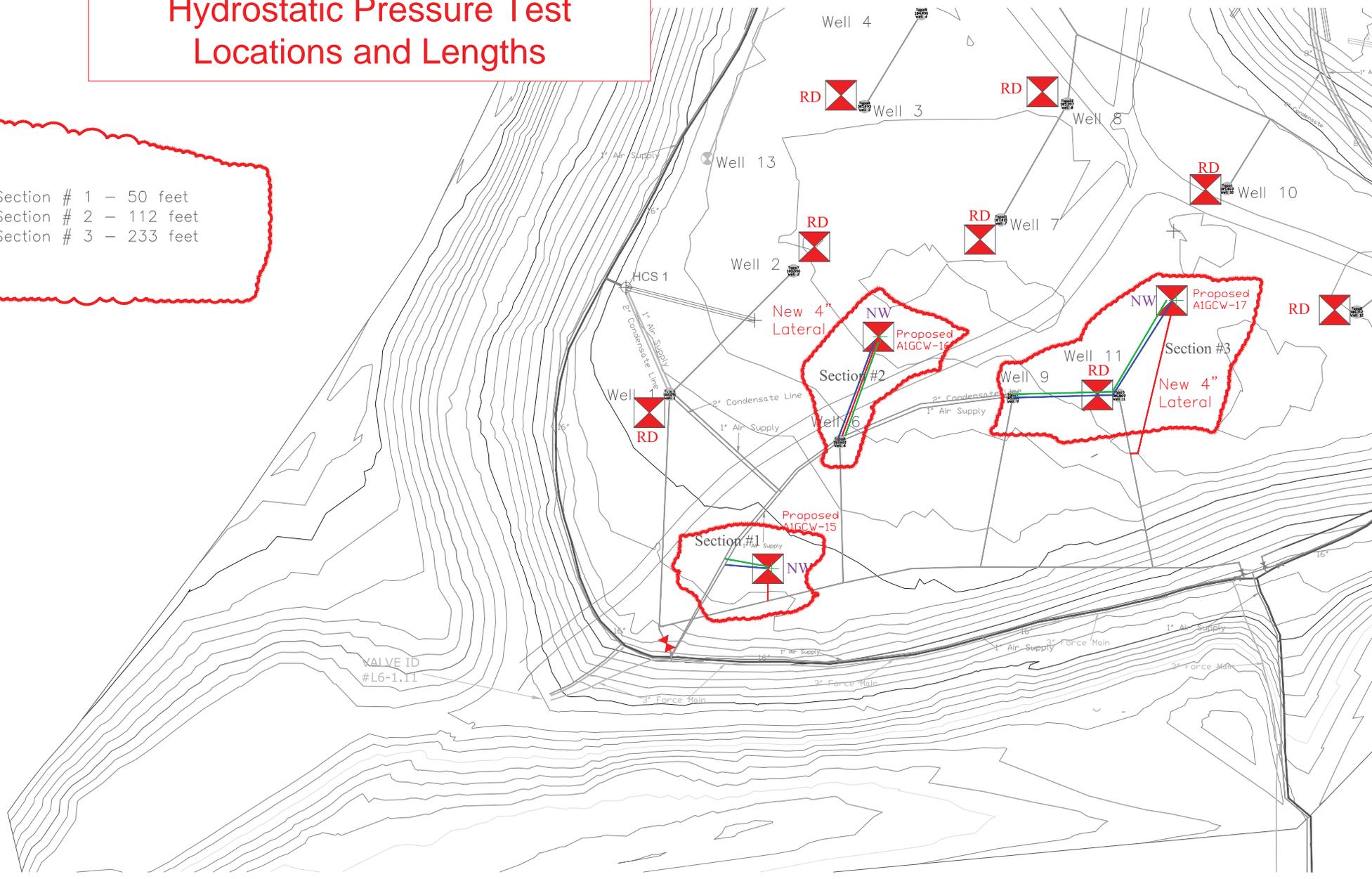
Test Result (circle one): Pass (pressure drop less than 0.5 psig)
 Fail (pressure drop greater than 0.5 psig)

Leak Location (if Fail): _____

This page intentionally left blank.

Hydrostatic Pressure Test Locations and Lengths

Section # 1 - 50 feet
Section # 2 - 112 feet
Section # 3 - 233 feet



This page intentionally left blank.

Test Procedure: ASTM F 2164

Date: 2/23/2015 (input cells highlighted yellow)

Contractor: BES, Inc.

Test Observed by: Matt Lamb, S+G

Description: Testing approx. 1,310 linear feet of new and existing 2" SDR 11 HDPE condensate drain line from the force main valve at the southwest corner of Unit 3 to the new well NW15, horizontal collector condensate sump HCS1, new well NW16, existing wells 6 and 9, re-drill well RD11, and new well NW17. Line was pressurized to 87 psig at 3:35pm, beginning the four (4) hour equalization phase of the test. At 4:55pm the line was observed to have dropped to 85 psig, and makeup water was added to pressurize to 88 psig, in accordance with the standard. At 6:35pm the line was observed to have dropped to 85 psig, and makeup water was added to pressurize to 88 psig. At 7:35pm the line was observed to be under 88 psig pressure, and was depressurized 10 psig to 78 psig in accordance with the standard, and the test period began. The temperature was 35°F. The pressure gauge was checked every ten (10) minutes until 8:35pm. During this test phase the temperature and pressure did not change. Pressure was released at 8:35pm after successful test completion.

Calculations:

$$\text{Pressure Correction: } P_c = \frac{(P_t + 14.7)(T_t + 273)}{(T_i + 273)}$$

$$\% \text{ Pressure Drop: } \frac{P_c - P_i}{P_c} \times 100\%$$

where:

- T_t = Temperature in °C at time "t"
- T_i = Initial temperature in °C (equal to T_t when t = 0)
- P_t = Test pressure in psig at time "t"
- P_i = Initial test pressure in psig =
- P_c = Pressure in psig corrected for temperature (T_t) at time "t"
- t = Time in minutes from start of the test

Pressure Test Results (See Notes 1 and 2):

Time (min)	T _t Temp. (°C)	P _t Gauge Pressure (psig)	P _c Corrected Pressure (psi)	% Pressure Drop
0	1.7	78	78	0.0%
10	1.7	78	78	0.0%
20	1.7	78	78	0.0%
30	1.7	78	78	0.0%
40	1.7	78	78	0.0%
50	1.7	78	78	0.0%
60	1.7	78	78	0.0%

Notes:

- 1 Per ASTM F 2164, pressurize pipe for 4 hours, reduce pressure by 10 psi, and then begin the 1 hour test period.
- 2 Per ASTM F 2164, a passing test is indicated by no visual leakage and the test pressure remaining steady (within 5% of the pressure at the start of the test) for the 1 hour test period.

Test Result (Pass/Fail): **PASS**

This page intentionally left blank.

ATTACHMENT E

This page intentionally left blank.

jeff.dellinger@dhhs.nc.gov

Your message has been sent.

Mail

Move to Inbox

More

COMPOSE

RE: MP Wayne, LLC/MP Durham, LLC Asbestos Work Plans review

Inbox x

- Inbox
- Starred
- Important
- Sent Mail
- Drafts (14)
- Circles
- Follow up
- Junk E-mail



Dellinger, Jeff <jeff.dellinger@dhhs.nc.gov>
to me

12/10/14 ☆

Hey Wayne,

Sorry for the delay. I got behind.

Regarding the Wayne County and Durham County projects.

I do have a couple of questions but consider them minor and we can clarify them by phone later.

Use this email as a reference that I have read both of the plans and have no major concerns.

So, start your projects.

Thanks for your patience.

jeff

From: Matt Lamb [matt@smithgardnerinc.com]
 Sent: Wednesday, December 10, 2014 10:02 AM
 To: Dellinger, Jeff; Don Misenheimer
 Subject: Re: MP Wayne, LLC/MP Durham, LLC Asbestos Work Plans review

Jeff:

I hope your training went well. I didn't see any comments back from you last Friday as you had indicated. I just wanted to



Search people...

- Carter Shore
- Madeline German
- Britt Ransom
- John Lamb
- Matt Lamb
- S+G Support
- Chris Jones
- Cybele Brockmann
- Don Misenheimer



This page intentionally left blank.

November 7, 2014

Mr. Jeff Dellinger
Industrial Hygiene Consultant
Health Hazards Control Unit
NC DHHS/Division of Public Health
2nd Floor, Room D-1
5505 Six Forks Road
Raleigh, North Carolina 27609

**RE: Potential Contact with Asbestos-Contaminated Waste
Landfill Gas Collection System Expansion 2014 – Wayne County MSW Landfill
Dudley, North Carolina**

Dear Mr. Dellinger:

On behalf of MP Wayne, LLC, Smith Gardner, Inc. (S+G), has prepared the **attached** Asbestos Work Plan for above mentioned project. This letter serves as notification of potential uncovering of asbestos-contaminated waste during the proposed expansion of the existing Landfill Gas Collection System. This work will be performed with S+G as the project Engineer. The project will take place at the Wayne County Municipal Solid Waste Landfill in Dudley, North Carolina located on at 460 S. Landfill Road. The project is tentatively scheduled to begin November 2014, for completion by the end of the year.

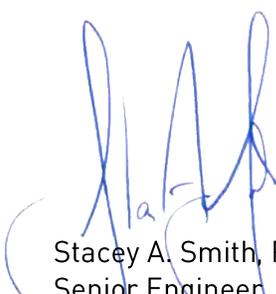
A Site Plan, including areas of the system expansion, is included in the Asbestos Work Plan.

Please contact us at (919) 828-0577 or by e-mail (below) if you have any questions or require any additional information.

Sincerely,
SMITH GARDNER, INC.



Jorge L. Montezuma, E.I.
Staff Engineer
jorge@smithgardnerinc.com



Stacey A. Smith, P.E.
Senior Engineer
stacey@smithgardnerinc.com

Attachments

cc: Don M. Misenheimer, AAI, S+G
Bob Gettys, MP Wayne, LLC
Steve Laliberty, BES CH4
file

This page intentionally left blank.

Asbestos Work Plan

Landfill Gas Collection System Expansion 2014 Wayne County Municipal Solid Waste Landfill (Solid Waste Permit No. 9606-MSWLF-1998)

Prepared for:

MP Wayne, LLC
460 S. Landfill Road
Dudley, North Carolina



November 2014

Prepared by:

NC LIC. NO. C-0828 (ENGINEERING)

SMITH+GARDNER

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577



PRINTED ON 100% RECYCLED PAPER

© 2014 Smith Gardner, Inc.

This document is intended for the sole use of the client for which it was prepared and for the purpose agreed upon by the client and Smith Gardner, Inc.

This page intentionally left blank.

Asbestos Work Plan

**Wayne County Municipal Solid Waste Landfil
(Solid Waste Permit No. 9606-MSWLF-1998)**

Prepared For:
**MP Wayne, LLC
Dudley, North Carolina**



S+G Project No. BES-14-2

A handwritten signature in blue ink, appearing to read "J. Montezuma", is written over a horizontal line.

Jorge L. Montezuma, E.I.
Staff Engineer

A handwritten signature in black ink, appearing to read "Stacey A. Smith", is written over a horizontal line.

Stacey A. Smith, P.E.
Senior Engineer



November 2014

NC LIC. NO. C-0828 (ENGINEERING)

SMITH+GARDNER

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

This page intentionally left blank.

**Landfill Gas Collection System Expansion 2014
Wayne County Municipal Solid Waste Landfil
(Solid Waste Permit No. 9606-MSWLF-1998)**

Asbestos Work Plan

Table of Contents

	<u>Page</u>
1.0 OVERVIEW	1
2.0 DEFINITIONS	2
2.1 Adequately Wet (40 CFR §61.141)	2
2.2 Asbestos (40 CFR §61.141).....	2
2.3 Asbestos Waste Disposal Area	2
2.4 Friable Asbestos-Containing Material (ACM)	2
2.5 Non-Friable (US EPA, Region 4 - Asbestos Enforcement Bulletin, June 2003)	2
2.6 Regulated Asbestos-Containing Material (RACM).....	2
2.7 Accredited Asbestos Supervisor (AAS)	3
2.8 Trained Asbestos Supervisor (TAS)	3
2.9 Accredited Asbestos Inspector (AAI).....	3
3.0 REGULATIONS	3
3.1 Abbreviations	3
3.2 Potential Asbestos-Contaminated Waste	3
3.3 Identified Asbestos-Contaminated Waste	3
4.0 NOTIFICATION	4
5.0 PROJECT ACTIVITIES.....	5
5.1 Involved Parties.....	5
5.2 Work Area Setup and Maintenance	6
5.3 Inspection of Excavated Waste	6
5.4 ACM Contingency Plan.....	6
5.5 Disposal.....	7

FIGURES

- Figure 1 General Site Location
- Figure 2 Unit 1 Project Location
- Figure 3 Unit 3 Project Location
- Figure 4 Details

APPENDIX

- Appendix A Text from Operations Manual

This page intentionally left blank.

1.0 OVERVIEW

This asbestos work plan (Plan) is written for work proposed within the Wayne County Municipal Solid Waste (MSW) Landfill located in Wayne County, NC. This document is intended to provide direction for the Contractor involved in waste disturbing activities in areas with known or suspected asbestos-contaminated waste, or where asbestos contaminated waste is discovered. This document is meant to assist in compliance with Federal NESHAP regulations as administered by the State of North Carolina. This document is not intended to take the place of any regulations or the Contractor's responsibility of his employees, subcontractors, or agents. It is critical that the Contractor realize the context of the subject matter by being familiar with the current regulations.

Landfill sites permitted to accept asbestos waste or other sites where it is unknown if indiscriminate dumping of asbestos waste has taken place should be approached with caution when planning any subsurface investigations within the waste units. Encountering asbestos during drilling and digging/trenching should be anticipated.

In the absence of adequate records to demonstrate that no asbestos is present in the project areas, this plan should be followed and a copy of this plan kept in the active work area.

SAFETY NOTE:

The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. The Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

This project shall consist of the installation of new landfill gas (LFG) extraction wells and the re-drilling of LFG extraction wells and associated trenching. Part of the installation will occur on Unit 1, west of the scale house, consisting of one (1) new LFG extraction well and the re-drilling of two (2) LFG extraction wells with an approximate depth of 20 feet each. System expansion will also occur on Unit 3 Phase 1, north of the scalehouse, consisting of three (3) new landfill gas (LFG) extraction wells and the re-drilling of nine (9) LFG extraction wells with an approximate depth of 30 feet each. All bore holes will be approximately 36 inches in diameter. Associated trenching (approximately 700 feet total) is also planned through the course of this project. The project description and activities are discussed further in **Section 5.0**.

2.0 DEFINITIONS

As used herein, the following terms are defined:

2.1 Adequately Wet (40 CFR §61.141)

To sufficiently mix or penetrate with water to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material, then that material has not been adequately wetted and represents an EPA NESHAP Violation.

2.2 Asbestos (40 CFR §61.141)

The asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, amosite, and actinolite-tremolite.

2.3 Asbestos Waste Disposal Area

Approved area for the disposal of asbestos waste at a solid waste facility.

2.4 Friable Asbestos-Containing Material (ACM)

Any material containing more than one percent (1%) asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM), that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. (Sec. 61.141). Friable ACM readily releases asbestos fibers into the air when damaged or disturbed.

2.5 Non-Friable (US EPA, Region 4 - Asbestos Enforcement Bulletin, June 2003)

ACM which cannot be crumbled, pulverized, or reduced to powder by hand pressure. Non-friable ACM would NOT readily release fibers into the air unless the material was severely damaged.

2.6 Regulated Asbestos-Containing Material (RACM)

Per 40 CFR 61 Subpart M § 61.141 - Definitions, the following are regulated asbestos containing materials (RACM) categories: (a) friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

2.7 Accredited Asbestos Supervisor (AAS)

A person who, **at a minimum**, has completed a five (5) day asbestos abatement contractor/supervisor training course as outlined in the EPA's Asbestos Model Accreditation Plan (40 CFR §763, Subpart E, App. C (B)(2)). Full accreditation **is required** for this position.

2.8 Trained Asbestos Supervisor (TAS)

A person who, **at a minimum**, has completed a five (5) day asbestos abatement contractor/supervisor training course as outlined in the EPA's Asbestos Model Accreditation Plan (40 CFR §763, Subpart E, App. C (B)(2)). Full accreditation is not required for this position.

2.9 Accredited Asbestos Inspector (AAI)

A person who, **at a minimum**, is a NC Accredited Asbestos Inspector as outlined in the EPA's Asbestos Model Accreditation Plan (40 CFR §763, Subpart E, App. C (B)(3)). Full accreditation **is required** for this position.

3.0 REGULATIONS

3.1 Abbreviations

NESHAP	National Emissions Standards for Hazardous Air Pollutants
OSHA	Occupational Safety and Health Administration

3.2 Potential Asbestos-Contaminated Waste

The following regulation shall be followed before digging/drilling begins on a project with **potential** for asbestos-contaminated waste:

<u>Regulation</u>	<u>Citation</u>
NESHAP	40 CFR §61.151 (d)

Notification requirements are described in **Section 4.0**.

3.3 Identified Asbestos-Contaminated Waste

The following regulations, **at a minimum**, should be followed **if** asbestos-contaminated waste is identified. Any asbestos-contaminated waste identified should be treated as if it were new asbestos waste entering the landfill and existing procedures for handling, transporting, and disposal in an asbestos waste disposal area should be followed, as required by the following rules:

<u>Regulation</u>	<u>Citation</u>
NESHAP	40 CFR §61
NC General Statutes	NC GS §130A, Article 19
NC Solid Waste Rules	15A NCAC 13B .0505 11(d)
NC Solid Waste Rules	15A NCAC 13B .1626 1(d)
OSHA	29 CFR 1926.1101
OSHA	29 CFR 1910.120

4.0 NOTIFICATION

In accordance with 40 CFR §61.151 (d) and 40 CFR §61.154 (j), the following State agency (NESHAP Administrator) will be notified with a formal notification form (permit) before digging begins on a project with the **potential** for encountering asbestos-contaminated waste:

Health Hazards Control Unit

NC DHHS/Division of Public Health
 2nd Floor, Room D-1
 5505 Six Forks Road
 Raleigh, NC 27609-3806
 Attn: Mr. Jeffery W. Dellinger, Industrial Hygiene Consultant
 Telephone: 919-707-5950
 Fax: 919-870-4808

At a minimum, this notification shall include the following:

1. Scheduled starting and completion date.
2. Reason for disturbing the waste.
3. Procedures to be used to control emissions during the excavation, storage, transport, and ultimate disposal of the excavated potential asbestos-containing material. If deemed necessary, the Administrator may require changes in the emission control procedures to be used.
4. Location of any temporary storage site and the final disposal site.
5. Site Plan.

The NESHAP Administrator shall be notified in writing at least 45 days prior to the start of work on this project.

5.0 PROJECT ACTIVITIES

This project is proposed to take place at the Wayne County MSW Landfill, as shown on **Figure 1, General Locaton Map**, and shall consist of the installation of new landfill gas (LFG) extraction wells and the re-drilling of LFG extraction wells and associated trenching. Part of the installation will occur on Unit 1, west of the scale house, consisting of one (1) new LFG extraction well and the re-drilling of two (2) LFG extraction wells with an approximate depth of 20 feet each. System expansion will also occur on Unit 3 Phase 1, north of the scalehouse, consisting of three (3) new landfill gas (LFG) extraction wells and the re-drilling of nine (9) LFG extraction wellswith an approximate depth of 30 feet each. All bore holes will be approximately 36 inches in diameter.

Associated trenching (approximately 700 feet total) is also planned through the course of this project. Trenching in these areas will be will be approximately three (3) feet wide and up to four (4) feet deep in most locations. The approximate locations of the proposed LFG extraction wells, leachate collection system, and associated trenching **are shown on Figures 2 and 3**. Select details for LFG extraction wells and trenching are shown on the **Attached Sheet No. 9 Drawing No. 2 – Landfill GCCS Details** (shown as **Figure 4**) from the Landfill Gas Collection and Control System Design Plan for MP Wayne, LLC, Dated August 20, 2012.

This project is tentatively scheduled to begin November 2014, for completion by the end of the year.

5.1 Involved Parties

The parties involved are as follows:

Owner:

Wayne County Landfill
460 S. Landfill Road, Dudley, NC 28333
Contact: Mr. Tim Rogers
Phone: (919) 689-2994
Email: tim.rogers@waynegov.com

Developer/Contractor:

Biogas Energy Solutions, LLC
40 Tower Ln #46, Avon, CT 06001
Contact: Mr. Steve Laliberty
Phone: (860) 678-7537
Email: slaliberty@besch4.com

Engineers/Construction Quality Assurance:

Smith Gardner, Inc.
14 N. Boylan Avenue, Raleigh, NC 27603
Contact: Mr. Don Misenheimer, AAI
Phone: 919-828-0577 x 224
Email: don@smithgardnerinc.com

5.2 Work Area Setup and Maintenance

It is required to have at least one (1) TAS in the immediate vicinity of the waste excavation to oversee the work area setup and maintenance. The TAS shall setup the work area such that the operator, his/her employees, and the public are protected while disturbing potential asbestos containing waste throughout the process until disposal of all asbestos waste has been completed, as follows:

- The work area shall be restricted from the public at a minimum of 50 feet and shall include adequate fencing and signage to delineate the disturbance area. This fencing shall be orange safety fencing. Signage shall be in accordance the OSHA Asbestos in Construction Standard 1926.1101 and the contractor shall adhere to the signage requirements for asbestos (presumed or otherwise) as referenced in the OSHA regulation. The fencing shall enclose enough area to adequately allow for project activities.
- The TAS is responsible for determining the locations of any covered containers, inside the fencing, that may be used to hold potential asbestos containing waste materials. These containers should also have signage stating "Potential Asbestos Containing Material--Authorized Personnel Only."

5.3 Inspection of Excavated Waste

As waste is excavated from the well or trench, it will be placed adjacent to the excavation location. An AAI shall observe the waste for signs of ACM. If the excavated waste does not appear to be contaminated by asbestos, the waste will be promptly transported to the active face of the landfill for disposal. If asbestos contaminated waste is identified or suspected by the AAI, the ACM Contingency Plan (**Section 5.4**) shall be followed.

5.4 ACM Contingency Plan

If asbestos contaminated waste is identified or suspected by the AAI, the following steps shall be followed:

- If the AAI determines that suspect asbestos containing waste is present, the suspect waste must be maintained adequately wet by the contractor and immediately be properly contained and disposed of in either a designated cell or another location determined by the landfill operator/manager as discussed in **Section 5.5**.

- If the AAI determines an amount of ACM is greater than an incidental amount or is in a condition such that an immediate risk of exposure is likely, he shall notify the TAS. If the TAS agrees with this determination, all work **MUST IMMEDIATELY STOP** and the area cleared of all personnel. The TAS shall notify an AAS to provide oversight to any abatement activities, in accordance with all Federal, State and Local laws, to be performed by the contractor or sub-contractors. Work may commence at another location determined by the AAS to be a safe distance away from significant suspect waste area. Work may continue at this location after the AAS determines that abatement has occurred and the suspect waste has been properly contained and disposed of in either a designated cell or another location determined by the landfill operator/manager as discussed in **Section 5.5**.

5.5 **Disposal**

All asbestos containing waste shall be disposed of in accordance with the Wayne County MSW Landfill Operations Plan, which includes sections for handling special wastes.

Appendix A includes the pages of the Operations Plan which discusses asbestos disposal at the Wayne County MSW Landfill. Additionally, the AAS shall direct that any friable/regulated asbestos shall be placed in a leak tight container and properly labeled prior to disposal. No waste shall leave the site.

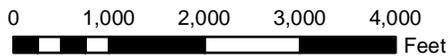
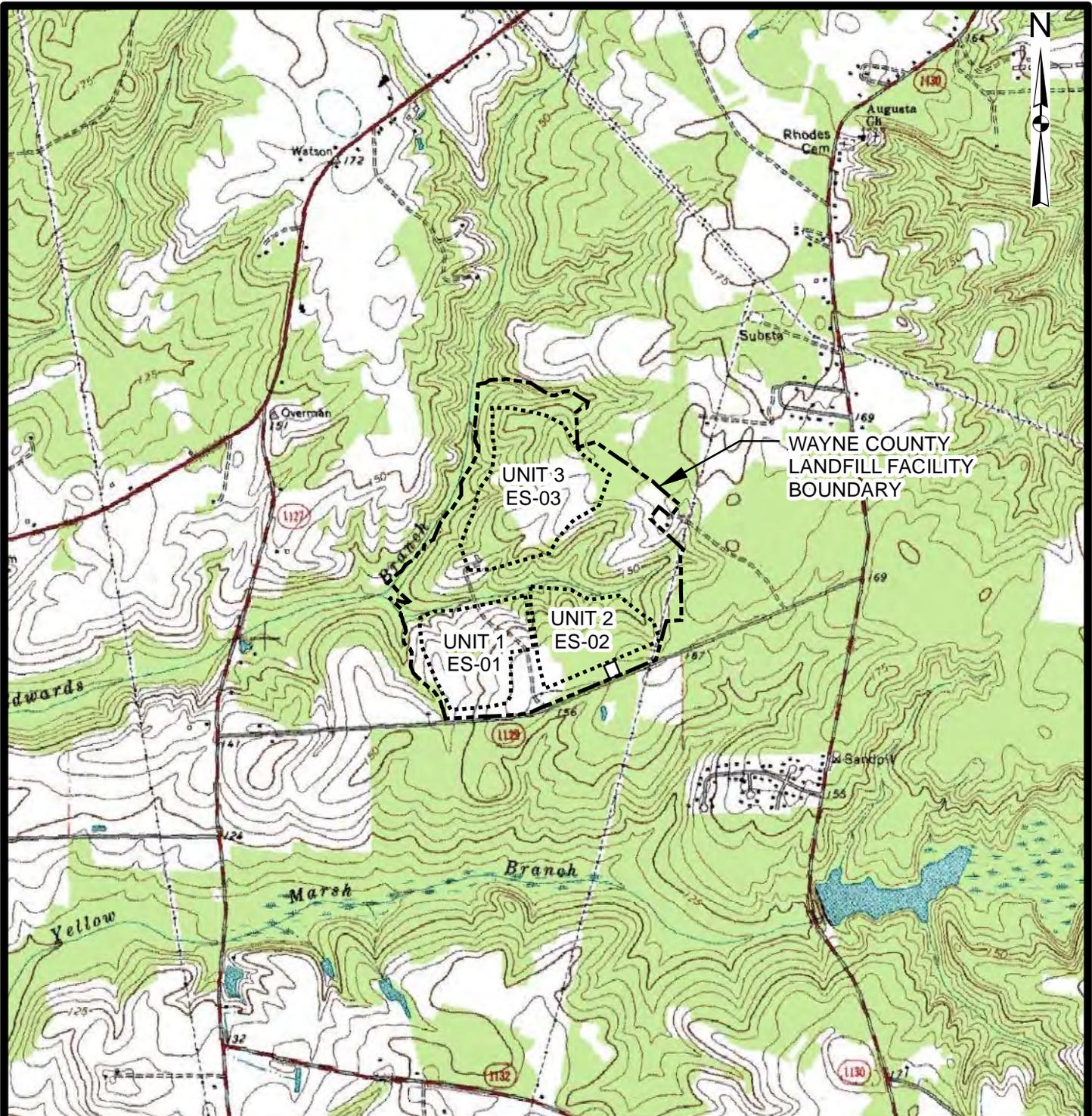
This page intentionally left blank.

Figure 1

General Location Map Expansion Plan

**Asbestos Work Plan
Landfill Gas Collection System Expansion 2014
Dudley, North Carolina**

This page intentionally left blank.



WAYNE COUNTY LANDFILL FACILITY
SITE VICINITY MAP

NC LIC. NO. C-0828 (ENGINEERING)

SMITH + GARDNER

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

DRAWN: C.T.J.	APPROVED: M.S.L.	SCALE: AS SHOWN	DATE: Jun. 2014	PROJECT NO.: WAYNE 14-1	FIGURE NO.: 1
------------------	---------------------	--------------------	--------------------	----------------------------	------------------

This page intentionally left blank.

Figure 2

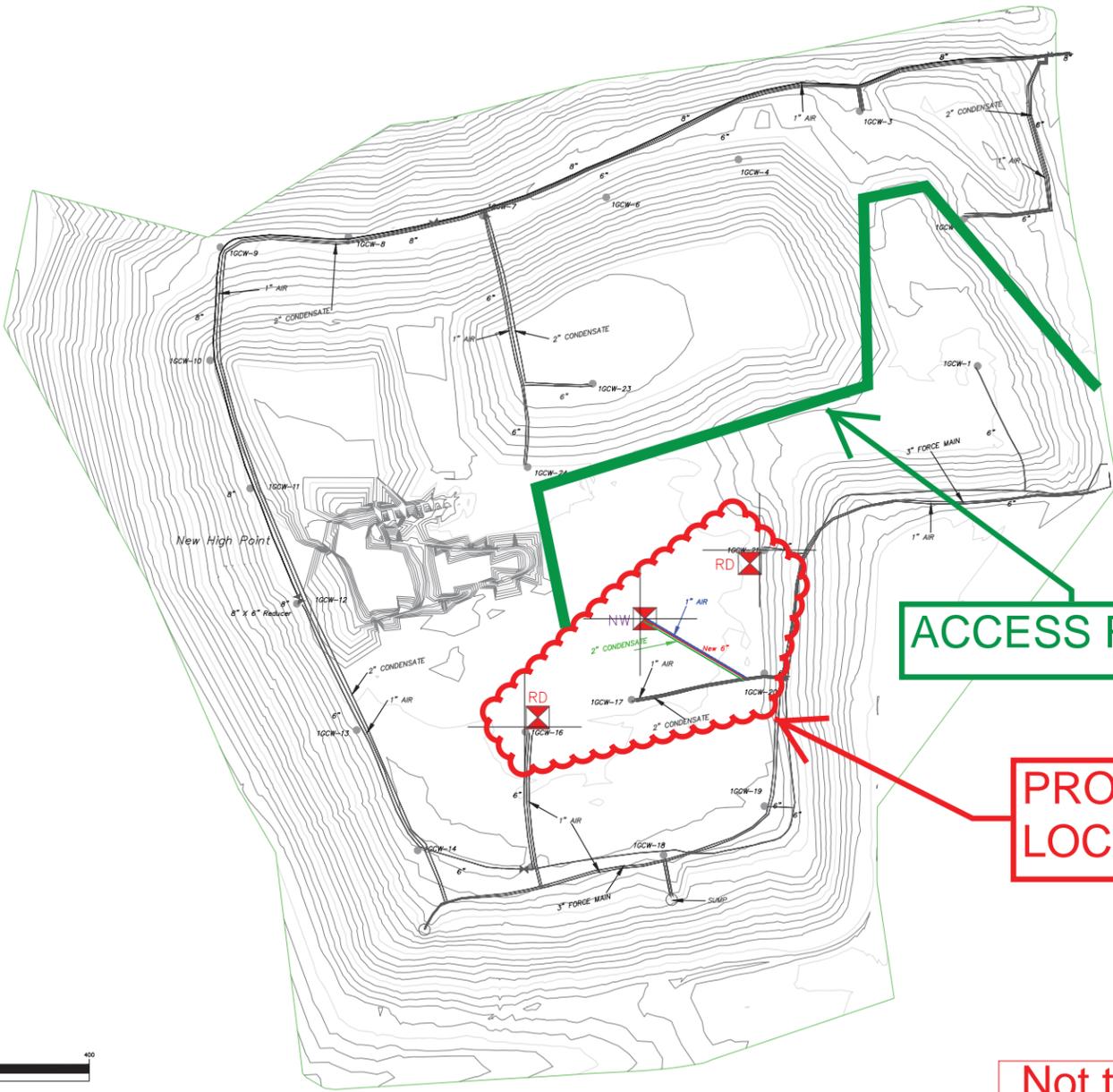
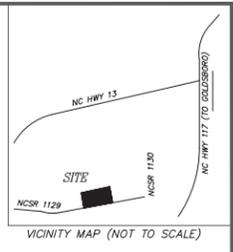
Unit 1 Project Location

**Asbestos Work Plan
Landfill Gas Collection System Expansion 2014
Dudley, North Carolina**

This page intentionally left blank.

Device ID	DTW	CTE	Height above grade FT	Re-Drill	New	Proposed Dr. Depth	Casing Size	Settled Pipe	Solid Pipe	North	East
UNIT 1 PHASE 1											
A1GCW-02	29	30	3.5	Yes		6.0	6.0	6.0	6.0	563789.1329	2277319.7068
A1GCW-03	19	26	1	No		6.0	6.0	6.0	6.0	563877.9469	2276342.9638
A1GCW-04	19	28	1	Yes		6.0	6.0	6.0	6.0	563877.9469	2276342.9638
A1GCW-02	13	24	1	Yes		6.0	6.0	6.0	6.0	563877.9469	2276342.9638
A1GCW-07	23.8	23.8	3.5	Yes		6.0	6.0	6.0	6.0	563889.7408	2276317.2777
A1GCW-03	29	32	3.5	Yes		6.0	6.0	6.0	6.0	563897.4570	2276162.9364
A1GCW-08	21	23	1	No		6.0	6.0	6.0	6.0	564245.2779	2276139.9578
A1GCW-06	19	20.8	3.5	Yes		6.0	6.0	6.0	6.0	564245.2779	2276139.9578
A1GCW-04	28	30.8	3.5	No		6.0	6.0	6.0	6.0	564245.2779	2276139.9578
A1GCW-03	13	22	1	Yes		6.0	6.0	6.0	6.0	564201.2286	2276192.2309
A1GCW-10	20	26.5	3.5	Yes		6.0	6.0	6.0	6.0	563904.2768	2277173.0738
A1GCW-11	15	25.8	1	Yes		6.0	6.0	6.0	6.0	563877.9469	2277180.5767
A1GCW-06	24	27.6	3.5	No		6.0	6.0	6.0	6.0	563773.0772	2277180.5767
A1GCW-14	23	23.5	1	No		6.0	6.0	6.0	6.0	563472.1668	2276668.1118
A1GCW-05				Ver.		6.0	6.0	6.0	6.0	563773.0772	2276120.5767
A1GCW-08				Ver.		6.0	6.0	6.0	6.0	563773.0772	2277180.5767
A1GCW-17				Ver.		6.0	6.0	6.0	6.0	563773.0772	2277180.5767
UNIT 2											
A1GCW1003	14	16	1								
A1GCW1004	13	16	2.5								
A1GCW1006	24	24.5	1								

**FIGURE 2
UNIT 1 PROJECT LOCATION**

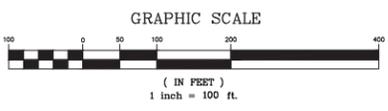


Legend (New Proposed)

	Proposed New Or Re-Drilled Well
	RD = Re-Drill
	NW = New Well
	New Header Pipe, 6"
	New 1" Air Supply Line
	New 2" Condensate Line

Existing Legend

	Existing Well
	Isolation Valve
	Existing Sump
	Access Road
	Existing Air Line
	Existing Force Main
	Existing Collection Header



ACCESS ROAD

PROJECT LOCATION

Not to scale

DRAWN BY: RG	Project Owner: MP WAYNE, LLC 5448 APEX PEAKWAY #334 APEX, NORTH CAROLINA 27502 (PH) 919-387-7817 (FAX) 919-367-9688	Project Title: WAYNE COUNTY LANDFILL GAS COLLECTION SYSTEM MODIFICATIONS UNIT 1	DRAWING TITLE:	UNIT 1 PROPOSED WELLS
SURVEY BY:			SITE OWNER:	WAYNE COUNTY LANDFILL, NC
CHECKED BY:			SCALE:	1" Equals 100'
FILE NAME:			DATE:	October 2014
			SHEET #:	Sheet 1

This page intentionally left blank.

Figure 3

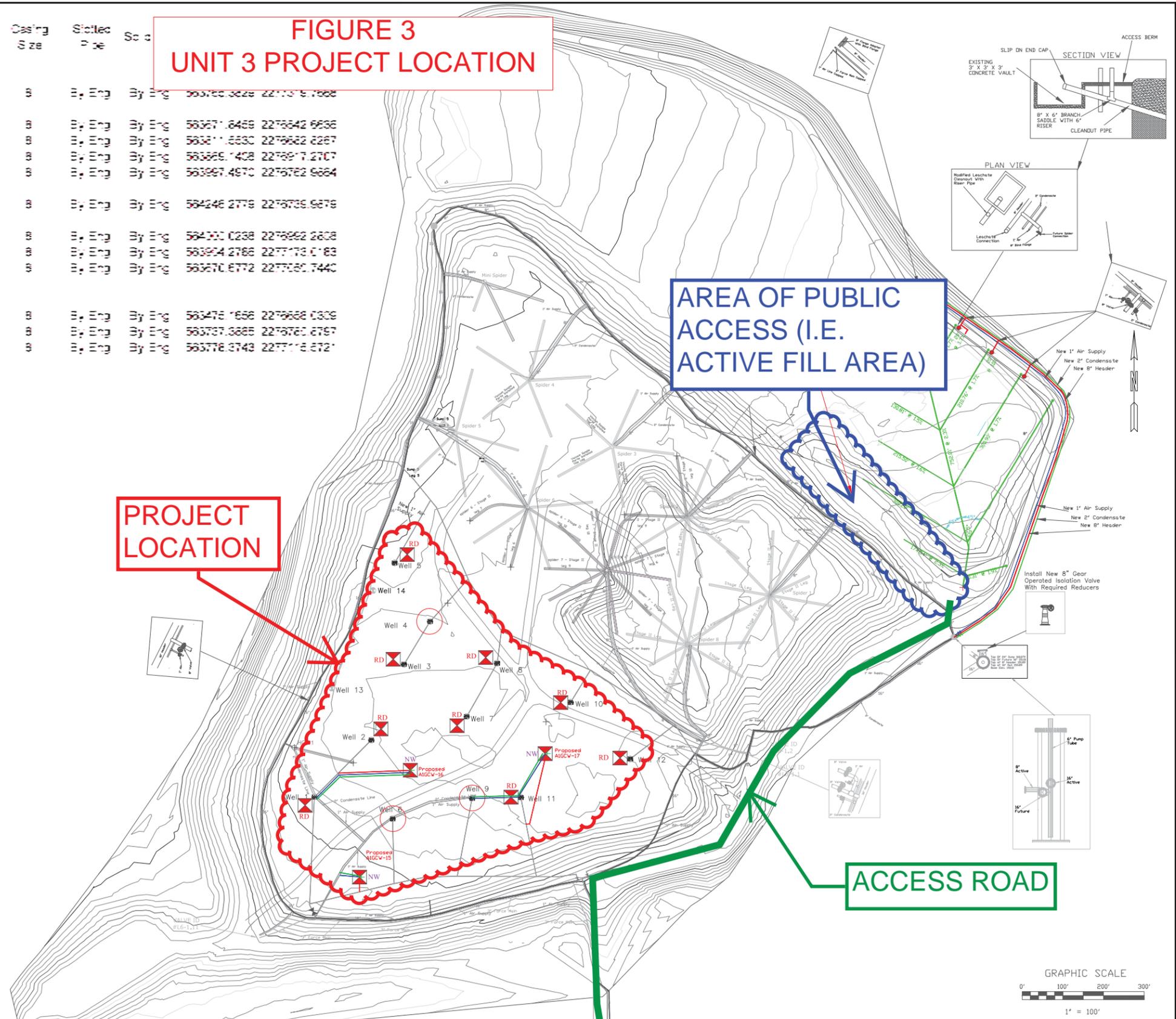
Unit 3 Project Location

**Asbestos Work Plan
Landfill Gas Collection System Expansion 2014
Dudley, North Carolina**

This page intentionally left blank.

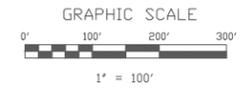
Device ID	DTW	DTE	Height of casing above grade FT	Re-Drill Yes No	New Yes No	Proposed Dr Depth	Casing Size	Slotted Pipe	Scale	Coordinates
UNIT 3 PHASE 1										
A1GCN-12	28	30	3.6	Yes	By Eng	8	By Eng	By Eng	By Eng	563762.3628 2277319.7668
A1GCN-09	16	26	3	No						
A1GCN-01	16	28	3	Yes	By Eng	8	By Eng	By Eng	By Eng	563671.6469 2276642.6638
A1GCN-02	13	24	3	Yes	By Eng	8	By Eng	By Eng	By Eng	563611.5530 2276622.2267
A1GCN-07	23.6	23.6	3.6	Yes	By Eng	8	By Eng	By Eng	By Eng	563669.1408 2276917.2707
A1GCN-03	28	32	3.6	Yes	By Eng	8	By Eng	By Eng	By Eng	563697.4670 2276762.6664
A1GCN-13	21	23	3	No						
A1GCN-05	16	30.8	3.6	Yes	By Eng	8	By Eng	By Eng	By Eng	564246.2776 2276739.9679
A1GCN-04	28	30.6	3.6	No						
A1GCN-08	13	22	3	Yes	By Eng	8	By Eng	By Eng	By Eng	564301.0238 2276962.2608
A1GCN-10	20	25.6	3.6	Yes	By Eng	8	By Eng	By Eng	By Eng	563924.2766 2277173.0183
A1GCN-11	16	25.6	3	Yes	By Eng	8	By Eng	By Eng	By Eng	563670.6772 2277080.7440
A1GCN-06	24	27.6	3.6	No						
A1GCN-14	23	23.6	3	No						
A1GCN-16				New	By Eng	8	By Eng	By Eng	By Eng	563476.1656 2276668.0309
A1GCN-18				New	By Eng	8	By Eng	By Eng	By Eng	563737.6886 2276760.6767
A1GCN-17				New	By Eng	8	By Eng	By Eng	By Eng	563778.3743 2277116.6721

**FIGURE 3
UNIT 3 PROJECT LOCATION**



Legend

	Proposed New Or Re-Drilled Well RD = Re-Drill NW = New Well
	Proposed Leachate Connection
	New Header Pipe, 8", 16" As Labeled
	New 1" Air Supply Line
	New 2" Condensate Line
	New Header Valve
	New 1" Air Valve
	New 2" Condensate Valve



DRAWN BY: RG	Project Owner: MP WAYNE, LLC 5448 APEX PEAKWAY #334 APEX, NORTH CAROLINA 27502 	SEAL:	Project Title: WAYNE COUNTY LANDFILL GAS COLLECTION SYSTEM MODIFICATIONS UNIT 3, PHASE 3, NEW CELL	DRAWING TITLE:	LFG PROPOSED EXPANSION
SURVEY BY:				SITE OWNER:	WAYNE COUNTY LANDFILL, NC
CHECKED BY:				SCALE:	1" Equals 100'
FILE NAME:		(PH) 919-387-7817 (FAX) 919-367-9688		DATE:	OCTOBER 2014
				SHEET #:	Sheet 2

This page intentionally left blank.

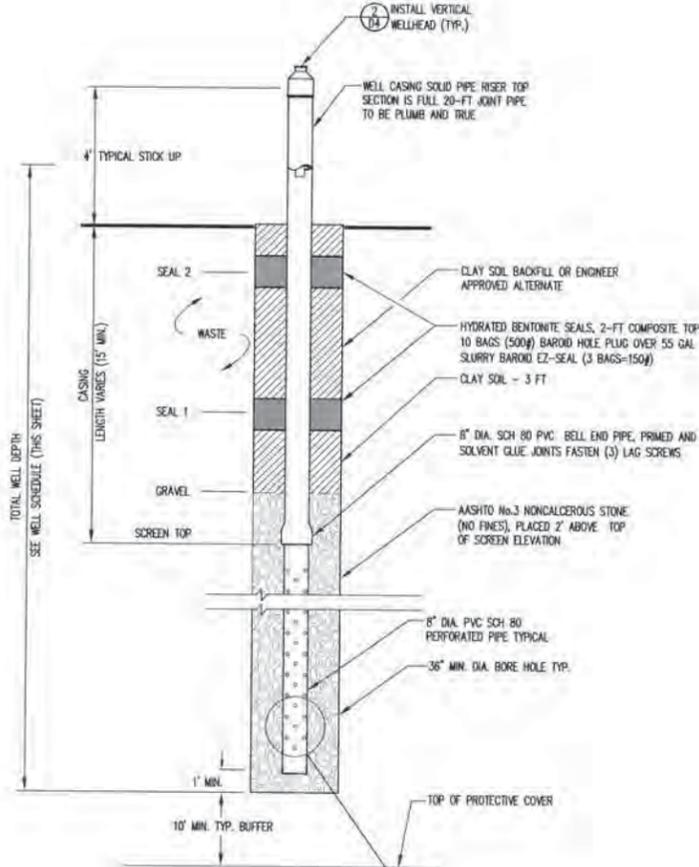
Figure 4

Details

**Asbestos Work Plan
Landfill Gas Collection System Expansion 2014
Dudley, North Carolina**

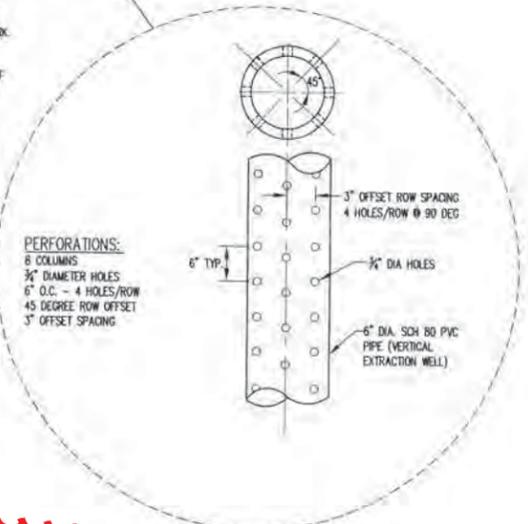
This page intentionally left blank.

Figure 4 - Details



- NOTES:**
- ADDITIONAL BENTONITE SEALS (AND SOLID CASING SECTIONS) MAY BE REQUIRED TO ISOLATE PERCHED LEACHATE ZONES AS SUPPLEMENTAL WORK.
 - DEWATERING AFTER SETTING CASING MAY BE DIRECTED BY ENGINEER AS SUPPLEMENTAL WORK.
 - A STICKUP OF 3\"/>

LANDFILL GAS PRODUCTION WELL
 DETAIL 1
 NOT TO SCALE D4

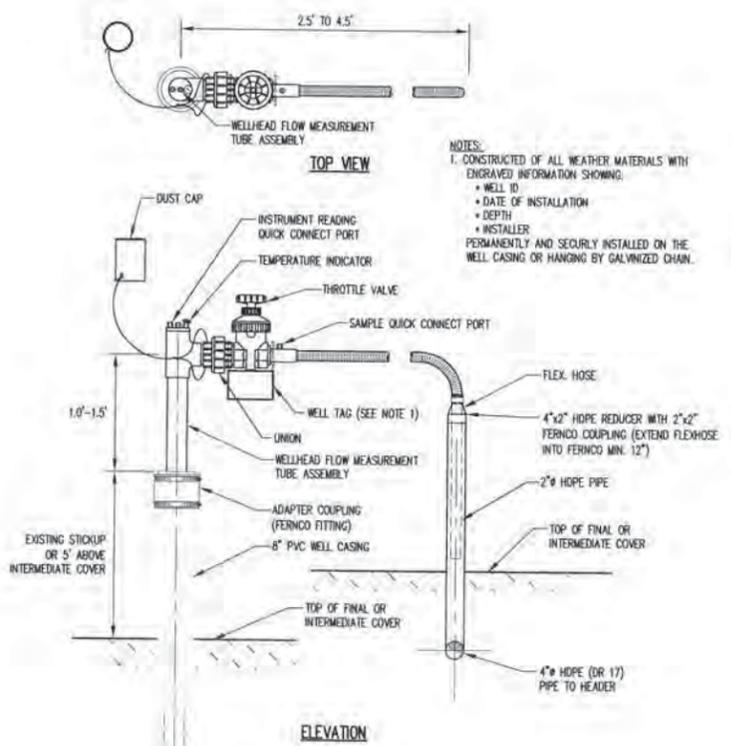


LANDFILL GAS EXTRACTION WELL SCHEDULE								
WELL NO.	NORTHING	EASTING	APPROX. BASE GRADE ELEVATION (FT-MSL) (REF. 2)	APPROX. SURFACE ELEVATION (FT-MSL) (REF. 1)	WASTE DEPTH (FT)	PROPOSED DRILL DEPTHS (FT)	PERF PIPE (FT)	SOLID PIPE (FT)
30CW-13	563837.78	2276589.18	155.00	184.00	31	21	9	11
30CW-14	564178.22	2276686.86	149.00	183.00	34	23	9	13
30CW-15	564803.10	2277887.71	170.43	214.00	44	34	19	15
30CW-16	2277896.59	2277896.59	170.69	213.00	42	32	17	15
30CW-17	564648.43	2278086.68	168.74	212.00	43	33	18	15
30CW-18	564586.65	2278193.66	166.67	205.75	36	26	11	15
20CW-23	562653.48	2277555.83	150.00	172.00	22*	22	9	12
20CW-24	562511.83	2277975.13	150.00	177.00	27*	27	11	15
20CW-25	562351.93	2278161.97	150.00	180.00	30*	30	14	15
20CW-26	562242.81	2277900.29	150.00	180.00	30*	30	14	15

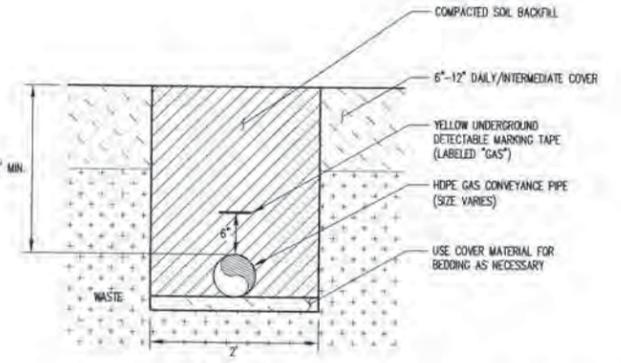
* - WELLS 20CW-23, 20CW-24, 20CW-25, AND 20CW-26, ARE LOCATED IN UNIT 2, WHICH IS AN UNLINED UNIT.

- WELL NOTES**
- DRILLING SHALL COMMENCE AFTER ENGINEERING APPROVAL ONLY. FIELD SURVEY WILL BE PERFORMED WITHIN SEVEN (7) DAYS OF DRILLING TO VERIFY LOCATIONS AND ELEVATIONS. DRILLING CONTRACTOR WILL BE PROVIDED ACTUAL DRILLING SCHEDULE PRIOR TO WORK BASED ON FIELD SURVEY.

- REFERENCES:**
- APPROXIMATE SURFACE GRADE ELEVATIONS BASED ON EXISTING TOPOGRAPHIC CONDITIONS PROVIDED BY MUNICIPAL ENGINEERING SERVICES CO, PA FROM VARIOUS DATES.
 - APPROXIMATE BASE GRADE ELEVATIONS FROM MUNICIPAL ENGINEERING SERVICES CO, PA. ON 11/18/10 AND A SURVEY TAKEN BY OWEN SURVEYING, INC., DATED 11/19/98.



VERTICAL WELLHEAD
 DETAIL 2
 NOT TO SCALE D4



GAS CONVEYANCE PIPE TRENCH
 DETAIL 3
 NOT TO SCALE D2

NOTE:
 1. WHERE AIR OR CONDENSATE ARE SHOWN, ALL PIPING CAN BE PLACED IN THE SAME TRENCH.

PERMIT ISSUE
 NOT FOR CONSTRUCTION

RICHARDSON SMITH GARDNER & ASSOCIATES
 14 N. Boylan Ave., Raleigh, N.C. 27603
 ph: 919-288-8877 fax: 919-288-8898
 www.rsgengineers.com



WAYNE COUNTY LANDFILL FACILITY
WAYNE COUNTY, NORTH CAROLINA
GAS SYSTEM EXPANSION

LANDFILL GCCS DETAILS
 (SHEET 2 OF 4)

DESIGNED BY: S.A.S.	DRAWN BY: C.T.J.
CHECKED BY: J.P.P.	PROJECT NO.: MPW 19-2
SCALE: AS SHOWN	DATE: JUNE 2012
FILE NAME: WAYNE-0001E	
SHEET NO: 9	DRAWING NO: D2

This page intentionally left blank.

Appendix A

Operations Plan 2.2.3 Asbestos Waste Disposal Section

**Asbestos Work Plan
Landfill Gas Collection System Expansion 2014
Dudley, North Carolina**

This page intentionally left blank.

- iii. Motor vehicle oil filters (effective October 1, 2009).
 - iv. Wooden pallets, except that wooden pallets maybe disposed of in a landfill that is permitted to only accept construction and demolition debris (effective October 1, 2009).
 - v. Discarded computer equipment (effective April 1, 2011).
- e. Asbestos waste will be accepted and managed in accordance with 40 CFR 61. The waste will be covered immediately with soil in a manner that will not cause airborne conditions and must be disposed of separate and apart from other solid wastes:
- i. At the bottom of the working face or;
 - ii. In an area not contiguous with other disposal areas. Separate areas will be clearly designated so that asbestos is not exposed by future land disturbing activities.
- f. Wastewater treatment sludges may be accepted either as a soil conditioner incorporated into or applied onto vegetative growth layer but in no case greater than six inches in depth. Or wastewater treatment sludges may be co-disposed in the lined area.
- g. The County will continue a program at the Landfill for detecting and preventing the disposal of hazardous and liquid wastes. (Section 5.3-Appendix I) This program will include, at a minimum:
- i. Random inspections of incoming loads or other comparable procedures;
 - ii. Records of any inspections;
 - iii. Training of facility personnel to recognize hazardous and liquid wastes.
 - iv. If hazardous wastes are identified by facility personnel, Emergency Management or personnel trained, shall be notified to identify the waste and address removal, storage and final deposition of the waste.
- h. Waste placement will be within the areal limits of the base liner system and in a manner consistent with the effective permit.
2. Cover material requirements.
- a. Except as in Part (b), The County must cover disposed solid waste with six inches of earthen material at the end of each operating day, or at more frequent intervals if necessary, to control disease vectors, fires, odors blowing litter, and scavenging.
 - b. Alternative materials such as synthetic cover may be used as daily cover on the working face until it is necessary to cover with earthen material. The alternative material must be approved by the Division and applied according to manufacturers recommendations. At a minimum soil cover will be used once a week.
 - c. Areas which will not have additional wastes placed on them for 12 months or more, but where final termination of disposal operations has not occurred, will be covered with a minimum of one foot of intermediate cover.

This page intentionally left blank.