

From: [Smallwood, Thomas](#)
To: [IDEM OLO Solid Waste Permits Submittals](#)
Cc: [Weinzapfel, Adam](#); [Klopfenstein, Jeremiah](#)
Subject: Construction Certification Report for GCCS Work at Oak Ridge RDF
Date: Monday, July 1, 2024 9:19:10 AM
Attachments: [Oak Ridge 2024 GCCS IDEM Submittal 6-21-24.pdf](#)

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Good morning,

Please see the attached Construction Certification Report for GCCS Work at the Oak Ridge RDF (Permit 09-02). Please reach out with any questions or comments,

Regards,
Tom Smallwood

Thomas Smallwood, Ph.D.

Engineer II, 

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WM – Twin Bridges Landfill |
124 East Twin Bridges Rd. |
Danville, IN 46122 |

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PREPARED FOR:

Waste Management of Indiana, L.L.C.
Oak Ridge Recycling & Disposal Facility
2905 South 150 East
Logansport, IN 46947

PREPARED BY:

T&M Associates, Inc.
301 East Washington Street
Suite 404
Indianapolis, IN 46204

CONSTRUCTION
CERTIFICATION
REPORT – *2024 GCCS
PROJECT*

FACILITY PERMIT NO.: 09-02

OAK RIDGE RECYCLING & DISPOSAL FACILITY
2905 SOUTH 150 EAST
CASS COUNTY, LOGANSPO, INDIANA

T&M PROJECT NO. WMMW00085
April 2024

A handwritten signature in black ink, appearing to read 'Bradley S. Hartz', is written over a horizontal line.

Bradley S. Hartz, PE
IN License No. 60860170





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DRAWINGS

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1.0 INTRODUCTION

Oak Ridge RDF (Oak Ridge) has completed the construction associated with the 2024 landfill gas system (GCCS) construction project for the solid waste landfill facility located in Logansport, Indiana. Landfill gas extraction well drilling began on March 13, 2024, and was completed on March 18, 2024. Landfill gas system piping installation began on March 21, 2024, and was completed on May 10, 2024.

Oak Ridge retained T&M Associates (T&M) of Indianapolis, Indiana to provide third party quality assurance inspection and documentation of construction activities associated with the 2024 GCCS project. The inspection and documentation performed by T&M personnel indicate the completed work to be in general conformance with the approved design specifications. This report identifies modifications required during the construction, in Section 3.0.

Landfill Drilling & Piping, Sun Prairie, Wisconsin (LDP) performed the gas extraction well installation. Fox Contracting Corporation, Ft. Wayne, Indiana (Fox) performed the HDPE gas header/lateral pipe, condensate knockout, and force main pipe installation services. T&M provided as-built survey services.

This report, with accompanying appendices and construction record drawings, provides documentation of the quality assurance program implemented during construction associated with the 2024 gas system construction project. Included in this report are the following specific items:

- Certification that the seventeen (17) gas extraction wells were constructed in a manner consistent with the GCCS design documents;
- Certification that the gas system HDPE header/lateral piping, condensate knockout, and force main were constructed in a manner consistent with the GCCS design documents;
- HDPE header/lateral piping and force main were properly pressure tested;
- HDPE header/lateral and force main as-built drawings; and
- Cover system integrity is not compromised.



2.0 PROJECT DESIGN

The design guidance and typical specifications for the 2024 GCCS project are outlined in the Waste Management landfill gas system design manual, best management practices, and standard operating procedures. The system was constructed in general accordance with the permitted design plans (“Amended NSPS Collection and Control System Design Plan and Surface Monitoring Plan for the Oak Ridge RDF”), dated November 4, 2003, amended March 5, 2004, amended November 17, 2004, and Condition C.3 in the IDEM permit renewal dated January 12, 2022, and Waste Management best management practices/design documents.



3.0 MODIFICATION FROM THE DESIGN

The installation of seventeen (17) gas extraction wells and the 24-inch HDPE header piping, the 12-inch HDPE header piping, the 6-inch HDPE lateral piping, a condensate knockout structure, and the 2" x 4" force main were constructed in general conformance with the design plans and specifications. However, minor variations and upgrades were required as follows:

- 1) As-built depths and locations of some of the extraction wells varied slightly from the design depth or location. These changes were due to drilling conditions, or topographic conditions that deviated from design. All wells were drilled within the drill bucket diameter of the staked well location.
- 2) As-built locations of some of the HDPE header/lateral piping varied slightly from the design locations. Existing topography, site conditions, and landfill gas extraction well locations necessitated installing the infrastructure to "field fit" existing conditions.



4.0 CONSTRUCTION AND INSPECTION PROCEDURES

Construction included the installation of seventeen (17) gas extraction wells totaling 1,042 feet in depth, this included the wellhead assemblies. Approximately 891 LF of 24-inch HDPE gas header pipe, 792 LF of 12-inch HDPE gas header pipe, and 1,753 LF of 6-inch HDPE gas lateral pipe, and 55 LF of 2" x 4" HDPE force main were installed in addition to the required flanges, risers, etc. A description of the completed construction is included herein.

4.1 VERTICAL GAS EXTRACTION WELL INSTALLATION

LDP installed a total of seventeen (17) gas extraction wells (Table 1) during the project. Typical well configuration consisted of a perforated and solid Schedule 80 PVC gas extraction pipe the entire depth of the well, gravel pack to within fifteen (15) feet of the existing ground elevation, a two (2) foot bentonite seal, eight (8) feet of soil, a two (2) foot bentonite seal, and one (1) foot of soil, and a four (4) foot Schedule 80 PVC extension above the ground elevation. There was a total combined well depth of 1,042 feet for the gas extraction wells. The drill logs are included in Appendix A.

4.2 HDPE GAS COLLECTION PIPE INSTALLATION

The gas header trench was typically excavated to a depth of approximately thirty-six (36) to forty (40) inches below grade using a CAT 330 excavator. The trench depth varied to maintain the desired pipe grade (minimum of 2%) and additional soil was added in some areas to ensure at least a twenty-four (24) inch soil cover over the piping. Solid waste that was encountered was hauled to the active working face for disposal and all extra soil material was regraded to match the existing final cover slopes. Fox placed the soil material that was excavated from the trench, or soil obtained from approved borrow areas, over the gas header to a minimum thickness of twenty-four inches of soil cover. The cover over the newly installed header/lateral piping was graded to match the existing cover grades. The area was ready for seeding and mulching to ensure a good vegetative cover.

Standard butt-fusion welding techniques were used to join adjacent sections of HDPE pipe. The HDPE header/lateral piping was air pressure tested at a pressure of equal to or greater than 10-psig over a one (1) hour period with a maximum allowable pressure loss of 1%. All pressure testing showed passing results and the data is presented in Appendix B.



5.0 CONSTRUCTION QUALITY ASSURANCE

Conformance observation performed and documented by T&M consisted of visually monitoring the materials which were being used during construction as well as monitoring construction procedures to verify that both conformed to the design requirements. Items monitored included the following:

- Gas extraction well drilling depth, installation of the PVC perforated piping, gravel backfill, and well seals;
- Gas header/lateral pipe schedule rating, dimensions and size;
- Gas header/lateral and force main pipe butt-fusion welding;
- Gas header/lateral and force main pipe air pressure testing; and
- Repairs to the cover system, ensuring system integrity.

The observations made by T&M during inspection of construction activities associated with the landfill gas system indicate that the construction was completed in substantial compliance with the project design specifications and quality assurance program as required in the solid waste operating permit for this facility. Any areas or construction items that were modified from the project specifications are clearly identified herein.



6.0 SUMMARY

T&M provided construction quality assurance engineering and monitoring services during the landfill gas system construction at the Oak Ridge Recycling & Disposal Facility, Logansport, Indiana for the installation of seventeen (17) gas extraction wells (combined depth of 1,042) and the installation of HDPE gas collection header/lateral piping from the wells to the condensate knockout. Plus, the installation of the force main to the leachate collection system. The overall project duration was from March 13, 2024, through May 10, 2024.

The quality assurance program included gas extraction well installation, gas collection header/lateral HDPE piping installation, condensate knockout installation, force main installation, materials verification, and survey coordination for as-built record documentation. The observations made by T&M during the monitoring of construction associated with the landfill gas system project indicate that the construction was accomplished in substantial conformance with the project design specifications.

This report has been prepared in keeping with accepted standards of practice for the preparation of record documentation and construction certification reports and using T&M's professional judgment. No warranties, either expressed or implied, are made herein.



7.0 ENGINEER CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that I am authorized to submit this information."

T&M ASSOCIATES, INC.



Bradley Hartz
This item has been electronically signed and sealed by Bradley Hartz, PE using a Digital Signature and date. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

6/19/2024

Bradley S. Hartz, P.E.
State of Indiana
Professional Engineer Registration No. PE60860170
Expires July 31, 2024

TABLE 1
OAK RIDGE RDF
2024 LFG Well Drilling Schedule

<u>Well ID</u>	<u>POINT No.</u>	<u>Northing</u>	<u>Easting</u>	<u>Ground Surface Elevation</u>	<u>Description</u>	<u>Clay Liner Elevation</u>	<u>Drainage Layer Elevation</u>	<u>10' from Drainage Layer</u>	<u>Calculated Bore Elevation</u>	<u>Calculated Bore Depth</u>
GW-57R	500	1,994,646	140,586	746	GW-57R PROPOSED	676	677	10	687	59
GW-116	601A	1,994,587	140,437	747	GW-A GR 20240131	676	677	10	687	60
GW-117	507	1,994,540	140,256	746	GW-B PROPOSED	688	689	10	699	47
GW-118	510	1,994,530	140,061	745	GW-C PROPOSED	690	691	10	701	44
GW-119	511	1,994,732	140,070	747	GW-D PROPOSED	677	678	10	688	59
GW-120	512	1,994,955	140,084	747	GW-E PROPOSED	678	679	10	689	58
GW-121	513	1,995,138	140,104	751	GW-F PROPOSED	679	680	10	690	61
GW-122	514	1,995,338	140,152	754	GW-G PROPOSED	677	678	10	688	66
GW-123	515	1,995,380	140,361	761	GW-H PROPOSED	680	681	10	691	70
GW-124	516	1,995,337	140,489	764	GW-I PROPOSED	677	678	10	688	76
GW-125	617A	1,995,171	140,535	759	GW-J GR 20240131	678	679	10	689	70
GW-126	518	1,995,097	140,312	752	GW-K PROPOSED	682	683	10	693	59
GW-127	619A	1,994,918	140,333	749	GW-L GR 20240131	680	681	10	691	58
GW-128	520	1,994,727	140,356	748	GW-M PROPOSED	678	679	10	689	59
GW-129	621A	1,994,994	140,634	756	GW-N GR 20240131	681	682	10	692	64
GW-130	622A	1,994,792	140,693	755	GW-O GR 20240131	680	681	10	691	64
GW-131	523	1,994,797	140,488	749	GW-P PROPOSED	676	677	10	687	62



Appendix A

Drill Logs

LGMS ID

Alias

Site Name:

OAK RIDGE RDF

GW-57R

Site ID: (e.g.S04567)

Date Installed: 3/15/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

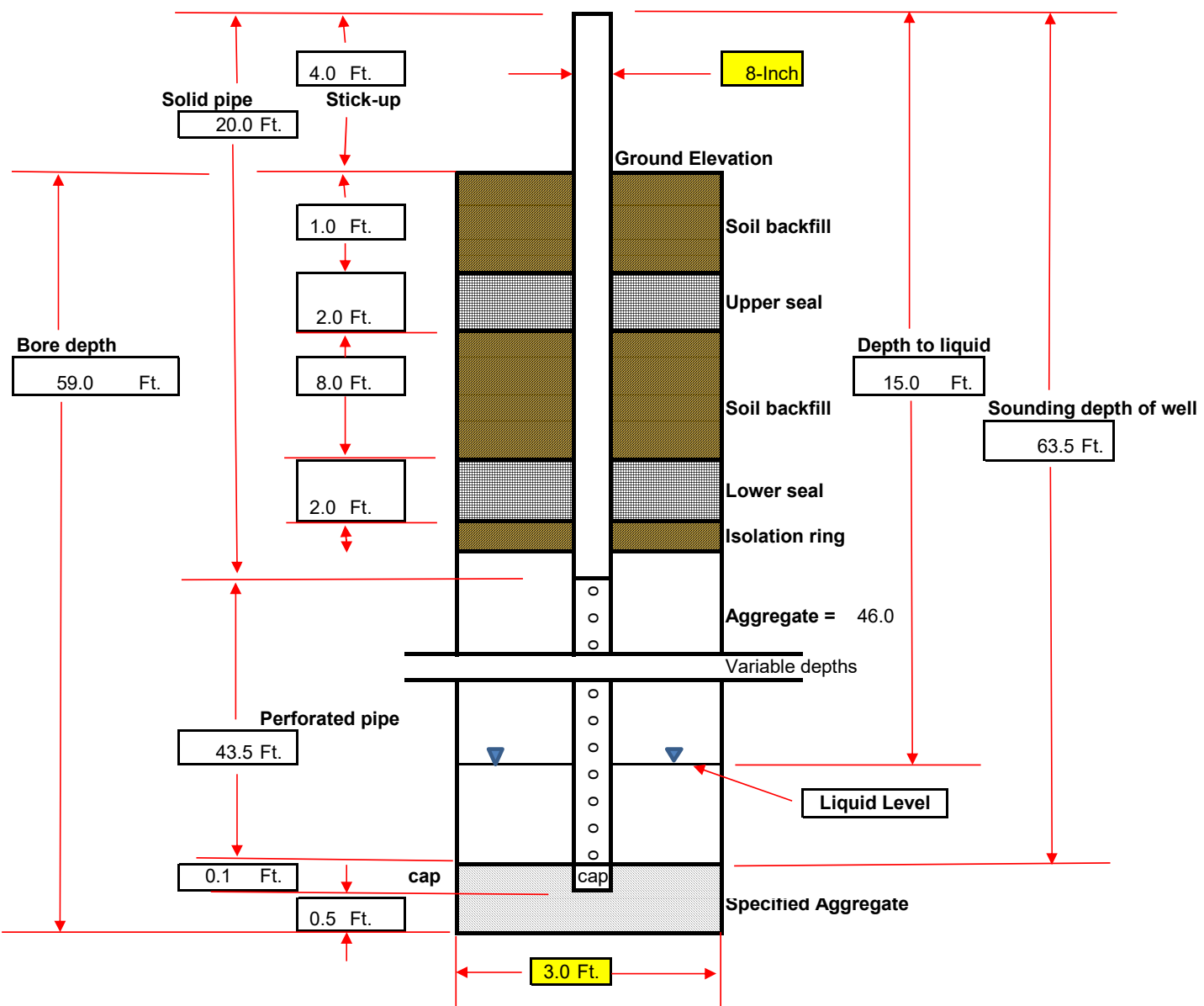
Northing: 1,994,646

Easting: 140,586

Ground Elevation (MSL): 746

Notes: SURVEYED ELEVATION 745.1

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

GW-116

Site Name:

OAK RIDGE RDF

Site ID: (e.g.S04567)

Date Installed: 3/14/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates:

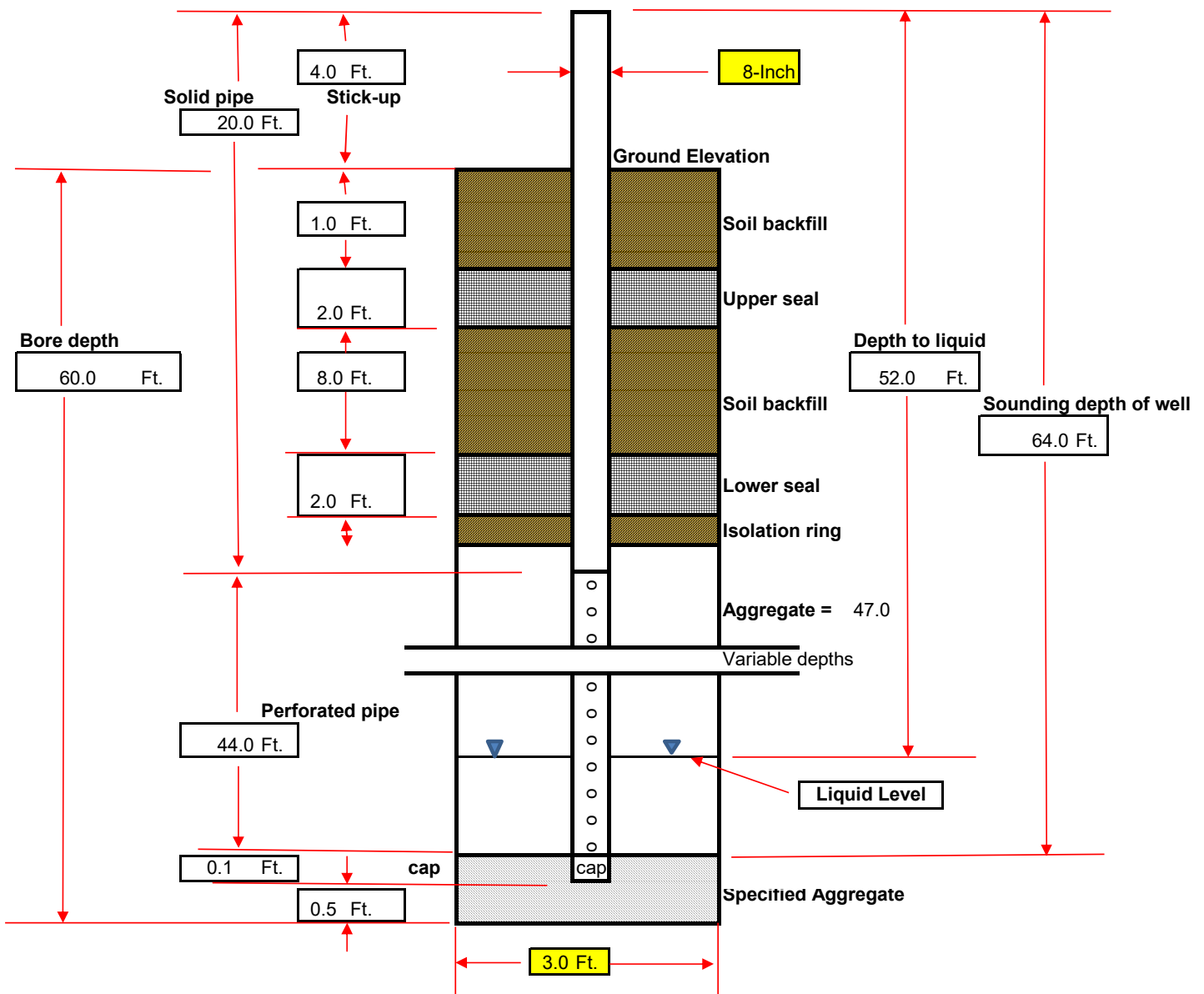
Northing: 1,994,587

Easting: 140,437

Ground Elevation (MSL): 747

Notes: SURVEYED ELEVATION 746.5

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

GW-117

Site Name:

OAK RIDGE RDF

Site ID: (e.g.S04567)

Date Installed: 3/14/2023

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

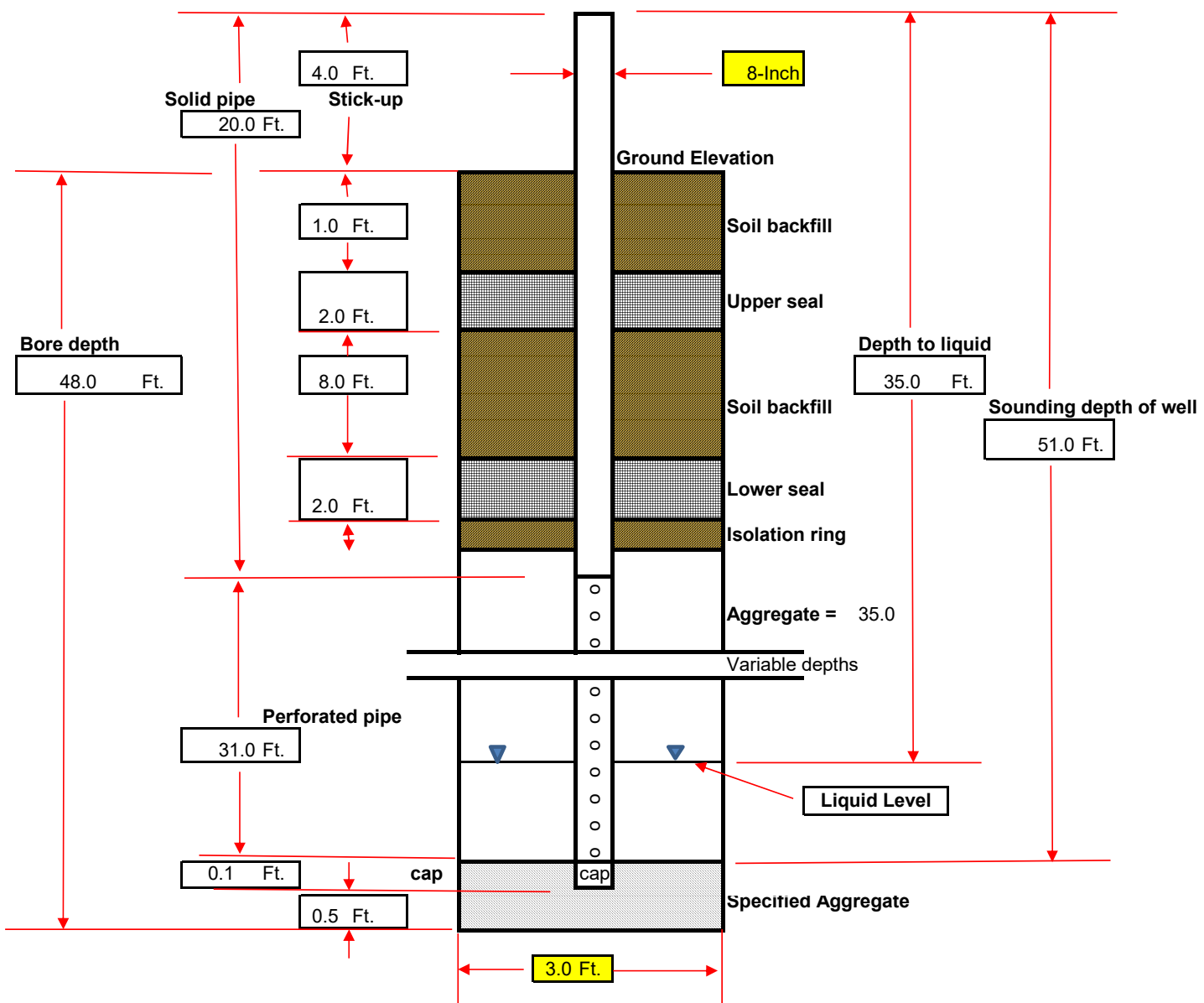
Northing: 1,994,540

Easting: 140,256

Ground Elevation (MSL): 746

Notes: SURVEYED ELEVATION 475.4

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

GW-118

Site Name:

OAK RIDGE RDF

Site ID: (e.g.S04567)

Date Installed: 3/17/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

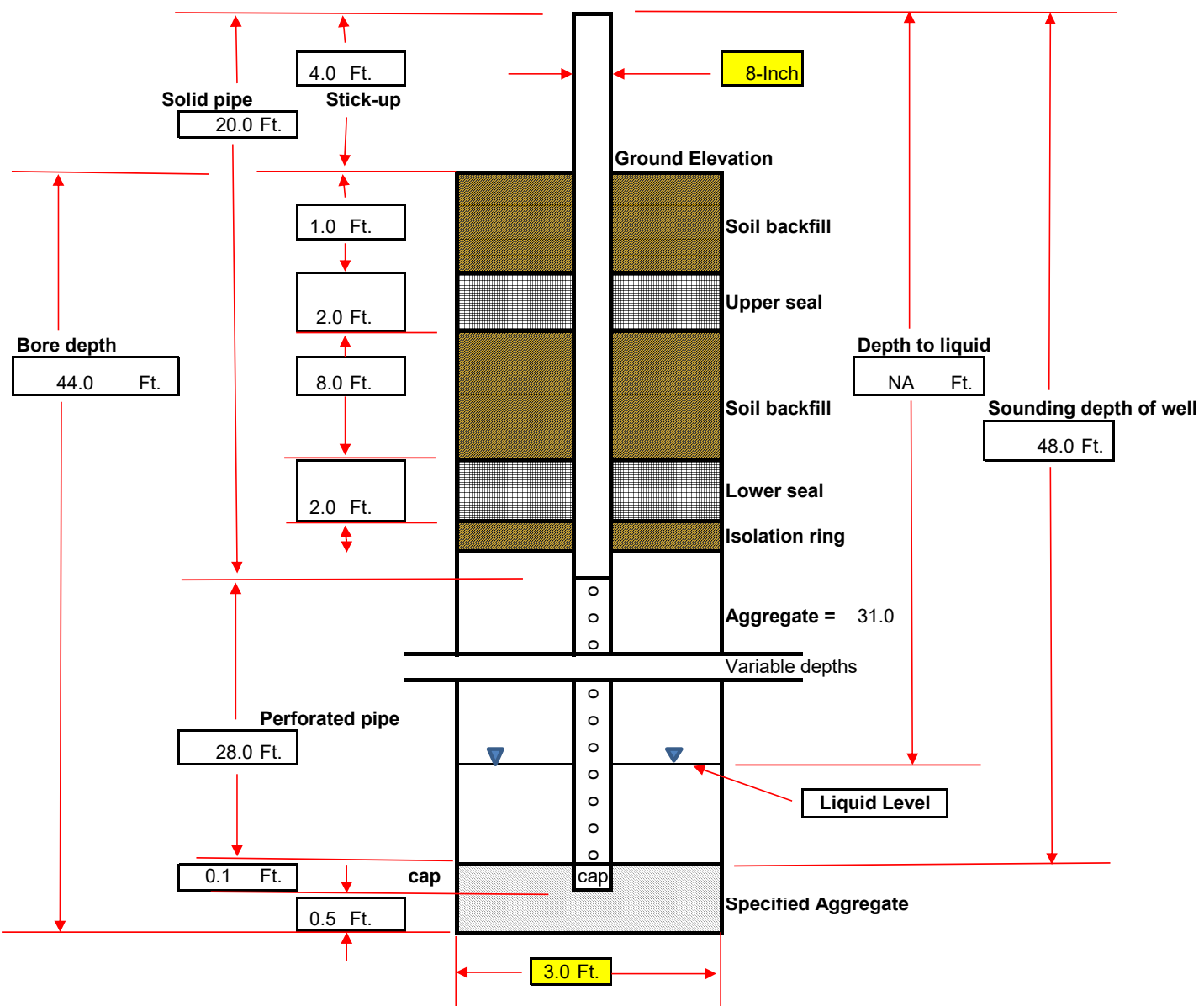
Northing: 1,994,530

Easting: 140,061

Ground Elevation (MSL): 745

Notes: SURVEYED ELEVATION 744.1

Pipe Material: Schedule 80 PVC



LGMS ID
GW-119

Alias

Site Name: OAK RIDGE RDF

Site ID: (e.g.S04567)

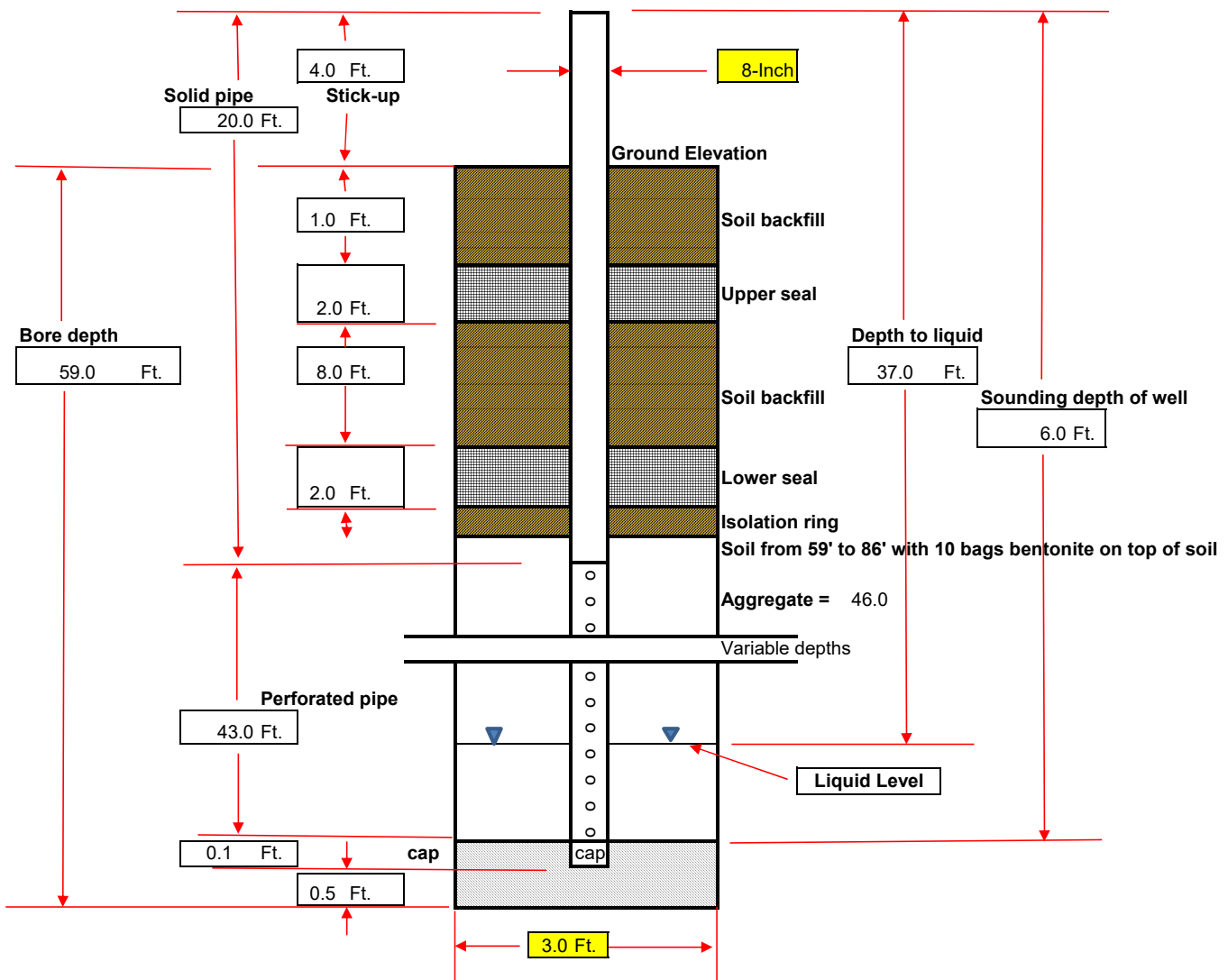
Date Installed: 3/17/2024

City: Logansport **State:** IN

Installation Contractor:
Landfill Drilling & Piping

General Comments:
Coordinates :
Northing: 1,994,732
Easting: 140,070
Ground Elevation (MSL): 747
Notes: SURVEYED ELEVATION 746.0

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

GW-120

Site Name:

OAK RIDGE RDF

Site ID: (e.g.S04567)

Date Installed: 3/16/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

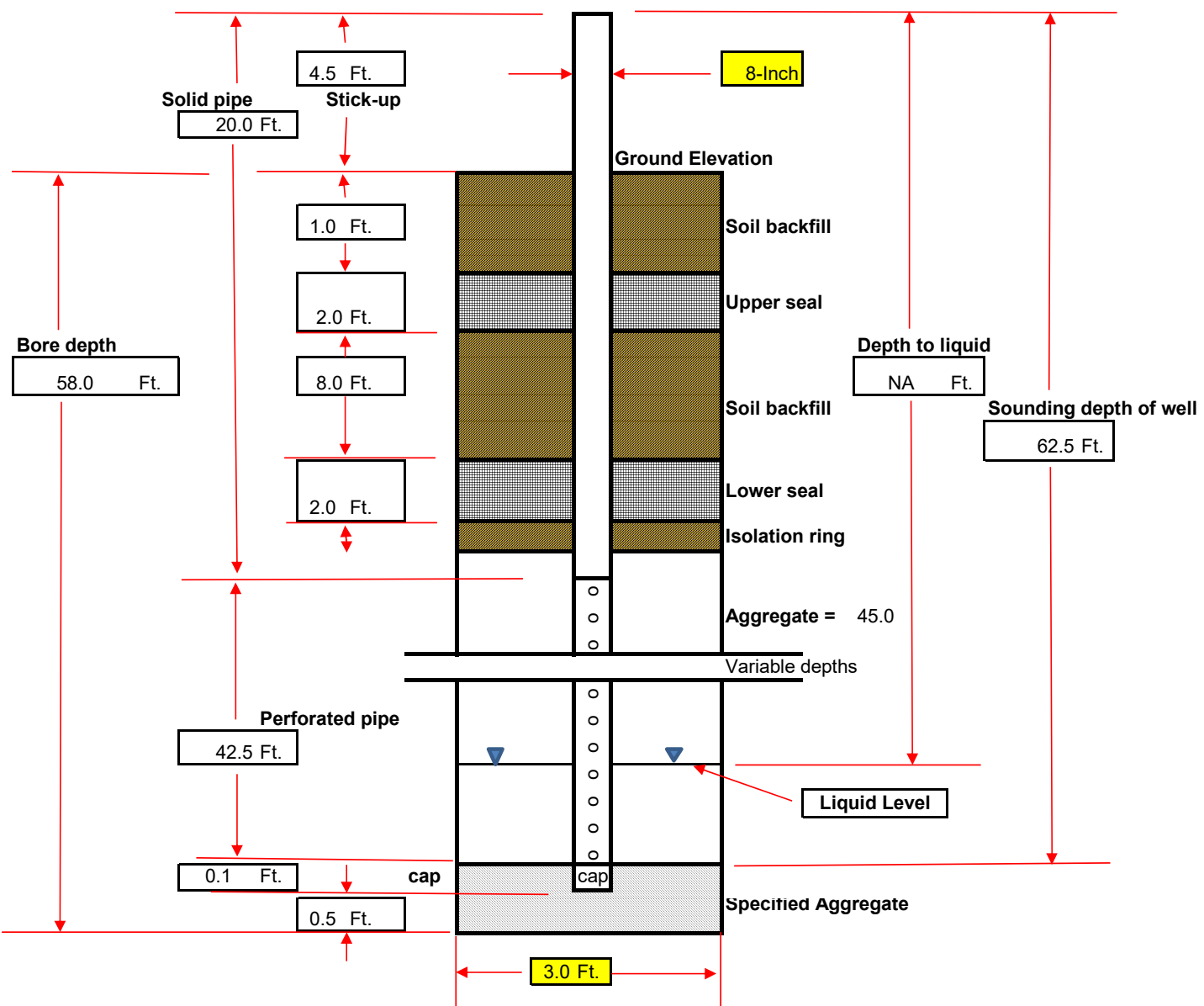
Northing: 1,994,955

Easting: 140,084

Ground Elevation (MSL): 747

Notes: SURVEYED ELEVATION 746.01

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

Site Name:

OAK RIDGE RDF

GW-121

Site ID: (e.g.S04567)

Date Installed: 3/16/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

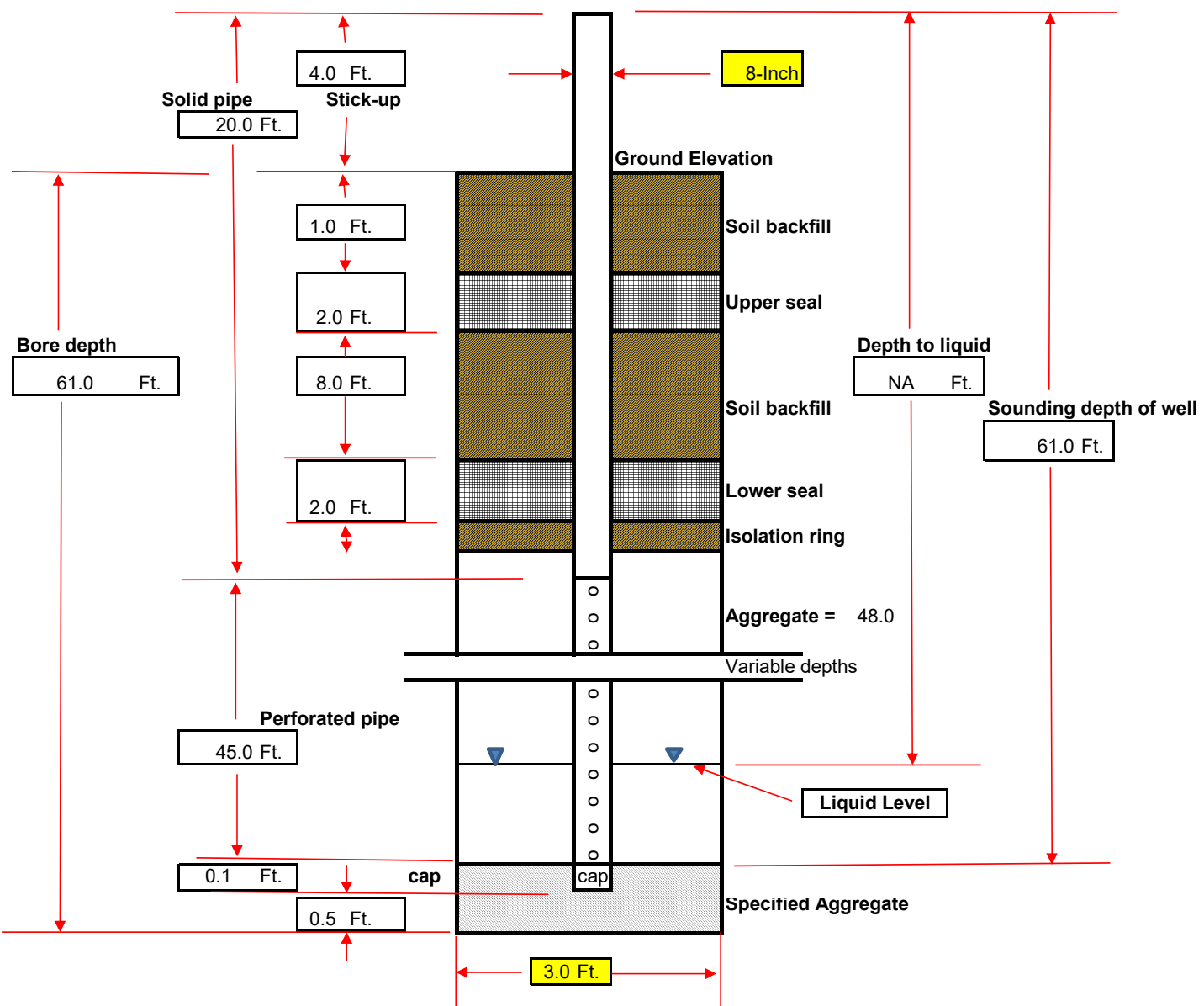
Northing: 1,995,138

Easting: 140,104

Ground Elevation (MSL): 751

Notes: SURVEYED ELEVATION 749.9

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

GW-122

Site Name:

OAK RIDGE RDF

Site ID: (e.g.S04567)

Date Installed: 3/16/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

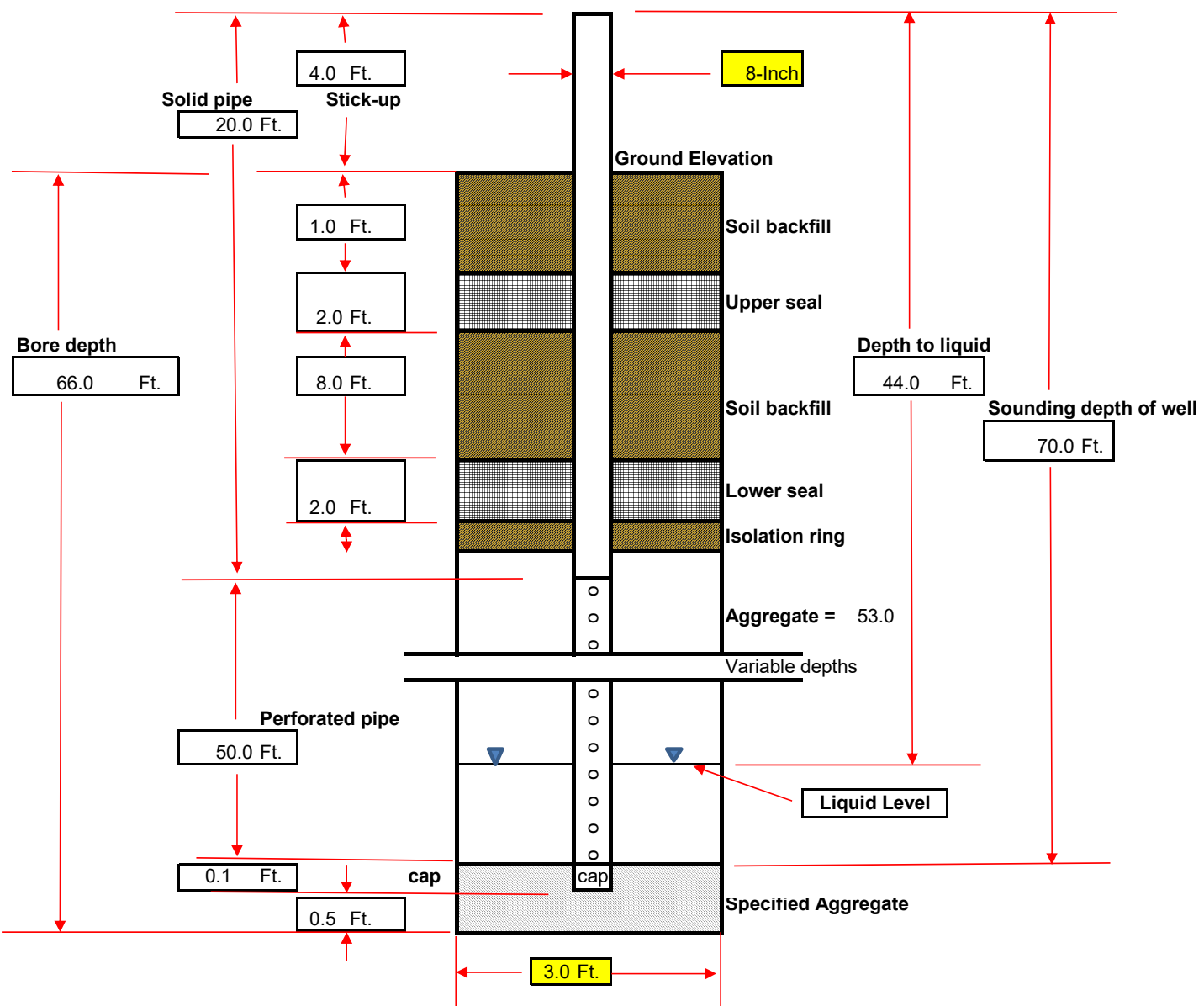
Northing: 1,995,338

Easting: 140,152

Ground Elevation (MSL): 754

Notes: SURVEYED ELEVATION 753.7

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

GW-123

Site Name:

OAK RIDGE RDF

Site ID: (e.g.S04567)

Date Installed: 3/16/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

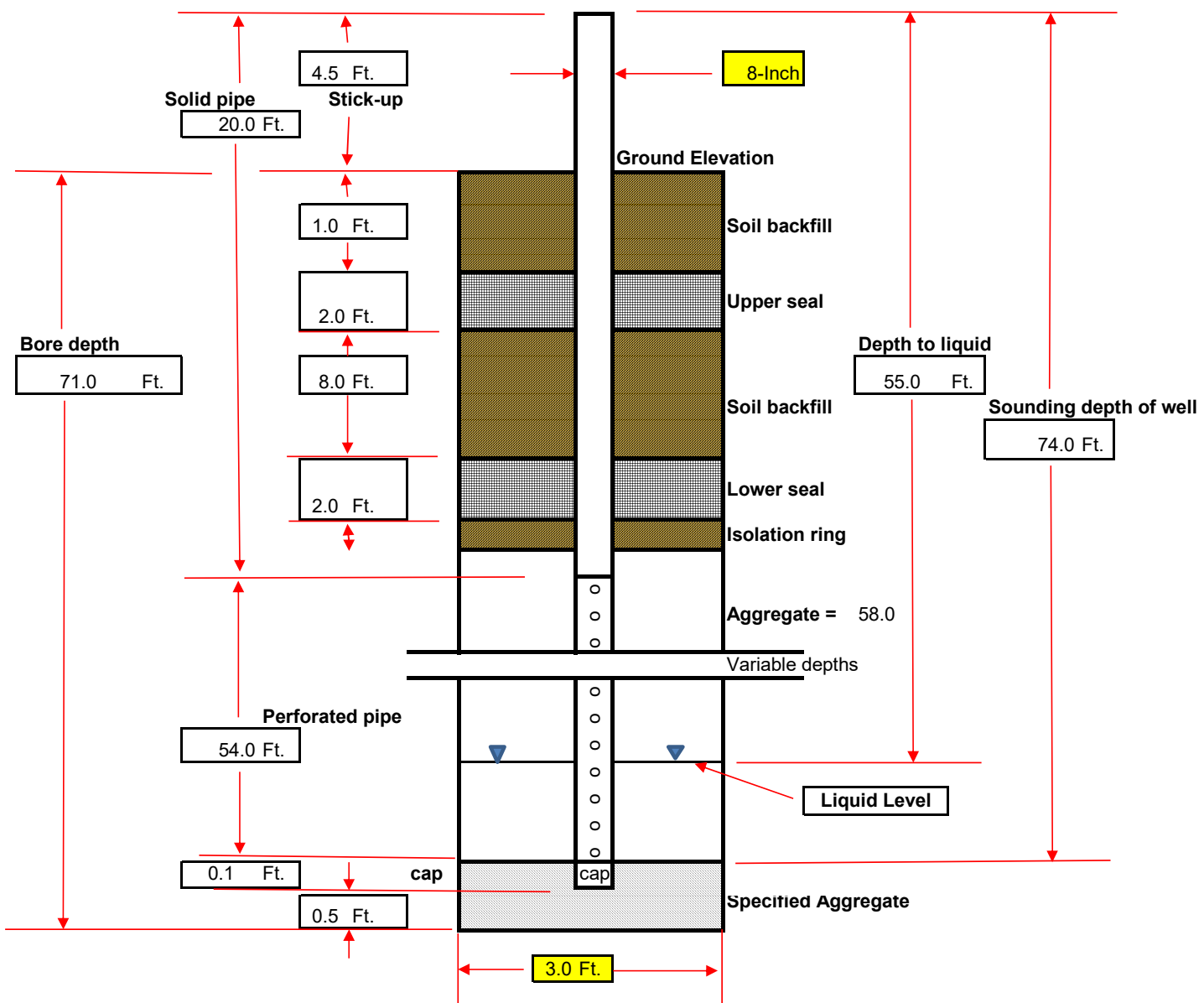
Northing: 1,995,380

Easting: 140,361

Ground Elevation (MSL): 761

Notes: SURVEYED 760.8

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

GW-124

Site Name:

OAK RIDGE RDF

Site ID: (e.g.S04567)

Date Installed: 3/16/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

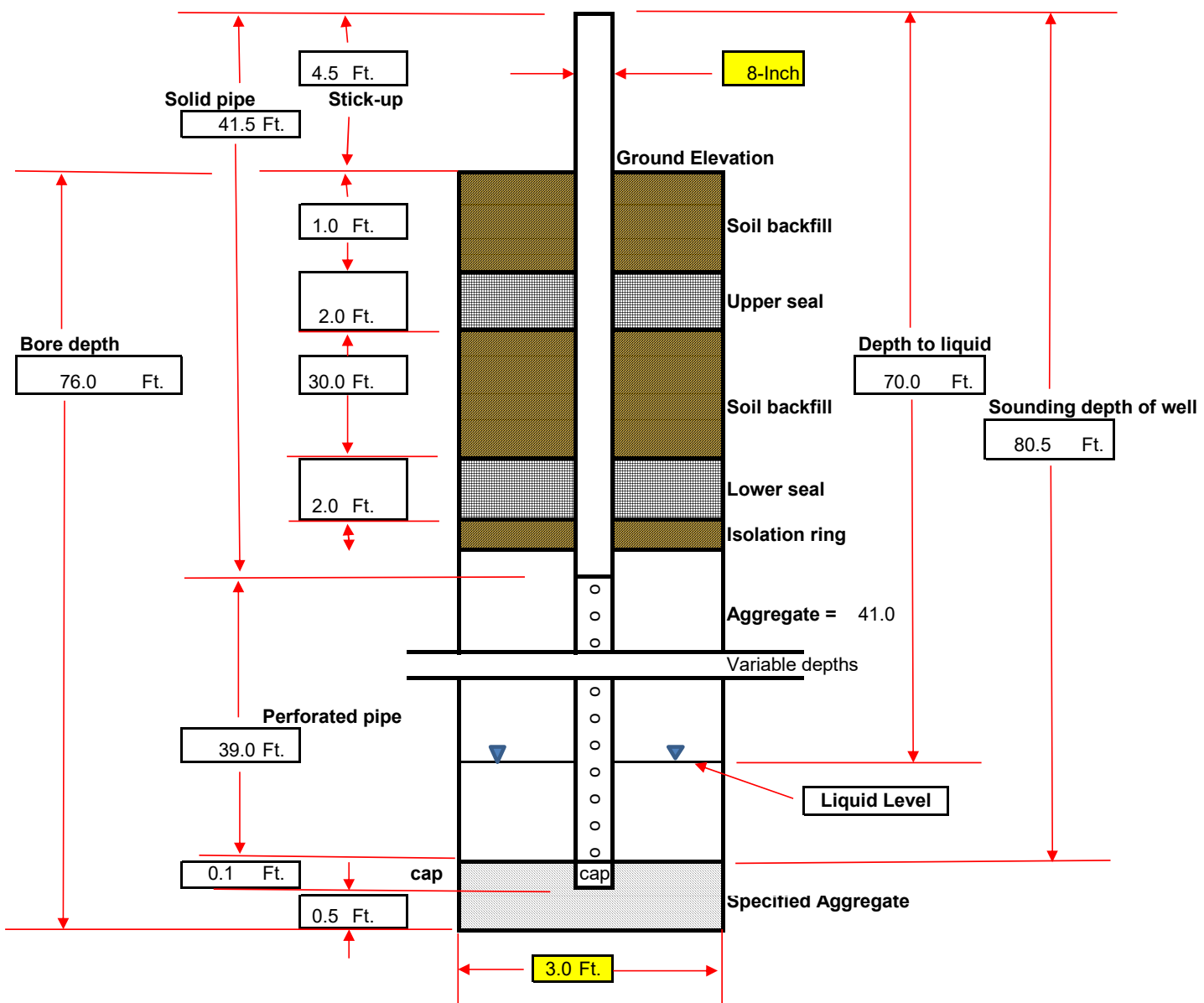
Northing: 1,995,337

Easting: 140,489

Ground Elevation (MSL): 764

Notes: SURVEYED ELEVATION 763.9

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

Site Name:

OAK RIDGE RDF

GW-125

Site ID: (e.g.S04567)

Date Installed: 3/15/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

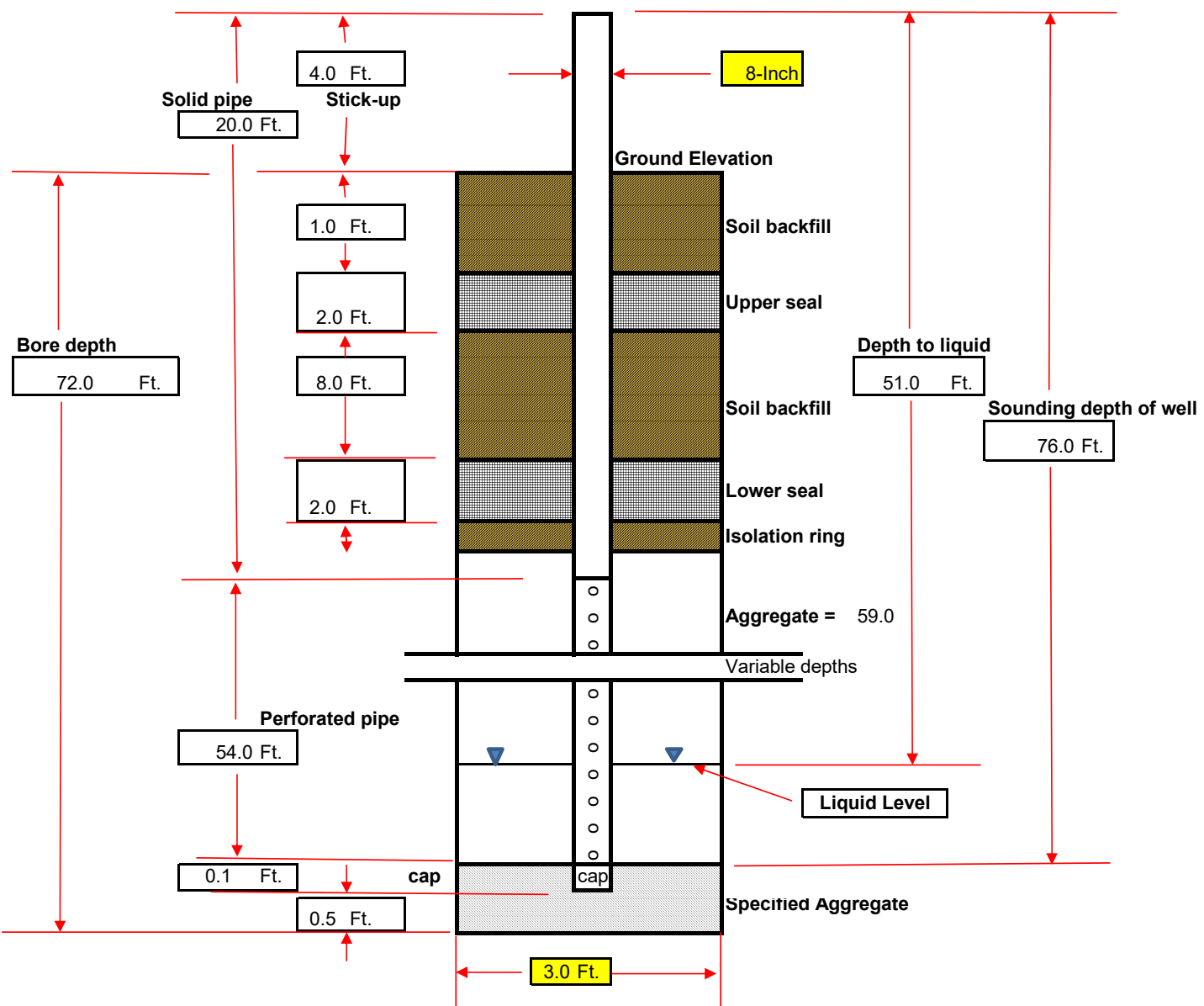
Northing: 1,995,171

Easting: 140,535

Ground Elevation (MSL): 759

Notes: SURVEYED ELEVATION 758.3

Pipe Material: Schedule 80 PVC



LGMS ID

GW-126

Alias

Site Name:

OAK RIDGE RDF

Site ID: (e.g.S04567)

Date Installed: 3/13/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates:

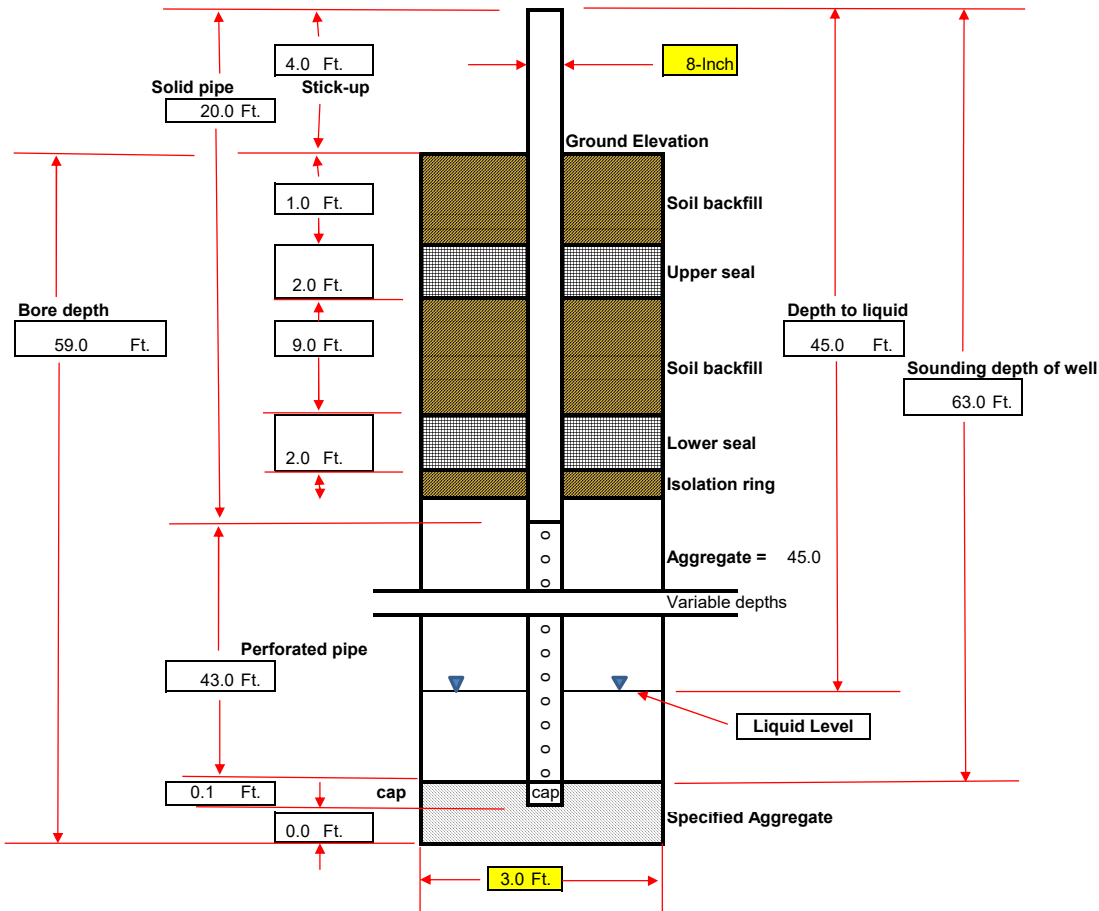
Northing: 1,995,097

Easting: 140,312

Ground Elevation (MSL): 752

Notes: SURVEYED ELEVATION 751.14

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

GW-127

Site Name:

OAK RIDGE RDF

Site ID: (e.g.S04567)

Date Installed: 3/13/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

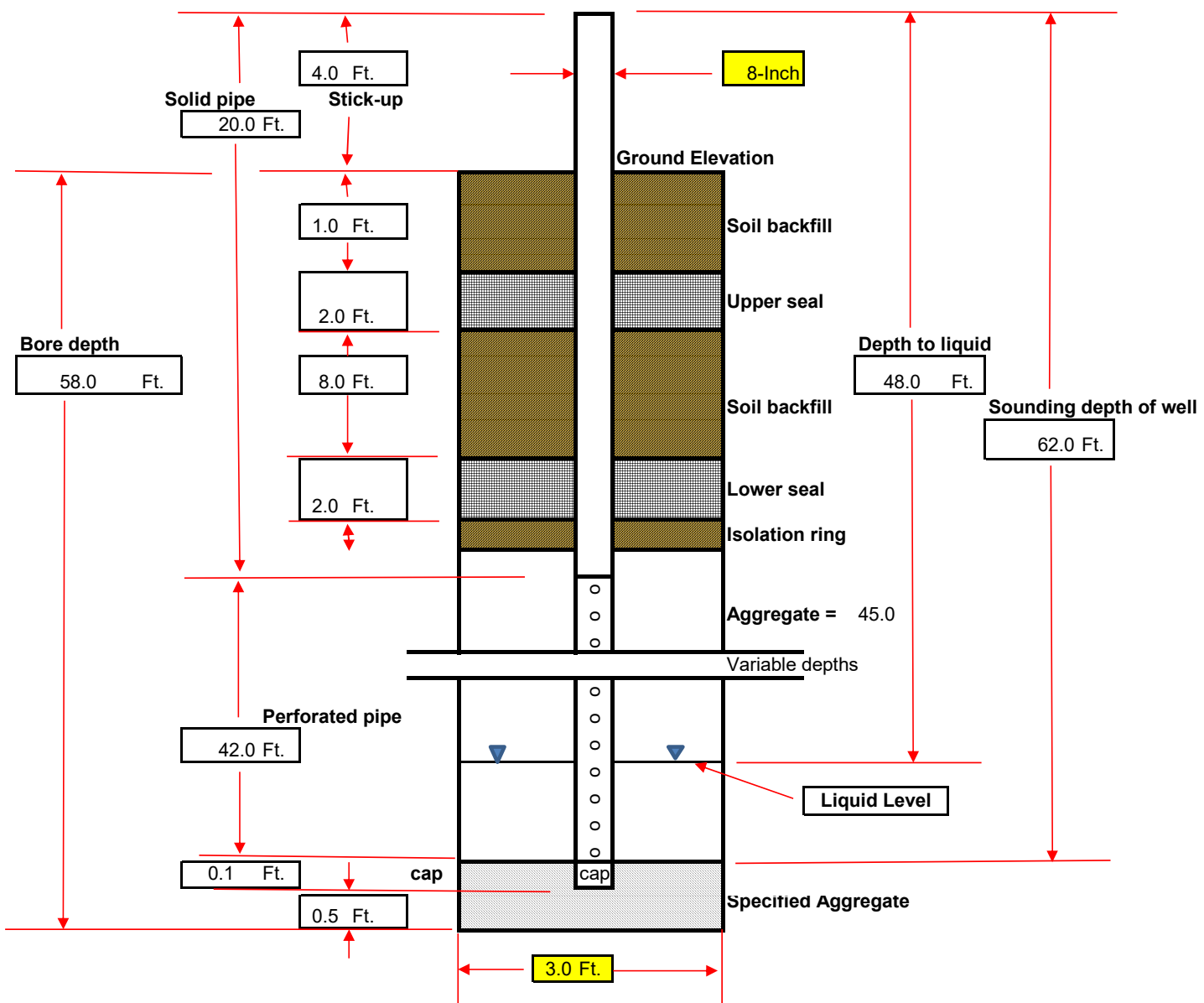
Northing: 1,994,918

Easting: 140,333

Ground Elevation (MSL): 749

Notes: SURVEYED ELEVATION 748.3

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

GW-128

Site Name:

OAK RIDGE RDF

Site ID: (e.g.S04567)

Date Installed: 3/17/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

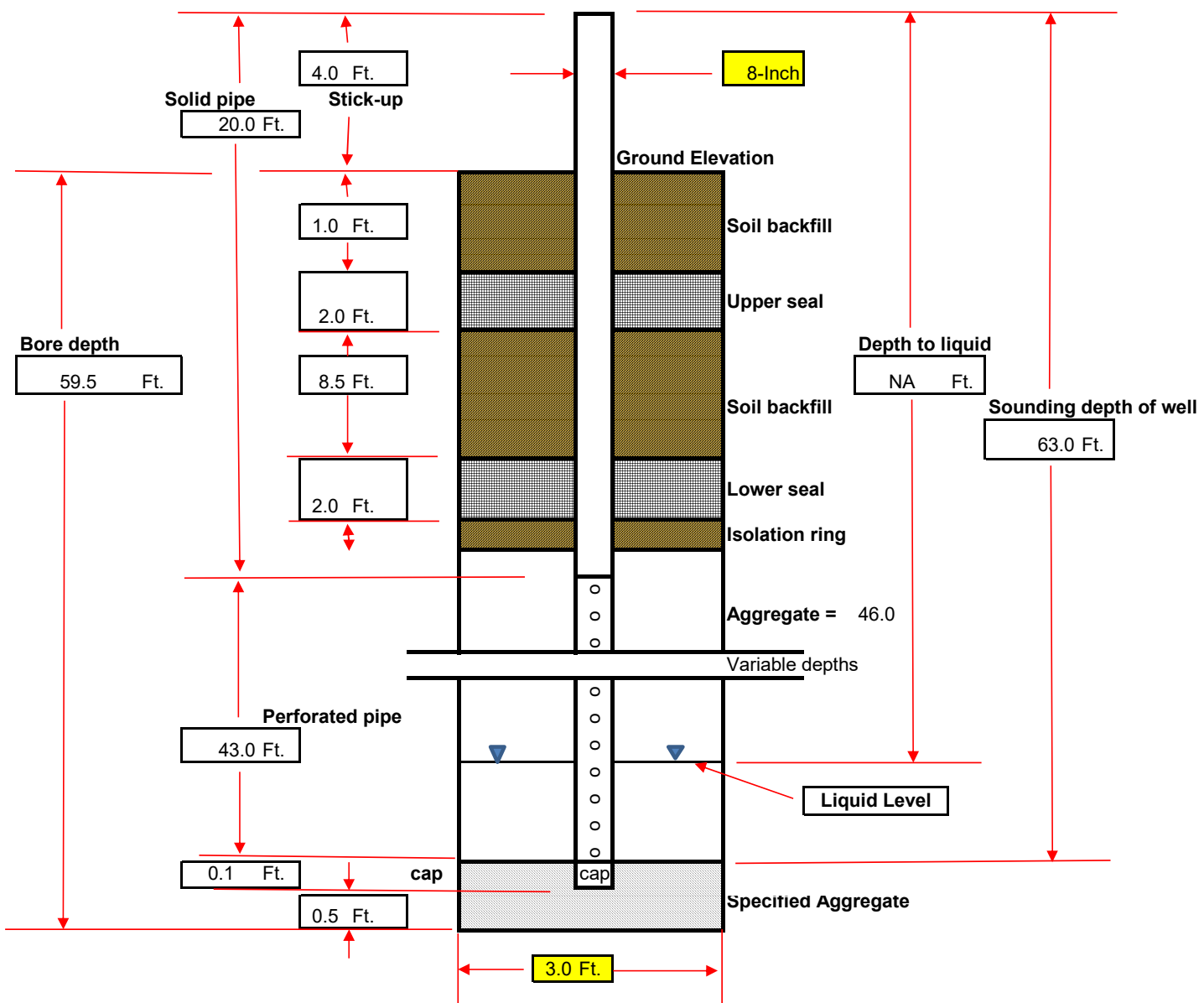
Northing: 1,994,727

Easting: 140,356

Ground Elevation (MSL): 748

Notes: SURVEYED ELEVATION 747.0

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

Site Name:

OAK RIDGE RDF

GW-129

Site ID: (e.g.S04567)

Date Installed: 3/15/2023

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

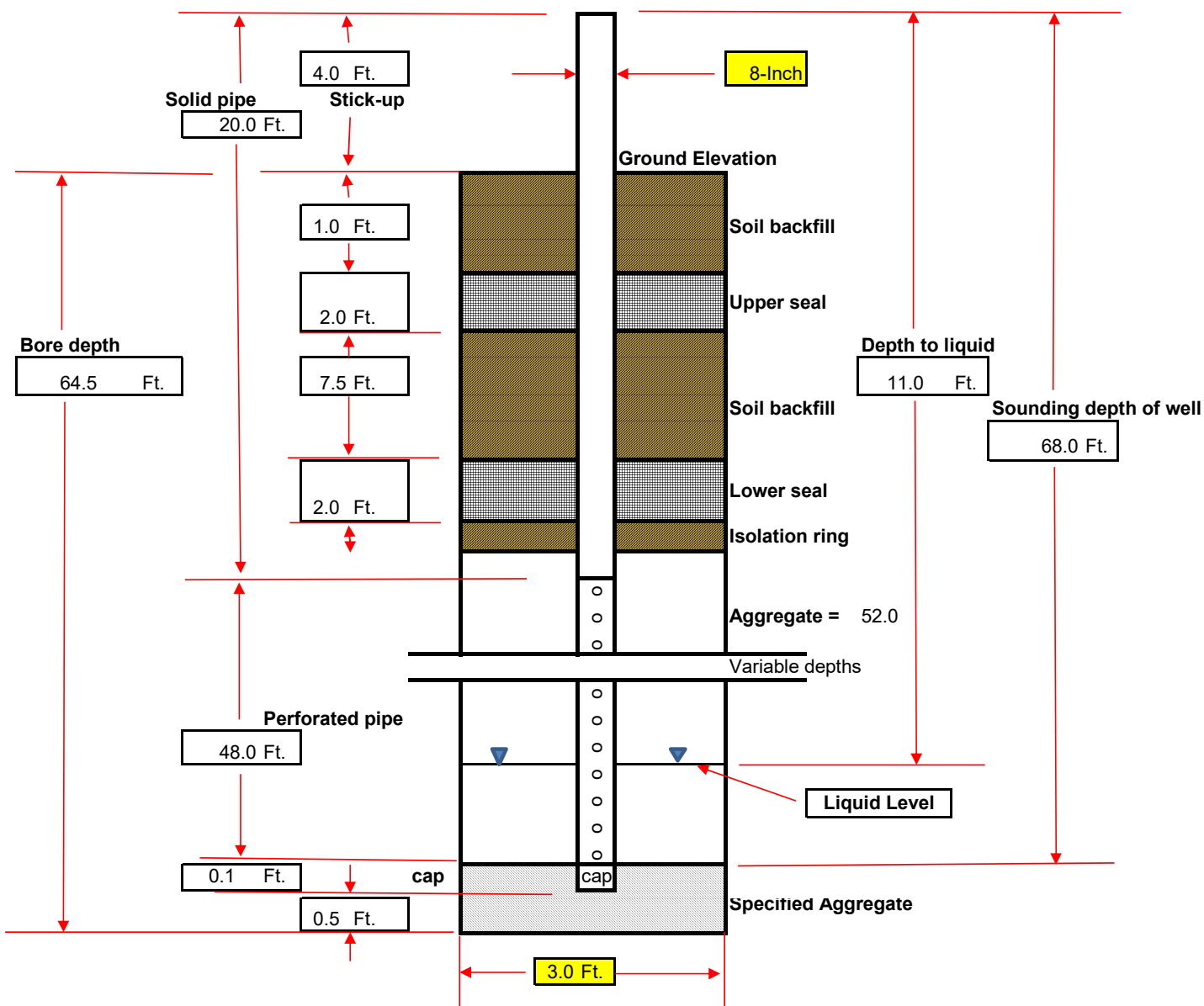
Northing: 1,994,994

Easting: 140,634

Ground Elevation (MSL): 756

Notes: SURVEYED ELEVATION 756.0

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

GW-130

Site Name:

OAK RIDGE RDF

Site ID: (e.g.S04567)

Date Installed: 3/15/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

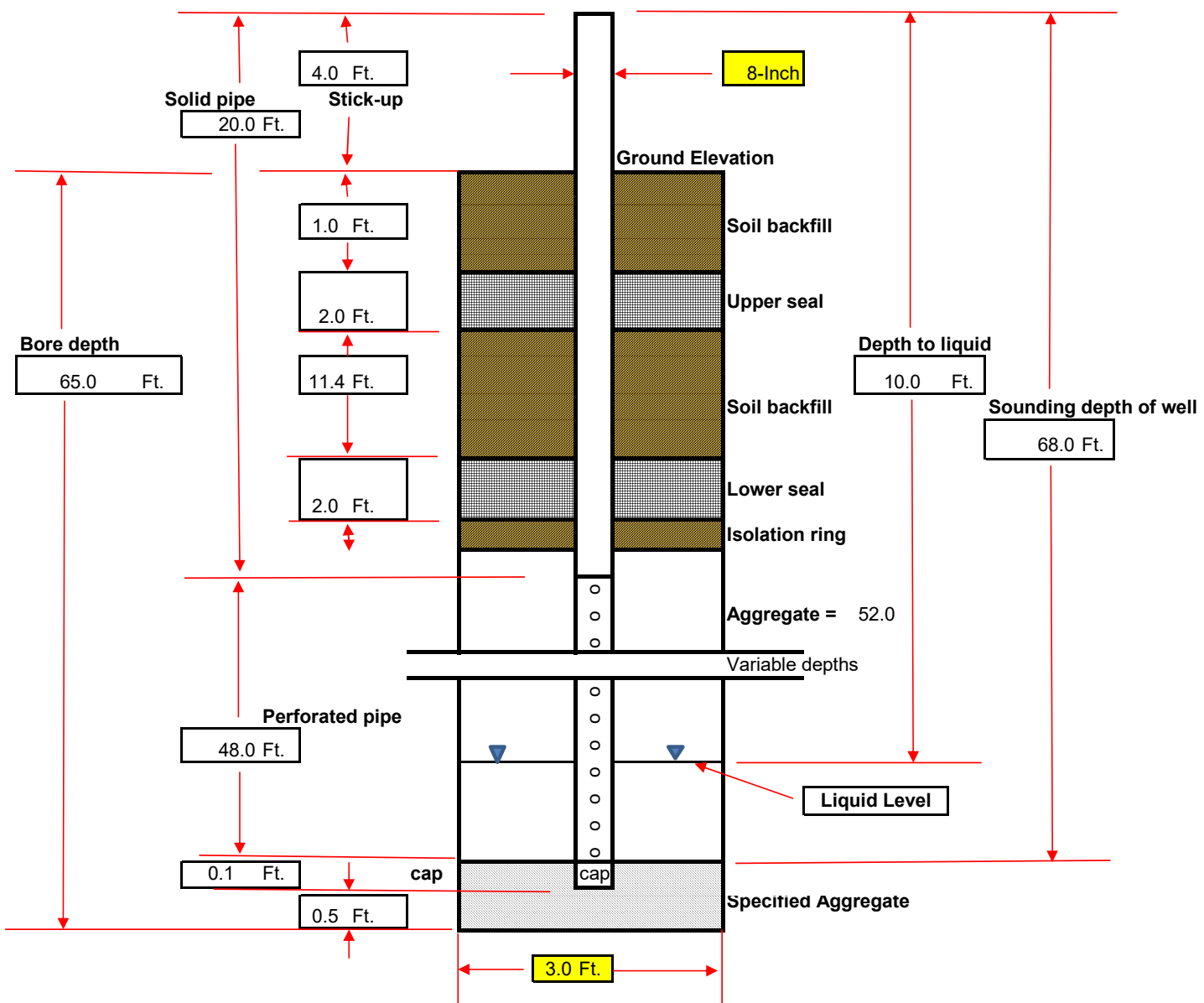
Northing: 1,994,792

Easting: 140,693

Ground Elevation (MSL): 755

Notes: SURVEYED ELEVATION 754.6

Pipe Material: Schedule 80 PVC



LGMS ID

Alias

GW-131

Site Name:

OAK RIDGE RDF

Site ID: (e.g.S04567)

Date Installed: 3/18/2024

City: Logansport

State: IN

Installation Contractor:

Landfill Drilling & Piping

General Comments:

Coordinates :

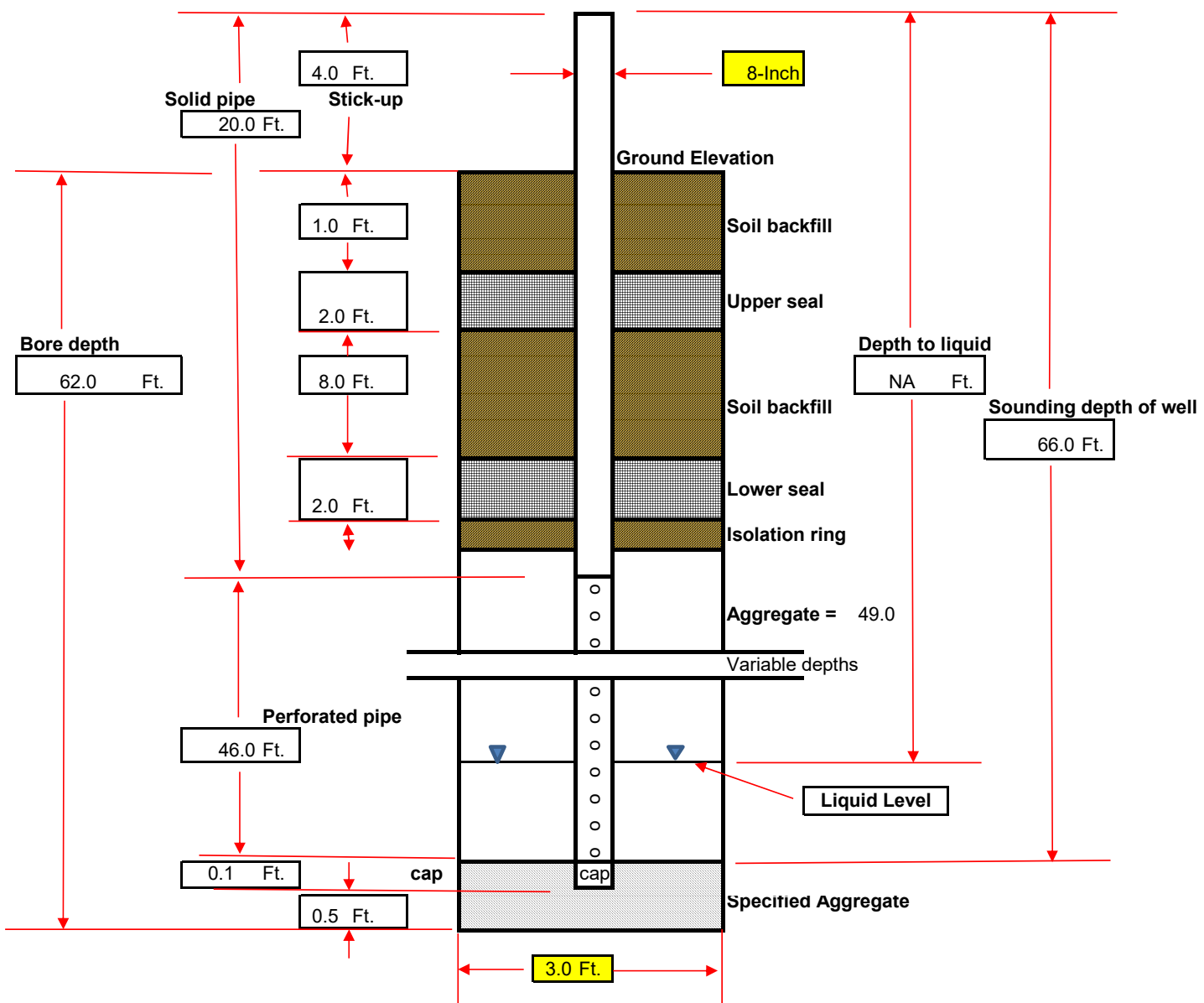
Northing: 1,994,797

Easting: 140,488

Ground Elevation (MSL): 749

Notes: Surveyed elevation - 748.02

Pipe Material: Schedule 80 PVC





Appendix B

HDPE Pipe Air Pressure Test Report



PIPE PRESSURE TEST

Oak Ridge RDF
 2024 GCCS Project
 WMMW00085

T_i = Initial temperature in °C = _____ °C
 P_i = Initial test pressure in psi = _____ psi
 P_o = Initial pressure in psi corrected for temperature
 (T_i) at time 't'
 t = Time in minutes from initiation of test
 T_t = Temperature in °C at time 't'
 P_t = Test pressure in psi at time 't'

Contractor: Fox Contractors

CQA Firm: T&M Associates

Observer: J. Sutton

$$P_o = \frac{(P_i + 14.7)(T_i + 273)}{(T_t + 273)} - 14.7$$

$$\text{Percent Pressure Drop} = \frac{P_o - P_t}{P_o} \times 100\%$$

Test # 1		12" west side including all risers and 6" connections			
4/18/2024					
Time	Gauge	Temp	Adjusted		
Minutes	Pressure	C	Pressure	% Change	
0	10.00	21	10.000		
10					
20					
30					
40					
50					
60	10.00	21		0.00%	Pass

Test # 2		12" east and middle including all risers and 6" connections			
4/18/2024					
Time	Gauge	Temp	Adjusted		
Minutes	Pressure	C	Pressure	% Change	
0	10	15.6	10.000		
10					
20					
30					
40					
50					
60	10	15.6		0.00%	Pass

Test # 3		18" to flare including knockout and run to new landfill			
Time	Gauge	Temp	Adjusted		
Minutes	Pressure	C	Pressure	% Change	
0	10	16.7	10.000		
10					
20					
30					
40					
50					
60	10	16.7		0.00%	Pass



Appendix C

Daily Field Reports



DAILY FIELD REPORT

PROJECT INFORMATION

PROJECT NAME:	GCCS UPGRADES	DATE:	03/13/24
PROJECT NUMBER:	WMMW00086	LOCATION:	OAK RIDGE
PLANS AND SPECS:		WEATHER:	SUNNY
ISSUE DATE:		TEMP. RANGE	63 TO 68
PERSONNEL			
T&M FIELD REP:	Joe Sutton	CLIENT:	WASTE MANAGEMENT
T&M PROJ. MANAGER:	Brad Hartz	CLIENT CONTACT:	Randy Russell
CONTRACTOR:	Landfill Drilling and Piping	SUPERVISOR:	Brandon VanPembrook

SAFETY MEETING PARTICIPATION

Participation in Contractor's Tailgate Safety Meeting? Yes or No *Vehicle Check Performed?* Yes or No

SUMMARY OF WORK OBSERVED, LOCATION, AND CONTRACTOR PERFORMING WORK

0530 – Travel from home shop to site.

1030 – Arrived on site. Unloaded RTV and set up survey equipment. Met with Brandon. They are preparing to drill. Checked and marked all staked locations. All are within 1' of design elevation and X,Y locations are good.

Today's observations included taking of trash temperatures as it was removed from the borehole, casing measurement and installation, installation of gravel pack, installation of clay into borehole, mixing and installation of bentonite seals, and placement of safety grate once completion activities were done. Also observed removal and disposal of the excavated waste in a designated disposal area.

1247 – Drilling starts on GW-K.

1350 – Setting casing in K. Rig moved to "L". Crew begins completions in "K".

1405 – Drilling starts on "L".

1503 – Drilling on "L" complete, casing going in.

1645 – GW-L is drilled and completed. Packed up equipment and left site.

SUMMARY OF MEETINGS / DISCUSSIONS / TELEPHONE CONVERSATIONS / VISITORS ONSITE

DESCRIPTION OF SAMPLES TAKEN OR MATERIALS DELIVERED TO LAB

APPROVED BY: _____

PROJ. MANAGER: _____

DATE: _____

This document is draft until reviewed and approved by a Project Manager

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DAILY FIELD REPORT

PROJECT INFORMATION

PROJECT NAME: GCOS UPGRADES DATE: 03/14/24

PROJECT NUMBER: WMMW00086 LOCATION: OAK RIDGE

PLANS AND SPECS: _____ WEATHER: Overcast

ISSUE DATE: _____ TEMP. RANGE 54 TO 60

PERSONNEL _____

T&M FIELD REP: Joe Sutton CLIENT: WASTE MANAGEMENT

T&M PROJ. MANAGER: Brad Hartz CLIENT CONTACT: Randy Russell

CONTRACTOR: Landfill Drilling and Piping SUPERVISOR: Brandon VanPembrook

SAFETY MEETING PARTICIPATION

Participation in Contractor's Tailgate Safety Meeting? Yes or No *Vehicle Check Performed?* Yes or No

SUMMARY OF WORK OBSERVED, LOCATION, AND CONTRACTOR PERFORMING WORK

0715 - On site. Loaded equipment and moved to drill area. Rain last night caused area to be muddy. Rig is set up on GW-B.

0745 - Drilling starts.

0813 - Randy Russell on site.

0846 - B drilled to design depth. Well casing being installed and rig moves to GW-A. Crew completes "B" while rig is drilling

1025 - "A" is drilled to design depth and casing is set. Completion activity starts and is finished before rain and lightning at 1100.

Waited on rain and lightning to move through to see if we'll work any more today. Set new survey point on electrical panel by exit gate.

1330 - Talked to Brandon. No more work today.

Today's observations included taking of trash temperatures as it was removed from the borehole, casing measurement and installation, installation of gravel pack, installation of clay into borehole, mixing and installation of bentonite seals, and placement of safety grate once completion activities were done. Also observed removal and disposal of the excavated waste in a designated disposal area.

1400 - Packed up equipment and left site.

SUMMARY OF MEETINGS / DISCUSSIONS / TELEPHONE CONVERSATIONS / VISITORS ONSITE

DESCRIPTION OF SAMPLES TAKEN OR MATERIALS DELIVERED TO LAB

APPROVED BY: _____

PROJ. MANAGER: _____

DATE: _____

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DAILY FIELD REPORT

PROJECT INFORMATION

PROJECT NAME:	GCCS UPGRADES	DATE:	03/15/24
PROJECT NUMBER:	WMMM00086	LOCATION:	OAK RIDGE
PLANS AND SPECS:		WEATHER:	Cloudy
ISSUE DATE:		TEMP. RANGE	43 TO 50
PERSONNEL			
T&M FIELD REP:	Joe Sutton	CLIENT:	WASTE MANAGEMENT
T&M PROJ. MANAGER:	Brad Hartz	CLIENT CONTACT:	Randy Russell
CONTRACTOR:	Landfill Drilling and Piping	SUPERVISOR:	Brandon VanPembrook

SAFETY MEETING PARTICIPATION

Participation in Contractor's Tailgate Safety Meeting? Yes or No Vehicle Check Performed? Yes or No

SUMMARY OF WORK OBSERVED, LOCATION, AND CONTRACTOR PERFORMING WORK

0630 - On site. Loaded equipment and moved to drill area. Site is very muddy.

0734 - Drilling starts on 57R. Hit a few large chunks of cross in the upper 10' of the hole. Called Randy to get instructions in case we encounter more. He instructed to call him if we encounter more.

0902 - Drilled 57R to design depth. Casing is going in. Rig moves off to GW-O while crew works to complete 57R.

0918 - Drilling starts on "O".

1128 - "O" drilled to design depth. Well casing is installed. Rig moves to GW-N while crew completes "O".

1154 - Drilling commences on "N".

1304 - "N" drilled to design depth and casing is set. Crew works to complete "N" while rig moves to GW-J.

1409 - Drilling on "J" starts.

1506 - "J" is drilled to design depth and casing is set. Crew completes "J" and then work stops for the day.

Today's observations included taking of trash temperatures as it was removed from the borehole, casing measurement and installation, installation of gravel pack, installation of clay into borehole, mixing and installation of bentonite seals, and placement of safety grate once completion activities were done. Also observed removal and disposal of the excavated waste in a designated disposal area.

1700 - Packed up equipment and left site.

SUMMARY OF MEETINGS / DISCUSSIONS / TELEPHONE CONVERSATIONS / VISITORS ONSITE

DESCRIPTION OF SAMPLES TAKEN OR MATERIALS DELIVERED TO LAB

APPROVED BY: _____

PROJ. MANAGER: _____

DATE: _____

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DAILY FIELD REPORT

PROJECT INFORMATION

PROJECT NAME:	GCCS UPGRADES	DATE:	03/16/24
PROJECT NUMBER:	WMMW00086	LOCATION:	OAK RIDGE
PLANS AND SPECS:		WEATHER:	Sunny and Windy
ISSUE DATE:		TEMP. RANGE	34 TO 55
PERSONNEL			
T&M FIELD REP:	Joe Sutton	CLIENT:	WASTE MANAGEMENT
T&M PROJ. MANAGER:	Brad Hartz	CLIENT CONTACT:	Randy Russell
CONTRACTOR:	Landfill Drilling and Piping	SUPERVISOR:	Brandon VanPembrook

SAFETY MEETING PARTICIPATION

Participation in Contractor's Tailgate Safety Meeting? Yes or No *Vehicle Check Performed?* Yes or No

SUMMARY OF WORK OBSERVED, LOCATION, AND CONTRACTOR PERFORMING WORK

0730 - On site. Loaded equipment and moved to drill location "I" where rig is set up.

0742 - Drilling starts. Dross was encountered from ~4' to ~34'. Drilled back into trash below 34'. Contacted Randy. Will set solid casing through dross zone. No heating issues were observed during drilling.

0930 - Completed well to design depth. See well diagram for changes from standard piping design.

0942 - Started drilling on GW-H while crew completes "I"

1058 - "H" drilled to design depth. Some dross encountered in the top 10' of the well. No completion deviations from standard design on this well.

1130 - Rig begins drilling on GW-G while crew completes "H". There was a very small amount of dross observed in the top 10' of this well also.

1235 - "G" drilled to design depth and casing is installed. Rig moves to GW-F.

1250 - Drilling commences on "F" while crew completes "G" to standard design.

1348 - "F" is drilled to design depth and casing is installed. Crew completes this well while rig moves to GW-E.

1410 - Drilling starts on "E".

1519 - "E" is drilled to design depth. This well is completed as rig moves off and sets up on GW-D where we will commence drilling tomorrow.

Today's observations included taking of trash temperatures as it was removed from the borehole, casing measurement and installation, installation of gravel pack, installation of clay into borehole, mixing and installation of bentonite seals, and placement of safety grate once completion activities were done. Also observed removal and disposal of the excavated waste in a designated disposal area.

1630 - Packed up equipment and left site. Completed drill logs and diagrams for wells completed to date.

SUMMARY OF MEETINGS / DISCUSSIONS / TELEPHONE CONVERSATIONS / VISITORS ONSITE

DESCRIPTION OF SAMPLES TAKEN OR MATERIALS DELIVERED TO LAB

APPROVED BY: _____

PROJ. MANAGER: _____

DATE: _____

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DAILY FIELD REPORT

PROJECT INFORMATION

PROJECT NAME:	GCCS UPGRADES	DATE:	03/17/24 Sunday
PROJECT NUMBER:	MMMM00086	LOCATION:	OAK RIDGE
PLANS AND SPECS:		WEATHER:	Sunny and Breezy
ISSUE DATE:		TEMP. RANGE	32 TO 38
PERSONNEL			
T&M FIELD REP:	Joe Sutton	CLIENT:	WASTE MANAGEMENT
T&M PROJ. MANAGER:	Brad Hartz	CLIENT CONTACT:	Randy Russell
CONTRACTOR:	Landfill Drilling and Piping	SUPERVISOR:	Brandon VanPembrook

SAFETY MEETING PARTICIPATION

Participation in Contractor's Tailgate Safety Meeting? Yes or No Vehicle Check Performed? Yes or No

SUMMARY OF WORK OBSERVED, LOCATION, AND CONTRACTOR PERFORMING WORK

0730 - On site. Loaded equipment and moved to drill location "D" where rig is set up.
 0748 - Drilling starts.
 0858 - "D" is drilled to design depth. Rig moves to "C" as "D" is completed.
 0910 - Drilling on "C" commences. Crew continues work on completion of the previous well.
 0950 - "C" is drilled to design depth. Rig moves off to GW-M as crew begins completion work on "C".
 1000 - Drilling starts on "M".
 1109 - Drilling complete on "M". This well is completed as Brandon used the D6 dozer to shape up areas disturbed during drilling operations and to cover trash disposal area.
 Surveyed new control point by exit gate. Also surveyed well caps of wells completed to date.
 1330 - Off site to complete paperwork and notes.

SUMMARY OF MEETINGS / DISCUSSIONS / TELEPHONE CONVERSATIONS / VISITORS ONSITE

DESCRIPTION OF SAMPLES TAKEN OR MATERIALS DELIVERED TO LAB

APPROVED BY: _____

PROJ. MANAGER: _____

DATE: _____

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DAILY FIELD REPORT

PROJECT INFORMATION

PROJECT NAME:	GCCS UPGRADES	DATE:	03/18/24
PROJECT NUMBER:	WMMW00086	LOCATION:	OAK RIDGE
PLANS AND SPECS:		WEATHER:	Overcast
ISSUE DATE:		TEMP. RANGE	31 TO 35
PERSONNEL			
T&M FIELD REP:	Joe Sutton	CLIENT:	WASTE MANAGEMENT
T&M PROJ. MANAGER:	Brad Hartz	CLIENT CONTACT:	Randy Russell
CONTRACTOR:	Landfill Drilling and Piping	SUPERVISOR:	Brandon VanPembrook

SAFETY MEETING PARTICIPATION

Participation in Contractor's Tailgate Safety Meeting? Yes or No Vehicle Check Performed? Yes or No

SUMMARY OF WORK OBSERVED, LOCATION, AND CONTRACTOR PERFORMING WORK

0700 - On site. Loaded equipment and moved to drill location "P" where rig is set up.
 0712 - Drilling starts.
 0826 - "P" is drilled to design depth. Casing is installed and the rig moves off to prepare for transport.
 0904 - Gravel pack is installed.
 Work continues to complete the well. Top of casing is surveyed and recorded
 Surveyed new control point by exit gate. Also surveyed well caps of wells completed to date. Today's observations included taking of trash temperatures as it was removed from the borehole, casing measurement and installation, installation of gravel pack, installation of clay into borehole, mixing and installation of bentonite seals, and placement of safety grate once completion activities were done. Also observed removal and disposal of the excavated waste in a designated disposal area.
 1000 - Well completed. Packed equipment and off site to home shop. Left RTV and trailer on site for pipe installation later this week.

SUMMARY OF MEETINGS / DISCUSSIONS / TELEPHONE CONVERSATIONS / VISITORS ONSITE**DESCRIPTION OF SAMPLES TAKEN OR MATERIALS DELIVERED TO LAB**

APPROVED BY: _____

PROJ. MANAGER: _____

DATE: _____

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Appendix D

Photo Log



Photo Number: 1

Direction: North

Description:

Drill rig starting construction of LFG extraction well.



Photo Number: 2

Direction:

Description:

Solid waste just extracted from the well.
Note the thermometer sticking out of the waste.



T&M ASSOCIATES, INC.
Indianapolis, Indiana

SITE NAME

**Oak Ridge RDF
2024 GCCS
Construction Certification
June 17, 2024**



Photo Number: 3

Direction: North

Description:

Drill rig and articulated truck used to haul the extracted solid waste to the active face for disposal.



Photo Number: 4

Direction:

Description:

Lowering the PVC gas collection pipe into the well.



T&M ASSOCIATES, INC.
Indianapolis, Indiana

SITE NAME

**Oak Ridge RDF
2024 GCCS
Construction Certification
June 17, 2024**



Photo Number: 5

Direction: Northeast

Description:

Setting the PVC gas collection pipe in the drilled well hole.



Photo Number: 6

Direction: Southeast

Description:

Aligning the PVC extraction piping prior to adding gravel to the well.



T&M ASSOCIATES, INC.
Indianapolis, Indiana

SITE NAME

**Oak Ridge RDF
 2024 GCCS
 Construction Certification
 June 17, 2024**



Photo Number: 7

Direction:

Description:

Placement of the HDPE condensate knockout.



Photo Number: 8

Direction:

Description:

Placement of the HDPE condensate knockout.



T&M ASSOCIATES, INC.
Indianapolis, Indiana

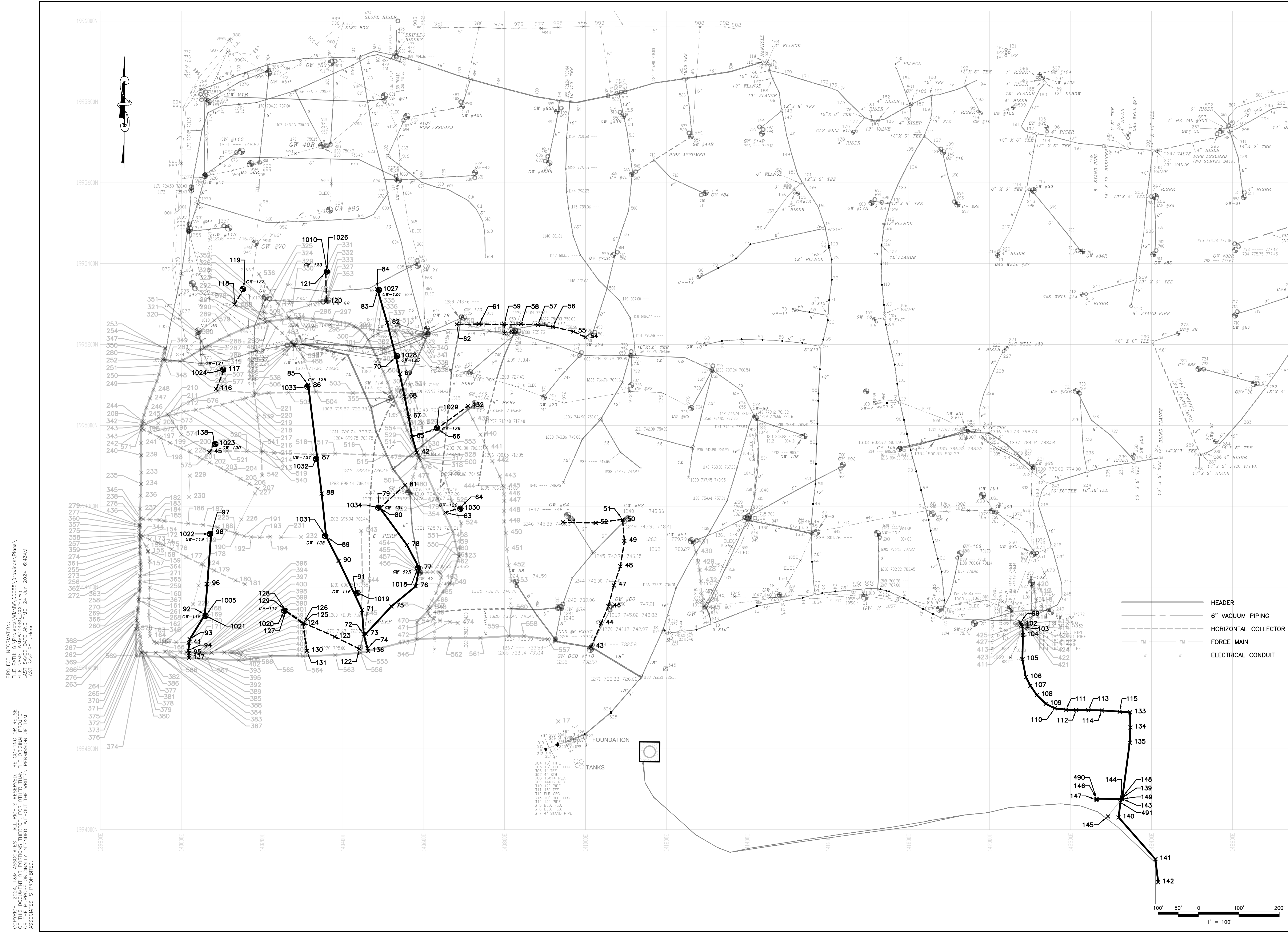
SITE NAME

**Oak Ridge RDF
2024 GCCS
Construction Certification
June 17, 2024**



Record Drawings

Drawing 1 of 2: 2024 GCCS As Built
Drawing 2 of 2: 2024 GCCS As Built Point File



PROJECT INFORMATION:
 FILE PATH: G:\Projects\MMW\00085\Drawings\Plans\
 FILE NAME: MMW00085_GCCS.dwg
 PLOT DATE/TIME: 24 Jun 2024, 6:43AM
 LAST SAVE BY: JHagr

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NO.	DATE	REVISIONS	BY	CHKD



WASTE MANAGEMENT INC. - MID WEST
 OAK RIDGE RDF
 CASS COUNTY, INDIANA

2024 GCCS RECORD DRAWING

11 TINDALL ROAD
 MIDDLETOWN, NJ 07748
 TEL 732-671-6400
 FAX 732-671-7365

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DESIGNED BY	JS	DRAWING	C1
CHECKED BY	JH	SHEET	1
DRAWN BY	JS	OF	2

DATE 5/14/2024
 SCALE 1"=100'
 PROJ. NO. MMW00085

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POINT TABLE				
POINT	ELEVATION	NORTHING	EASTING	DESCRIPTION
6	723.70	193145.80	139724.24	CP
7	729.88	192448.42	139750.13	CP
8	727.88	195298.17	142379.81	CP
9	855.10	195058.92	143813.99	CP
10	855.65	196811.70	142795.50	CP
17	724.56	199426.72	140322.78	6" HZ COL
41	713.47	199442.49	140018.62	INCHHEADER_12 INCH CAP INCH
42	751.87	199493.24	140828.86	INCH_6 INCH INCH
43	731.87	199445.25	141014.17	INCH_6 INCH INCH
44	741.58	199451.23	141038.45	INCH_6 INCH INCH
45	742.62	199493.76	140070.08	INCH_6 INCH 90 AT RSR INCH
46	750.44	199455.46	141056.59	INCH_6 INCH TEE INCH
47	754.55	199464.33	141070.09	INCH_6 INCH INCH
48	779.04	199465.31	141086.40	INCH_6 INCH INCH
49	792.58	199471.43	141096.32	INCH_6 INCH INCH
50	800.31	199476.53	141091.99	INCH_6 INCH TEE AT RSR INCH
51	799.29	199475.81	141091.78	INCH_6 INCH WF 90 INCH
52	799.40	199475.69	141095.05	INCH_6 INCH INCH
53	801.40	199476.43	141044.40	INCH_6 INCH 90 AT RSR INCH
54	814.47	199521.11	141000.05	INCH_6 INCH 90 AT RSR INCH
55	812.98	199522.08	140970.40	INCH_6 INCH INCH
56	811.18	199524.50	140919.14	INCH_6 INCH INCH
57	809.00	199524.58	140882.12	INCH_6 INCH TEE AT RSR INCH
58	809.04	199525.41	140840.71	INCH_6 INCH INCH
59	807.49	199524.59	140798.76	INCH_6 INCH SF TEE INCH
60	809.49	199522.62	140799.85	INCH_6 INCH 90 AT RSR INCH
61	807.62	199520.65	140737.31	INCH_6 INCH INCH
62	785.54	199524.77	140682.06	INCH_6 INCH TEE INTO EX RSR INCH
63	749.92	199478.42	140653.82	_12X12X6 EF TEE
64	753.32	199478.62	140691.34	INCH_6 INCH 90 AT RSR INCH
65	752.09	199497.19	140570.94	_12X12X6 TEE
66	753.34	199499.09	140633.15	INCH_6 INCH 90 AT RSR INCH
67	753.36	199501.85	140582.70	INCH_12 INCH INCH
68	753.88	199507.28	140552.44	INCH_12 INCH INCH
69	752.76	199512.03	140540.68	INCH_12 INCH INCH
70	754.39	199516.41	140531.04	_12X12X6 TEE AT RSR
71	736.48	199454.92	140447.26	INCH_12 INCH INCH
72	727.47	199448.92	140451.49	_12X12 EF TEE
73	728.01	199448.29	140456.68	INCH_12 INCH 22DEG INCH
74	723.38	199448.92	140460.63	_12 VALVE
75	728.45	199452.44	140520.30	INCH_12 INCH INCH
76	739.81	199460.28	140580.00	INCH_12 INCH INCH
77	740.23	199446.98	140588.84	_12X8X12 TEE AT RSR
78	741.92	199470.28	140588.84	INCH_12 INCH INCH
79	744.05	199478.85	140640.30	INCH_12 INCH CAP INCH
80	743.80	199475.77	140491.78	_12X8X12 EF TEE
81	741.43	199485.16	140553.28	INCH_6 INCH 90 AT RSR INCH
82	755.87	199485.38	140569.73	INCH_12 INCH INCH
83	759.11	199483.88	140486.09	_12X8X12 TEE AT RSR
84	759.04	199483.27	140484.96	INCH_12 INCH CAP INCH
85	747.74	199509.57	140314.07	_12 CAP
86	747.84	199509.18	140314.58	_12X8X12 TEE AT RSR
87	744.63	199491.84	140336.60	_12X8X12 TEE AT RSR
88	742.63	199493.17	140347.62	INCH_12 INCH INCH
89	740.12	199475.04	140358.65	_12X8X12 TEE AT RSR
90	739.23	199465.00	140389.53	INCH_12 INCH INCH
91	739.98	199458.19	140432.80	_12X8X12 TEE AT RSR
92	739.00	199453.86	140508.51	_12X8X12 TEE AT RSR
93	722.63	199447.20	140201.09	INCH_12 INCH INCH
94	717.03	199443.07	140177.73	_12X8X12 RSR
95	718.98	199443.25	140188.92	_12 VALVE
96	740.84	199460.79	140084.65	INCH_12 INCH INCH
97	743.23	199473.55	140074.11	_12X8X12 IN RSR
98	743.00	199473.97	140073.86	INCH_12 INCH CAP INCH
99	739.59	199451.27	140075.89	INCHHEADER_18 INCH TEE INCH
100	639.82	199460.26	139715.52	INCHHEADER_18 INCH TEE INCH
101	728.75	199422.48	140967.30	INCHHEADER_18 INCH VALVE INCH
102	739.84	199450.70	142078.25	INCHHEADER_18 INCH VALVE INCH
103	739.49	199450.38	142080.73	HEADER_22DEG ELBOW
104	736.43	199448.16	142081.66	INCHHEADER_18 INCH INCH
105	728.68	199442.17	142080.97	INCHHEADER_18 INCH INCH
106	724.94	199437.38	142089.30	INCHHEADER_18 INCH INCH
107	718.38	199435.64	142100.55	INCHHEADER_18 INCH INCH
108	713.98	199433.30	142116.44	INCHHEADER_18 INCH INCH
109	712.52	199431.54	142138.62	HEADER
110	711.59	199430.25	142160.90	INCHHEADER_18 INCH INCH
111	711.34	199429.73	142188.37	INCHHEADER_18 INCH INCH
112	711.00	199429.92	142214.00	HEADER
113	710.63	199429.61	142243.91	HEADER
114	710.46	199429.11	142277.27	HEADER

POINT TABLE				
POINT	ELEVATION	NORTHING	EASTING	DESCRIPTION
115	708.77	199420.84	142321.32	HEADER
116	744.02	199509.70	140885.52	INCHWAC_6 INCH TEE INTO EX INCH
117	746.94	199471.46	141083.34	INCHWAC_6 INCH 90 AT RSR INCH
118	748.64	199529.31	140131.75	INCHWAC_6 INCH TEE INTO EX INCH
119	751.54	199538.01	140155.04	VAC _90 AT RSR INCH
120	752.58	199530.01	140399.02	INCHWAC_6 INCH TEE INTO EX INCH
121	757.63	199537.87	140357.66	INCHWAC_6 INCH 90 AT RSR INCH
122	723.37	199444.30	140440.70	INCHWAC_TEE INTO EX 6 INCH INCH
123	728.00	199447.54	140379.96	INCHWAC_6 INCH INCH
124	738.28	199450.84	140300.95	VAC
125	738.30	199451.58	140301.60	VAC
126	738.54	199451.36	140302.21	VAC
127	743.35	199450.81	140258.24	INCHWAC_6 INCH 90 AT RSR INCH
128	743.24	199451.98	140258.73	INCHWAC_6 INCH 90 AT RSR INCH
129	743.08	199451.85	140256.69	INCHWAC_6 INCH 90 AT RSR INCH
130	722.10	199444.37	140311.69	VAC _90 INTO BELLY COLL TEE
131	722.11	199444.19	140310.64	VAC _90 INTO BELLY COLL TEE
132	775.12	199504.83	140709.33	INCHWAC_6 INCH 90 AT GW15 RSR INCH
133	709.67	199476.43	142347.80	INCHWAC_18 INCH INCH
134	709.09	199425.95	142347.80	INCHWAC_18 INCH INCH
135	708.82	199421.47	142346.41	INCHWAC_18 INCH INCH
136	739.84	199442.04	140462.68	VAC _18X18X18 NF TEE
137	739.84	199442.03	140418.85	VAC _18X18X18 NF TEE
138	744.00	199495.68	140082.69	INCHWAC_6 INCH 90 AT RSR INCH
139	713.30	199407.81	142327.91	HEADER_TOP_10
140	701.12	199403.47	142318.59	HEADER_18_45
141	703.99	199392.42	142409.88	HEADER_18
142	703.55	199389.93	142416.66	HEADER_18 CAP
143	707.75	199407.71	142326.51	FM_2X4 FM 90 UP TO KO
144	708.23	199407.84	142326.41	FM_2 FLAIR DRAIN INTO KO
145	708.30	199403.15	142322.30	FM_TIE TO EX FM EST
146	721.17	199407.88	142244.14	HEADER_12_45 INTO FLARE
147	721.36	199407.24	142244.14	HEADER_12 VALVE
148	707.00	199408.64	142328.28	18 HEADER
149	700.16	199407.23	142327.34	18X12X18 TEE TO FLARE
150	774.25	199525.15	140688.28	VAC
151	774.39	199524.46	140715.21	VAC
152	775.29	199523.75	140742.47	VAC
153	776.90	199523.01	140810.30	VAC
154	712.49	199429.42	139899.76	6" HZ COL
155	711.48	199407.62	139914.55	6" HZ COL
156	710.30	199408.41	139918.69	6" HZ COL
157	709.10	199466.34	139921.79	6" HZ COL
158	710.72	199468.56	139918.01	6" HZ COL
159	710.68	199468.22	139917.56	6" HZ COL
160	709.71	199459.90	139922.43	6" HZ COL
161	710.17	199457.84	139920.75	6" HZ COL
162	710.48	199453.91	139920.24	6" HZ COL
163	711.16	199449.89	139922.21	6" HZ COL
164	711.19	199448.81	139923.20	6" HZ COL
165	711.20	199448.68	139933.24	6" HZ COL
166	711.88	199446.14	139940.70	6" HZ COL
167	712.74	199446.01	139936.76	6" HZ COL
168	712.27	199446.22	139957.67	6" HZ COL
169	712.50	199446.38	139987.79	6" HZ COL
170	713.47	199446.49	140018.62	6" HZ COL
171	713.81	199446.11	140043.65	6" HZ COL
172	712.63	199475.84	139905.63	6" HZ COL
173	711.91	199471.94	139921.84	6" HZ COL
174	711.03	199470.49	139943.56	6" HZ COL
175	708.12	199470.77	139956.85	6" HZ COL
176	706.20	199469.08	139976.69	6" HZ COL
177	709.57	199467.31	140013.00	6" HZ COL
178	711.19	199465.21	140049.42	6" HZ COL
179	709.39	199461.39	140081.40	6" HZ COL
180	713.08	199461.73	140133.71	6" HZ COL
181	714.55	199460.78	140158.56	6" HZ COL
182	711.88	199476.34	139908.56	6" HZ COL
183	710.77	199476.14	139922.48	6" HZ COL
184	708.68	199476.11	139946.53	6" HZ COL
185	709.00	199476.82	139958.44	6" HZ COL
186	711.10	199475.23	140017.63	6" HZ COL
187	710.05	199475.10	140054.33	6" HZ COL
188	710.68	199474.21	140089.78	6" HZ COL
189	710.78	199474.06	140112.50	6" HZ COL
190	711.47	199473.12	140138.23	6" HZ COL
191	709.82	199472.60	140154.83	6" HZ COL
192	711.04	199472.11	140172.57	6" HZ COL
193	712.65	199472.17	140194.12	6" HZ COL
194	714.80	199472.65	140220.45	6" HZ COL

POINT TABLE				
POINT	ELEVATION	NORTHING	EASTING	DESCRIPTION
195	709.82	199498.34	139907.95	6" HZ COL
196	709.05	199498.19	139923.66	6" HZ COL
197	707.03	199497.42	139944.77	6" HZ COL
198	707.10	199498.76	139944.42	6" HZ COL
199	707.54	199495.93	139972.70	6" HZ COL
200	708.14	199493.64	139997.93	6" HZ COL
201	708.67	199492.38	140045.97	6" HZ COL
202	709.28	199498.51	140017.15	6" HZ COL
203	709.45	199489.12	140098.24	6" HZ COL
204	710.00	199488.83	140112.79	6" HZ COL
205	711.26	199487.93	140146.81	6" HZ COL
206	713.72	199485.04	140168.60	6" HZ COL
207	714.37	199484.82	140190.40	6" HZ COL
208	709.87	199500.68	139996.80	6" HZ COL
209	712.05	199500.31	139943.33	SS
210	707.78	199501.32	139944.70	6" HZ COL
211	708.72	199502.83	139989.06	6" HZ COL
212	709.38	199502.81	139986.34	6" HZ COL
213	709.39	199503.74	140006.40	6" HZ COL
214	709.84	199503.72	140036.86	6" HZ COL
215	710.81	199504.04	140069.85	6" HZ COL
216	710.88	199505.17	140100.71	6" HZ COL
217	711.68	199505.97	140127.50	6" HZ COL
218	712.38	199506.01	140151.73	6" HZ COL
219	712.43	199506.73	140161.16	6" HZ COL
220	712.14	199507.29	140178.94	6" HZ COL
221	712.42	199508.53	140216.43	6" HZ COL
222	711.14	199457.71	140029.51	STONE TRENCH
223	710.05	199460.56	140043.18	