



**BRIDGETON LANDFILL, LLC.**

**CONSTRUCTION QUALITY ASSURANCE  
ACCEPTANCE REPORT**

**North Quarry Condensate Trap Installation**

**BRIDGETON, ST. LOUIS COUNTY, MISSOURI**

**Prepared For:  
Bridgeton Landfill, LLC.  
13570 ST. Charles Rock Road  
Bridgeton, MO 63044**

**October 2019**

**Project No.: BT-199**

**Prepared By:**

**Feezor Engineering, Inc.  
3377 Hollenberg Drive  
Bridgeton, MO 63044**

---



*Daniel Feezor*  
10/11/19

**CONSTRUCTION QUALITY ASSURANCE  
ACCEPTANCE REPORT**

**NORTH QUARRY CONDENSATE  
TRAP INSTALLATION CQA**

**BRIDGETON LANDFILL, LLC**

**BRIDGETON, SAINT LOUIS COUNTY, MISSOURI**

Prepared for

Bridgeton Landfill, LLC

October 2019

Prepared by

Feezor Engineering, Inc.  
3377 Hollenberg Drive  
Bridgeton, MO 63044

BT-199

## CONTENTS

---

<b>1</b>	<b>INTRODUCTION</b>	<b>2</b>
	1.1 Overview of Project	2
<b>2</b>	<b>CONDENSATE TRAP INSTALLATION</b>	<b>3</b>
	2.1 Condensate Sumps	3
	2.2 Header Piping	3
<b>3</b>	<b>SURVEY CONTROL</b>	<b>4</b>
	3.1 Construction Surveying	4
	3.2 Final As-built Surveying	4
<b>4</b>	<b>CERTIFICATION</b>	<b>5</b>

## LIST OF APPENDICES

---

- A. Daily Field Summaries
- B. Project Pressure Testing Data
- C. Construction Photos
- D. As-Built Drawings

# 1 INTRODUCTION

---

## 1.1 Overview of Project

Bridgeton Landfill, LLC is a closed municipal solid waste facility located at 13570 St. Charles Rock Road, Bridgeton, St. Louis County, Missouri. The facility is owned and operated by Bridgeton Landfill, LLC (BL) who operate the facility pursuant to Permit No 118912. (and subsequent modifications), issued by the Missouri Department of Natural Resources (MDNR).

During the 2019 construction season, BL installed 2 Condensate Traps (CT) in the North Quarry of the site. Fusion Solutions Inc. out of Carlinville, IL was chosen by BL to install the components for the CTs. Feezor Engineering Inc. (FEI) of Bridgeton, MO, provided the initial and record surveying to document the as-built conditions of all installed components of the project.

FEI was also selected as the Construction Quality Assurance (CQA) consultant to observe and document the construction of the CT installation. Daniel R. Feezor, P.E. of FEI was the Construction Quality Assurance Officer (CQAO). Mr. Feezor selected Arron Weber to be the CQA technician.

## 2 CONDENSATE TRAP INSTALLATION

---

### 2.1 Condensate Sumps

Two 36-inch by 24-inch diameter dual contained condensate sumps were installed to improve performance of the existing landfill gas collection system by adding additional dewatering locations to remove landfill gas condensate.

A CAT 336E excavator was utilized to excavate the area necessary for the installation of the sumps. Once the desired excavation depth was achieved, the sumps were installed in accordance with design. After sump installation, the excavation was backfilled using approximately 3 cubic yards of concrete followed by clean soil.

Landfill gas headers from the existing system were plumbed to the appropriate inlets of the condensate sumps as described in **Section 2.2**.

After the connection of landfill gas piping, an AP-4 pneumatic pump was installed in each of the sumps.

### 2.2 Header Piping

Approximately 80 linear feet of 12" gas collection header was installed during this project. All gas collection piping was constructed of high-density polyethylene (HDPE) pipe. All HDPE gas collection piping had a minimum SDR rating of SDR 26 per design specifications. All pipe materials were field inspected to verify conformance. HDPE pipe was joined by either butt fusion methods or flange adapters according to manufacturer's recommended procedures. Gas collection piping was installed in the locations and to the required lines and grades shown on **Drawing 002 of Appendix D**.

Daily field reports for the project can be found in **Appendix A**.

Project pressure testing information can be found in **Appendix B**.

As-Built drawings are located in **Appendix D**.

## 3 SURVEY CONTROL

---

### **3.1 Construction Surveying**

Feezor Engineering Inc. of Bridgeton, Missouri, provided surveying as the Project Surveyor.

### **3.2 Final As-built Surveying**

Feezor Engineering Inc. of Bridgeton, Missouri provided the final certification survey for the as-built coordinates and elevations of key points and features of the Condensate Traps.

## **4 CERTIFICATION**

---

I, Daniel R. Feezor, P.E., do hereby certify to my best knowledge and belief, that the North Quarry Condensate Traps at the Bridgeton Landfill were constructed in accordance with the approved Construction Quality Assurance Program.

**APPENDIX A**  
**FIELD INFORMATION**

**Sub-Appendices**

- A.1 Daily Summary Reports
- A.2 Construction Equipment List

**Sub-Appendix A.1**  
**Daily Summary Reports**

Feezor Engineering, Inc.  
406 E. Walnut St.  
Chatham, IL 62629  
(217) 483-3118



Page: 1 of 1

### Daily Field Summary Report

<b>Client:</b> <u>Bridgeton Landfill, LLC</u>	<b>Job No.:</b> <u>BT-199</u>
<b>Project:</b> <u>Sump Installation</u>	<b>Task No.:</b> <u>-</u>
<b>Location:</b> <u>Bridgeton, MO</u>	<b>Date:</b> <u>9/11/2019</u>
<b>Contractor(s):</b> <u>Fusion Solutions Inc. (Fusion)</u>	<b>Report No.:</b> <u>1</u>
<b>Weather:</b> AM <u>Sunny</u> PM <u>Sunny</u>	
<b>Temperature:</b> AM <u>76 F</u> PM <u>93 F</u>	

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

0650 – I arrive on site for the site safety meeting with Fusion  
0730 – Fusion Solutions begins excavation of the west sump using the CAT 336E excavator  
0750 – Fusion sets the CT-41 and places some rock around the bottom to hold it in place.  
0830 – Fusion relocates to perform other site tasks.  
0935 – Fusion begins excavation for CT-40 using the CAT 336E excavator.  
1200 – Fusion begins to set the sump and places rock around the bottom to hold it in place.  
1230 – Lunch  
1400 – The cement truck arrives, Fusion begins to place 2-3CY of concrete around the base of CT-41.  
1430 – The cement truck relocates to CT-40 and places 2-3CY of concrete around the base.  
1530 – Fusion stops work for the day to let the concrete set around the sumps.

Copies To: Erin Fanning, Dan Feezor

FEI Representative: Arizon Weber

Feezor Engineering, Inc.  
406 E. Walnut St.  
Chatham, IL 62629  
(217) 483-3118



**Daily Field Summary Report**

<b>Client:</b> <u>Bridgeton Landfill, LLC</u>	<b>Job No.:</b> <u>BT-199</u>
<b>Project:</b> <u>Sump Installation</u>	<b>Task No.:</b> <u>-</u>
<b>Location:</b> <u>Bridgeton, MO</u>	<b>Date:</b> <u>9/12/2019</u>
<b>Contractor(s):</b> <u>Fusion Solutions Inc. (Fusion)</u>	<b>Report No.:</b> <u>2</u>
<b>Weather:</b> AM <u>Sunny</u> PM <u>Sunny</u>	
<b>Temperature:</b> AM <u>77 F</u> PM <u>93 F</u>	

Description of field activities (include labor, equipment, site conditions, sampling, etc.)

0650 – I arrive on site for the site safety meeting with Fusion  
0730 – Fusion Solutions begins backfilling around the sumps with the CAT336E excavator while air tests are set up.  
0810 – Air test on 1<sup>st</sup> 40' section of 12" HDPE to be installed.  
0910 – Air test passes and Fusion begins to connect the CT-41 into the existing system.  
0925 – Air test on the second section of HDPE.  
1025 – Second air tests passes, Fusion begins to connect CT-40 into the existing header system.  
1230 – Lunch  
1300 – Fusion resumes tying the sump into the existing header system.  
1530 – Fusion conducts general site cleanup, then leaves the site.

Copies To: Erin Fanning, Dan Feezor

FEI Representative:

## **Sub-Appendix A.2**

### **Construction Equipment List**

# EQUIPMENT LIST

2019 North Quarry Sump Installation

Bridgeton Landfill, LLC. – REPUBLIC SERVICES INC.

## 1 Fusion Solutions

---

1 – CAT 336E Excavator

1 – Takeuchi TL12R2 Skid steer

Various McElroy butt fusion welding equipment

**APPENDIX B**  
**PROJECT PRESSURE TESTING DATA**

	ISCO Fabrication Structure QA/QC Check List Inspection Form	QD 2 Revision - 0 Date: 5/15/2013 Page 1
---	--	---

**ISCO Industries Inc. FIRST ITEM - FINAL FAB STRUCTURE QA/QC CHECKLIST.**

First Item Inspection can be performed by Fabricator - Initial & Date		YES	NO	N/A
W.O.#: 21282806	Drawing #: 060719			Customer: RS (Bridgeton L.F) CT-16C
Product Description: 24x36 Condensate Sump				
Technician(s): Stuvlong				
Is the cylinder length or height correct? First Item verify before cutting		✓		
Signature: <i>[Signature]</i>				
Inlet's & Outlet's and structure layout; First Item double checked before cutting penetrations? Signature: <i>[Signature]</i>		✓		
Was pre heat and barrel temp. verified at the beginning of each day prior to using welder? Identify extrusion welder and parameters that were measured below.		✓		
Date 7-2 Initial 5649 Air Temp. 260 Melt Temp. 230 Ser.# 0017223				
Date 7-3 Initial 5649 Air Temp. 260 Melt Temp. 230 Ser.# 0017223				
Date 7-11 Initial 5649 Air Temp. 260 Melt Temp. 230 Ser.# 0017223		✓		
Are the outlet elevations and orientations correct? Final Inspection to drawing		✓		
Are the lengths & diameters of the outlets correct? Final Inspection to drawing		✓		
Is the SDR correct on all pipe & fittings? Final Inspection to WO product description		✓		
Are the sheet stock thicknesses correct? Final Inspection to WO product description		✓		
Are the tops & bottoms the correct Thickness, OD, shape and bolt pattern?		✓		
Are the gussets installed (how many, which outlets, what size)?		✓		
Are lifting lugs installed correctly if required? (Required on large cylinders)		✓		
Is the internal piping correct; Verify valves and bolts tight and flow direction?		✓		
Do the extrusion welds have good visual appearance? Welded on both side?		✓		
Knock Out Pots Structures must be air tested!				✓
Dual Containments Structures must have annular space air tested!		✓		
Has the structure been tested per the WO requirements?		✓		
Air ✓	PSI 2.42/4.00 Time 15 mins	✓		
Water —	Height — Time —	✓		
Correctly Prepared For Shipment? All trash removed from piping and cylinder?		✓		
Have all Flange faces been protected for shipping?		✓		
Pictures of structure electronically down loaded per QA/QC requirements		✓		
All dimensions are within tolerable allowance, measure and identify each dimension measured on the structure to the drawing dimension as Objective Evidence. Copy of drawing to be saved with Inspect Form. This product was tested in the method indicated above and has passed the Quality Control Inspection?				
Is the cylinder and structure free of gouges and blemishes and acceptable to ship?				
QC Final Inspection Sign Off. Signature: <i>[Signature]</i>				Date: 7-12-11

*[Handwritten marks]*



ISCO Fabrication  
Structure QA/QC  
Check List  
Inspection Form

QD 2  
Revision - 0  
Date: 5/15/2013  
Page 1

**ISCO Industries Inc. FIRST ITEM - FINAL FAB STRUCTURE QA/QC CHECKLIST.**

First Item Inspection can be performed by Fabricator - Initial & Date

YES	NO	N/A
-----	----	-----

W.O.#: 21283013 Drawing #: 061019 Customer: Republic Services Corp

Product Description: 36" DR26 X 24 DR17 Sump

Technician(s): Steve Long, Harvey Rodriguez

Is the cylinder length or height correct? First Item verify before cutting

Signature: Steve Long

✓		
---	--	--

Inlet's & Outlet's and structure layout; First Item double checked before cutting penetrations? Signature: Steve Long

✓		
---	--	--

Was pre heat and barrel temp. verified at the beginning of each day prior to using welder? Identify extrusion welder and parameters that were measured below.

✓		
---	--	--

Date 8-5 Initial SL Air Temp. 260 Melt Temp. 230 Ser.# 0017223

Date 8-6 Initial SL Air Temp. 260 Melt Temp. 230 Ser.# 0017223

Date 8-7 Initial SL Air Temp. 260 Melt Temp. 230 Ser.# 0017223

✓		
---	--	--

Are the outlet elevations and orientations correct? Final Inspection to drawing

✓		
---	--	--

Are the lengths & diameters of the outlets correct? Final Inspection to drawing

✓		
---	--	--

Is the SDR correct on all pipe & fittings? Final Inspection to WO product description

✓		
---	--	--

Are the sheet stock thicknesses correct? Final Inspection to WO product description

✓		
---	--	--

Are the tops & bottoms the correct Thickness, OD, shape and bolt pattern?

✓		
---	--	--

Are the gussets installed (how many, which outlets, what size)?

✓		
---	--	--

Are lifting lugs installed correctly if required? (Required on large cylinders)

		✓
--	--	---

Is the internal piping correct; Verify valves and bolts tight and flow direction?

✓		
---	--	--

Do the extrusion welds have good visual appearance? Welded on both side?

✓		
---	--	--

Knock Out Pots Structures must be air tested!

		✓
--	--	---

Dual Containments Structures must have annular space air tested!

✓		
---	--	--

Has the structure been tested per the WO requirements?

✓		
---	--	--

Air  PSI 2.0/4.0 Time 15mins

✓		
---	--	--

Water  Height  Time

		✓
--	--	---

Correctly Prepared For Shipment? All trash removed from piping and cylinder?

✓		
---	--	--

Have all Flange faces been protected for shipping?

✓		
---	--	--

Pictures of structure electronically down loaded per QA/QC requirements

✓		
---	--	--

All dimensions are within tolerable allowance, measure and identify each dimension measured on the structure to the drawing dimension as Objective Evidence. Copy of drawing to be saved with Inspect Form.

This product was tested in the method indicated above and has passed the Quality Control Inspection?

Is the cylinder and structure free of gouges and blemishes and acceptable to ship?

QC Final Inspection Sign Off. Signature: [Signature]

Date: 8-8-13

Feezor Engineering, Inc.  
3377 Hollenberg Drive  
Bridgeton, MO 63044  
(217) 483-3118



## PIPELINE FIELD TESTING REPORT

**Client:** Republic Services - Bridgeton Landfill  
**Project:** Sump Installation  
**Engineers/Owner Rep:** Arron Weber

**Date:** 9/12/2019  
**Job No.:** BT-199  
**Page:** 1

**Location:** (Bldg. to Bldg., Struct. to Struct., M.H. to M.H., Sta. to Sta., etc.)

**12" Header to CT-E**

**Description:** (Material and Line Usage - HDPE -Header, HDPE Force-main)

**12" HDPE**

**Type of Test:** (Air, Hydrostatic, Infiltration, Exfiltration, Other)

**AIR**

**Test Pressure Per Spec.** 4 PSI 1hr

**Pipe Diameter & Length:** 12" 40'

### Test Results

<u>Start Pressure (PSI)</u>	<u>Temperature (F)</u>	<u>Start Time</u>
4	83	9:25
4	83	9:35
4	83	9:45
4	83	9:55
4	83	10:05
4	84	10:15
<u>Ending Pressure (PSI)</u>	<u>Ending Temperature (F)</u>	<u>Ending Time</u>
4	84	10:25

**Comments:** Pass / Fail (Circle One)

**Date Test Performed.:** 9/12/2019

**Engineers/Owners Rep.:** Arron Weber

Feezor Engineering, Inc.  
3377 Hollenberg Drive  
Bridgeton, MO 63044  
(217) 483-3118



## PIPELINE FIELD TESTING REPORT

**Client:** Republic Services - Bridgeton Landfill  
**Project:** Sump Installation  
**Engineers/Owner Rep:** Arron Weber

**Date:** 9/12/2019  
**Job No.:** BT-199  
**Page:** 1

**Location:** (Bldg. to Bldg., Struct. to Struct., M.H. to M.H., Sta. to Sta., etc.)

**12" Header to CT-W**

**Description:** (Material and Line Usage - HDPE -Header, HDPE Force-main)

**12" HDPE**

**Type of Test:** (Air, Hydrostatic, Infiltration, Exfiltration, Other)

**AIR**

**Test Pressure Per Spec.** 4 PSI 1hr

**Pipe Diameter & Length:** 12" 40'

### Test Results

<u>Start Pressure (PSI)</u>	<u>Temperature (F)</u>	<u>Start Time</u>
4	82	8:10
4	82	8:20
4	82	8:30
4	82	8:40
4	83	8:50
4	83	9:00
<u>Ending Pressure (PSI)</u>	<u>Ending Temperature (F)</u>	<u>Ending Time</u>
4	83	9:10

**Comments:** Pass / Fail (Circle One)

**Date Test Performed.:** 9/12/2019

**Engineers/Owners Rep.:** Arron Weber

**APPENDIX C**  
**CONSTRUCTION PHOTOS**

## PHOTOGRAPHIC RECORD FORM

Project Name: 2019 North Quarry Sump Installation

Project Number: BT-199

Photograph: 1

Filename: 20190911\_073936

Date: 9/11/2019

Time: 7:39AM

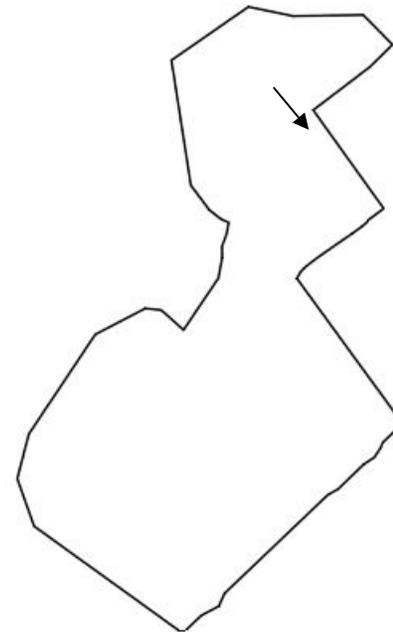
Comments: Fusion excavating the hole for the first sump.

Photographer's Signature: *Arron Weber*

Typed: Arron Weber



### SKETCH OF PHOTOGRAPH LOCATION



## PHOTOGRAPHIC RECORD FORM

Project Name: 2019 North Quarry Sump Installation

Project Number: BT-199

Photograph: 2

Filename: 20190911\_082757

Date: 9/11/2019

Time: 8:27AM

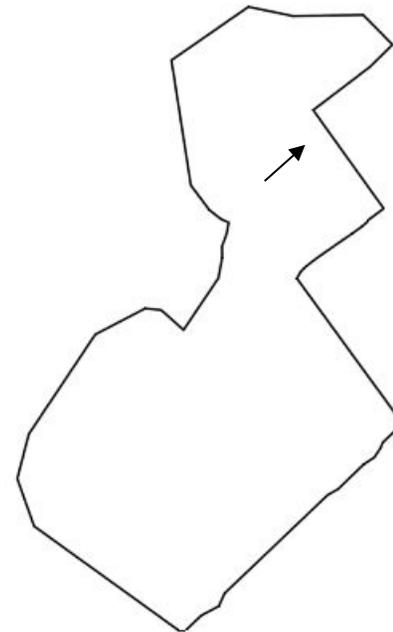
Comments: Fusion setting the first sump.

Photographer's Signature: *Arron Weber*

Typed: Arron Weber



### SKETCH OF PHOTOGRAPH LOCATION



# PHOTOGRAPHIC RECORD FORM

Project Name: 2019 North Quarry Sump Installation

Project Number: BT-199

Photograph: 3

Filename: 20190911\_120718

Date: 9/11/2019

Time: 12:07AM

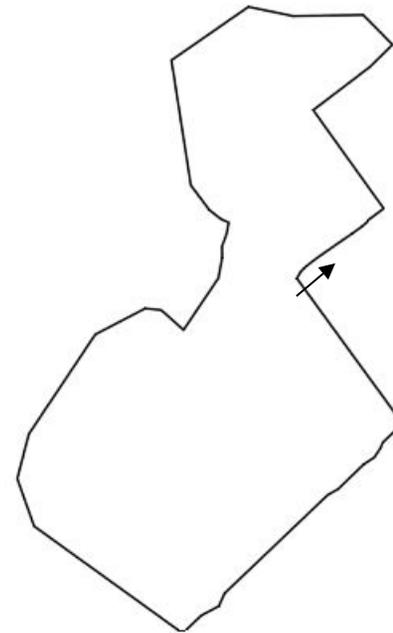
Comments: Fusion setting the second sump.

Photographer's Signature: *Arron Weber*

Typed: Arron Weber



## SKETCH OF PHOTOGRAPH LOCATION



## PHOTOGRAPHIC RECORD FORM

Project Name: 2019 North Quarry Sump Installation

Project Number: BT-199

Photograph: 4

Filename: 20190911\_145532

Date: 9/11/2019

Time: 2:55PM

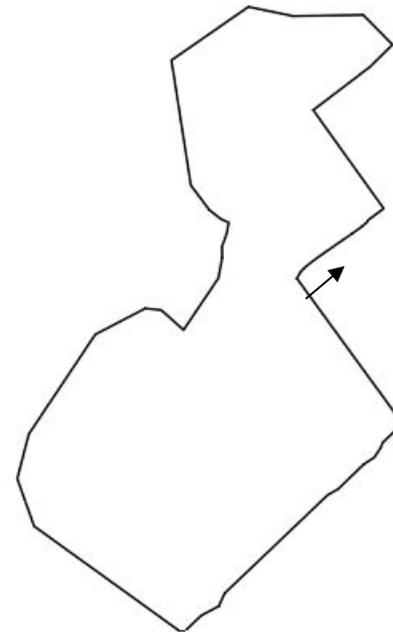
Comments: Fusion pouring the concrete around the base of the second sump.

Photographer's Signature: *Arron Weber*

Typed: Arron Weber



### SKETCH OF PHOTOGRAPH LOCATION



# PHOTOGRAPHIC RECORD FORM

Project Name: 2019 North Quarry Sump Installation

Project Number: BT-199

Photograph: 5

Filename: 20190912\_140534

Date: 9/12/2019

Time: 2:05PM

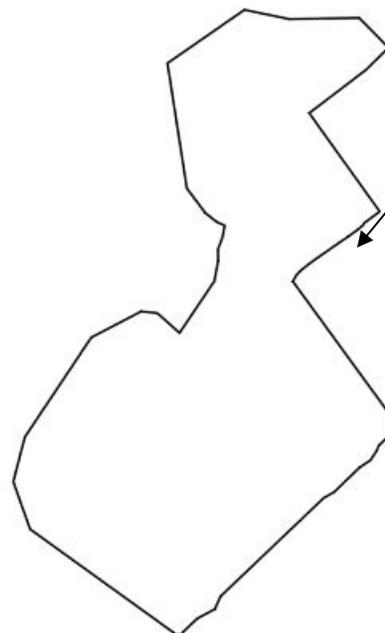
Comments: Fusion connecting the second sump to the existing system.

Photographer's Signature: *Arron Weber*

Typed: Arron Weber



## SKETCH OF PHOTOGRAPH LOCATION



**APPENDIX D**  
**AS-BUILT DRAWINGS**

# AS-BUILT RECORD DRAWINGS FOR THE NORTH QUARRY CONDENSATE TRAP INSTALLATION

OCTOBER 2019  
PREPARED FOR:

**BRIDGETON LANDFILL, LLC**  
13570 ST. CHARLES ROCK ROAD  
BRIDGETON, MISSOURI 63044

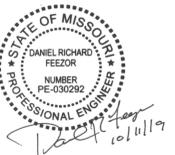
INDEX OF DRAWINGS	
	TITLE PAGE
001	SITE PLAN VIEW
002	NORTH QUARRY CT INSTALLATION PLAN VIEW
003	DETAILS



LOCATION MAP



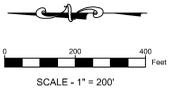
3377 HOLLENBERG DRIVE  
BRIDGETON, MO 63044  
TEL. (217) 483-3118





**LEGEND**

	SOLID WASTE BOUNDARY
	GAS MONITORING PROBE
	PIEZOMETER MONITORING WELL
	QUARRY WALL
	WEST LAKE AREA 1
	WEST LAKE AREA 2
	DEMOLITION LANDFILL AREA
	NORTH QUARRY CT INSTALLATION AREA



NOTES:  
 \* AERIAL TOPOGRAPHY PROVIDED BY COOPER AERIAL SURVEYS CO. AND IS DATED DECEMBER 12, 2018

DANIEL RICHARD FEEZOR  
 PE-030292

PREPARED BY  
**FEEZOR**  
 ENGINEERING, INC.  
 3377 Holmberg Dr. Bridgeton, MO 63044. Ph: 217-483-3118  
 Missouri State Certificate Of Authority #: E-200912213

PROJECT  
 BRIDGETON LANDFILL  
 NORTH QUARRY CONDENSATE TRAP  
 INSTALLATION  
 BRIDGETON, ST. LOUIS COUNTY, MO

PREPARED FOR  
 BRIDGETON LANDFILL, LLC  
 13570 ST. CHARLES ROCK ROAD  
 BRIDGETON, MISSOURI 63044

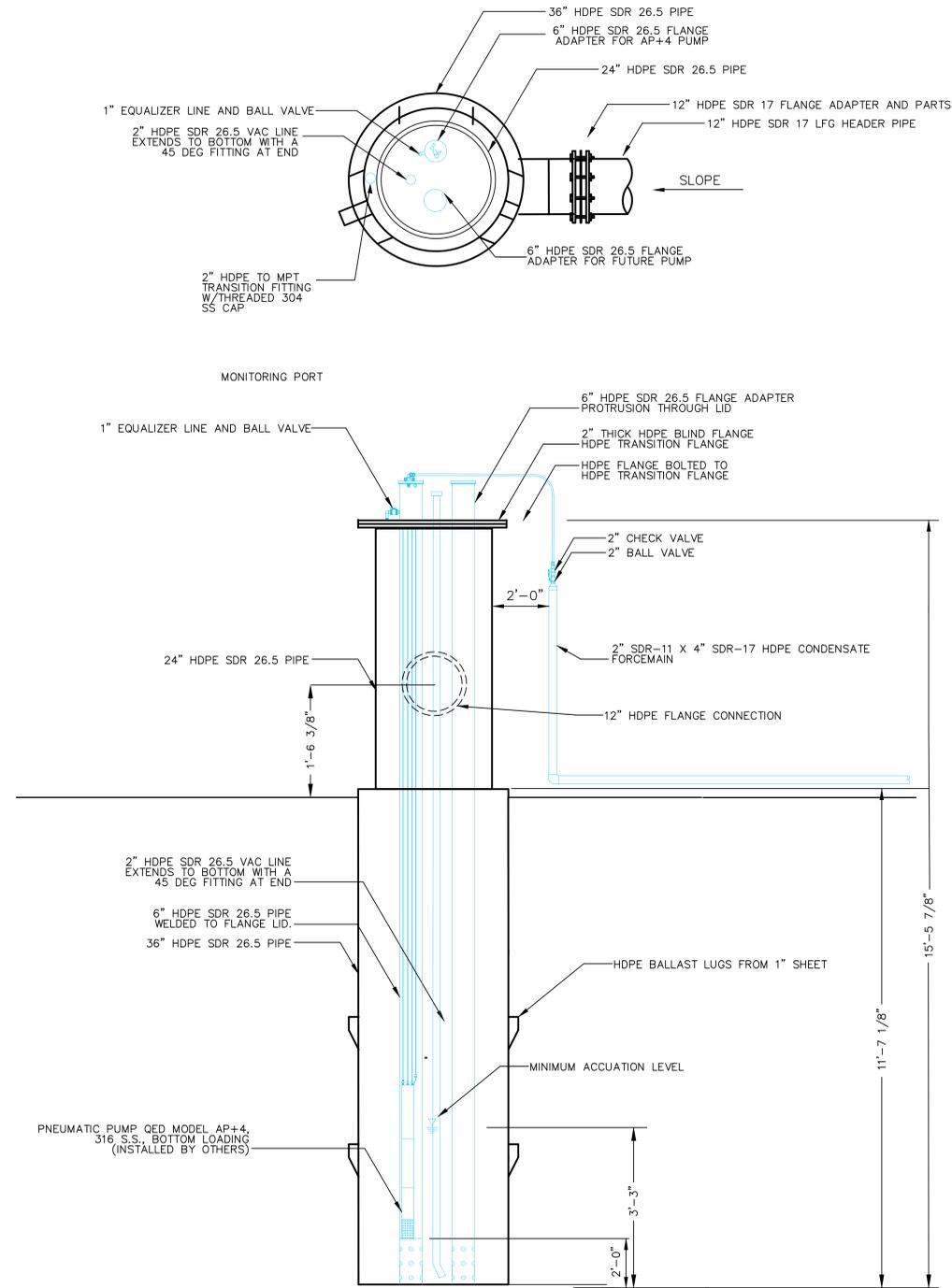
DESIGNED BY: AMR	DATE	DSN	APV
APPROVED BY: DRF			
REVISIONS:			

DRAWING TITLE  
**SITE PLAN**

PROJECT NUMBER: BT-199 | FILE PATH: C:\Users\amr\OneDrive\OneDrive\Projects\BT-199\BT-199-01\Installation\01-Report1\_Agenda\01-01\01-01.dwg

DRAWING #  
**001**





1  
002 003

# CONDENSATE TRAP

NOT TO SCALE

NOTES:  
 \* AERIAL TOPOGRAPHY PROVIDED BY COOPER AERIAL SURVEYS CO. AND IS DATED DECEMBER 12, 2018

	PREPARED BY: 	PROJECT: BRIDGETON LANDFILL NORTH QUARRY CONDENSATE TRAP INSTALLATION BRIDGETON, ST. LOUIS COUNTY, MO	PREPARED FOR: BRIDGETON LANDFILL, LLC 13570 ST. CHARLES ROCK ROAD BRIDGETON, MISSOURI 63044	OCTOBER 2019 DESIGNED BY: AMR APPROVED BY: DRF	DRAWING # <b>003</b>
	DRAWING TITLE <b>DETAILS</b>			REVISIONS:	DATE OSW APV
PROJECT NUMBER: BT-199   FILE PATH: C:\Users\rdaniel\OneDrive\Documents\Projects\BT-199\DWG\BT-199-03-Details-03-Report1 - Approved.dwg					