

**SANITARY AND TRANSFER LANDFILL
DELAFIELD, WI**

Construction Documentation Report

3" HDPE SDR17 Lateral (Jumper) from EW-6 to EW-2

June 2019

**Prepared for: WDNR Solid Waste Management
101 S. Webster St.
Madison, WI 53703**

**Prepared by: Environmental Sampling Corporation (ESC)
W125 S9808 S. North Cape Rd.
Muskego, WI 53150**

ENVIRONMENTAL SAMPLING CORPORATION

Dedicated to Environmental Monitoring, Science & Technology

July 29, 2019

Mr. Jason Lowery
Wisconsin Department of Natural Resources
101 S. Webster St.
Madison, WI 53703

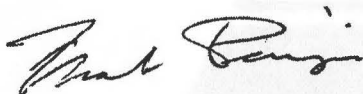
**Re: Construction Documentation Report
3" HDPE SDR17 Lateral (Jumper) from EW-6 to EW-2 - June 2019
Sanitary Transfer and Landfill
Delafield, WI
WDNR License No. 00719**

Dear Jason:

With this submission, Environmental Sampling Corporation (ESC) is providing the attached Construction Documentation Report for the installation of a 3" HDPE SDR 17 Lateral (Jumper) from EW-6 to EW-2 in June 2019. This Lateral (Jumper) was installed with the Department's approval to improve the landfill gas collection system at the Sanitary and Transfer Landfill in Delafield, Wisconsin.

If you have any questions or comments regarding this submittal, please contact the undersigned at 414-427-5033.

Sincerely,
Environmental Sampling Corporation



Frank Perugini
Director of Operations

Attachments

cc: Gerald DeMers: WDNR – Milwaukee (electronic copy)
Angela Carey: WDNR – Madison (electronic copy)
ESC File (electronic copy)

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Sanitary and Transfer Landfill
Delafield, WI**

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Section 1

Introduction

Environmental Sampling Corporation (ESC) operated and maintained the Sanitary and Transfer Landfill Gas Extraction System in Delafield, WI under contract with WDNR from July 2017 to June 2019.

The landfill historically (1970's – 1980's) had significant subsurface landfill gas migration issues. The existing 42-acre landfill has an active gas extraction system that was originally installed in 1996. The system was modified and reconstructed in 2004, 2005, 2017, 2018 and 2019. Several subsequent remedial efforts have also been performed on the LFG collection infrastructure in order to provide improved performance of the system. Prior to ESC's involvement, the gas collection system operated approximately 25% of the time over the last ten years (2010 – 2017). During the first year of ESC's contract (July 2017 to July 2018), the gas system was operational 47.3%. During the second year of ESC's contract (July 2018 to July 2019), the gas system was operational 69.9% (**Table 1**, Blower Operational Data 2017-2019).

ESC has improved the gas extraction system operation by installation of 6" Header/Jumper on the North side, a new Gas Blower, system balancing, and wellfield modifications including the installation of a temporary jumper line in May 2018 from gas extraction well EW-6 to EW-2. This report provides documentation of the construction of a new permanent 3" HDPE Lateral (Jumper) from EW-6 to EW-2. Information regarding the installation is provided in the following sections: Project Description and Description of Construction.

Section 2

Project Description

The gas extraction Lateral piping connecting to gas extraction well EW-2 was not functioning at the well location. Based on monitoring data collected from extraction well EW-2, the well had positive pressure and methane quality of +50%. As a result, landfill gas could not be extracted, and subsurface gas migration occurred (Refer to Delafield Sanitary and Transfer Landfill, WDNR License No. 00719, Annual Reports July 2017 – June 2018 and July 2018 – June 2019). Per WDNR approval, ESC installed a temporary above ground Jumper line in May 2018 to establish vacuum at EW-2 from another gas extraction well (EW-6) in the area. The temporary Jumper line was successful and established vacuum to EW-2 and subsurface gas migration was corrected. Based on the success of the temporary Jumper line, ESC installed a permanent 3" HDPE Lateral (Jumper) line below grade. The design of the permanent Lateral (Jumper) line was similar to the temporary line except it was buried 1-2 ft below grade.

The new Lateral (Jumper) consists of 3" diameter HDPE SDR-17 piping. The new piping connects EW-2 to EW-6. The slope and direction of gas flow of the new Lateral (Jumper) pipe follows the downward grade of the landfill from EW-2 to EW-6. The pipe was trenched in place with a skid steer. The pipe was placed and backfilled with pea gravel. A tracer wire and plastic caution tape was placed approximately 6" above the top of the pipe. Tracer wire was extended above the ground surface and end at EW-2 and EW-6.

Section 3

Description of Construction

The construction of the 3" HDPE SDR-17 Lateral (Jumper) from EW-6 to EW-2 was completed on June 11, 2019. The proposed alignment of the new Lateral was surveyed in the field (Refer to **Table 2**, As-Built Survey Data).

On June 10, 2019, HDPE pipe material was delivered to the site. ESC welded several 3" pipe lengths together in 150 ft length. The HDPE pipe was butt fused, welded with a 4" hot plate McElroy welding unit. The welding unit is powered by 120V AC power. All 3" HDPE pipe joints were butt fused welded unless otherwise noted.

ESC subcontracted UPC to provide earth work services. A Caterpillar 262B rubber tracked skid steer with a trencher attachment was used for trenching and backfilling work associated with this project. The trench between EW-2 and EW-6 was approximately 6" wide by 18" deep. Three inches of pea gravel bedding was placed below and above the 3" HDPE SDR-17 Lateral (Jumper). While trenching, small amounts of refuse was encountered, and the trench depth was maintained at 18". The remaining 12" of the trench was backfilled with excavated soils from the trench (Refer to **Appendix A**, Figure 1 inset of the Pipe Bedding Detail).

The alignment of the Lateral (Jumper) between EW-2 (Station point 0+00) and EW-6 (Station point 1+30) is shown on **Appendix A**, Figure 1. The Lateral (Jumper) consists of 130 ft - 3" HDPE SDR-17 pipe. A 3" PVC Schedule 80 Tee was installed at EW-2 and 2 ft section of 3" Kanaflex hose was used to connect the Lateral (Jumper) to EW-2. At the other end of the 3" Lateral (Jumper) a 3"x2" HDPE Reducer and a 2" HDPE Flange adaptor was butt fused to the Lateral. The final connection at EW-6 was made using a 2" SCH 80 Tee and 2" Van Stone Flange Adapter that was bolted to the Lateral (Jumper) (Refer to **Appendix B**, Photo Documentation).

Table 1

SANITARY AND TRANSFER LANDFILL Delafield, WI		
Blower Operational Data 2017 - 2019		
<u>Month/Year</u>	<u>Operational Hours / Month</u>	<u>Operational Percentage / Month</u>
Jul-17	345.30	79.9%
Aug-17	401.60	56.0%
Sep-17	412.50	57.3%
Oct-17	210.47	29.2%
Nov-17	237.53	33.0%
Dec-17	292.15	39.3%
Jan-18	195.60	26.3%
Feb-18	353.30	52.6%
Mar-18	400.90	53.9%
Apr-18	354.45	50.0%
May-18	375.15	50.4%
Jun-18	373.50	51.9%
Jul-18	343.50	46.2%
Aug-18	389.50	52.4%
Sep-18	348.70	48.4%
Oct-18	450.50	71.0%
Nov-18	440.40	61.2%
Dec-18	477.30	64.2%
Jan-19	627.70	84.5%
Feb-19	659.80	98.2%
Mar-19	657.40	58.4%
Apr-19	550.10	76.4%
May-19	505.70	68.0%
Jun-19	486.60	67.6%
Notes: First Year (07/13/17-07/15/18) = 4,170 hrs. 47.3% Second Year (07/15/18-07/03/19) = 5,914.5 hrs. 69.9% Initial Panel Reading (07/03/17): 65,152.0 hrs. Final Panel Reading (07/03/19): 75,236.5 hrs.		

Prepared By: SF, ESC

Checked By: IP, ESC

Table 2
Sanitary and Transfer Landfill
Delafield, WI
As-Built Survey Data
3" HDPE Lateral (Jumper) from EW-2 to EW-6

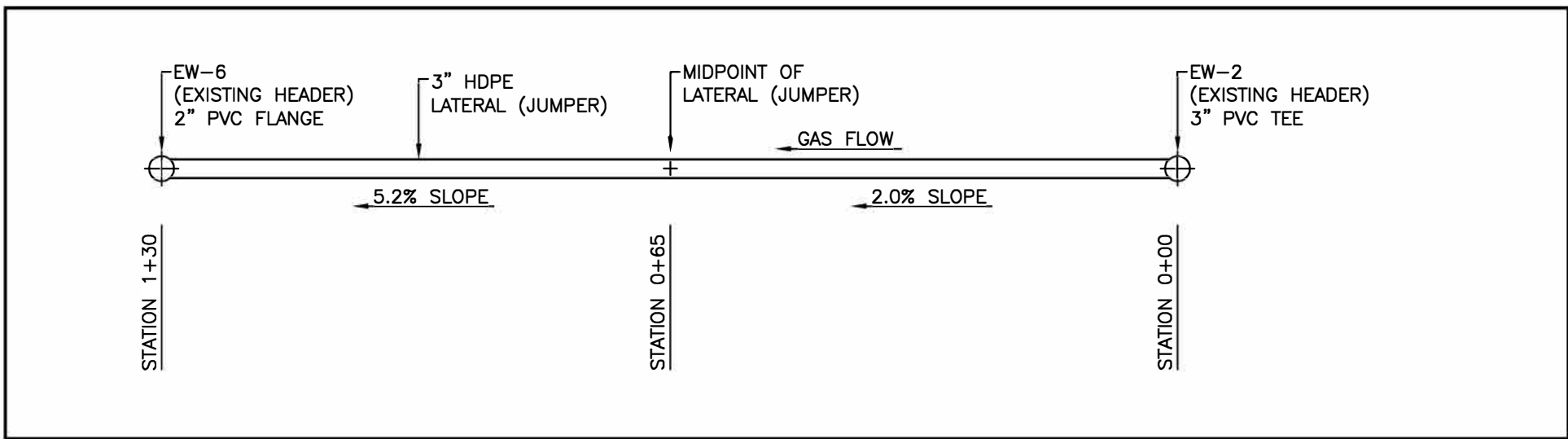
Location	Station(FT)	Elevation(FT)		Slope to Next Station	Description
		Topo (1)	In Field(2)		
EW-2	0+00	1057	3.0	2.9%	Top of 3" PVC Tee @ EW-2
Mid-Pt	0+65	----	4.9	5.2%	Mid-point of Lateral/Jumper
EW-6	1+30	1052	8.3	----	Top of 2" PVC Tee

- (1) Elevation from 8/97 Topo
- (2) In Field survey during installation

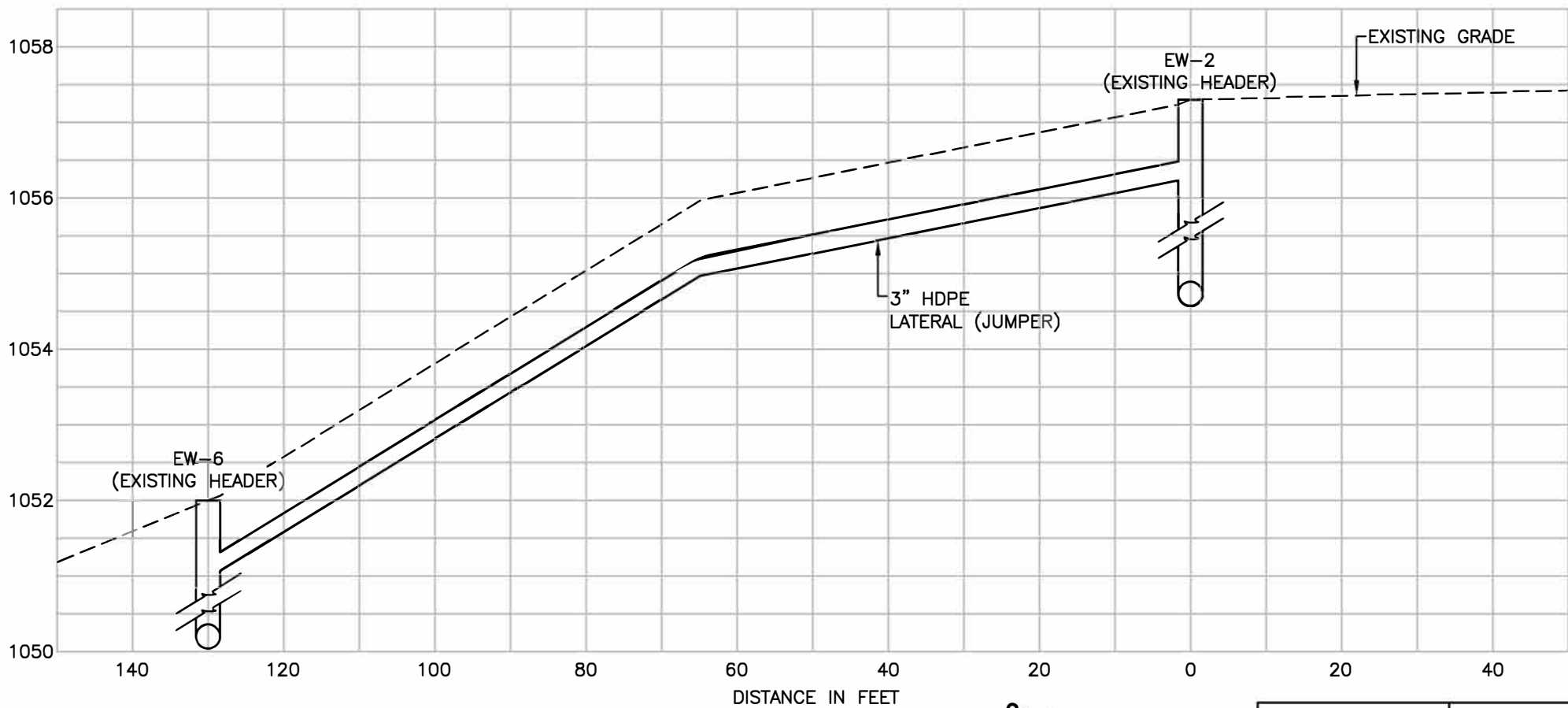
Prepared By: FP, ESC
 Checked By: IP, ESC

Appendix A

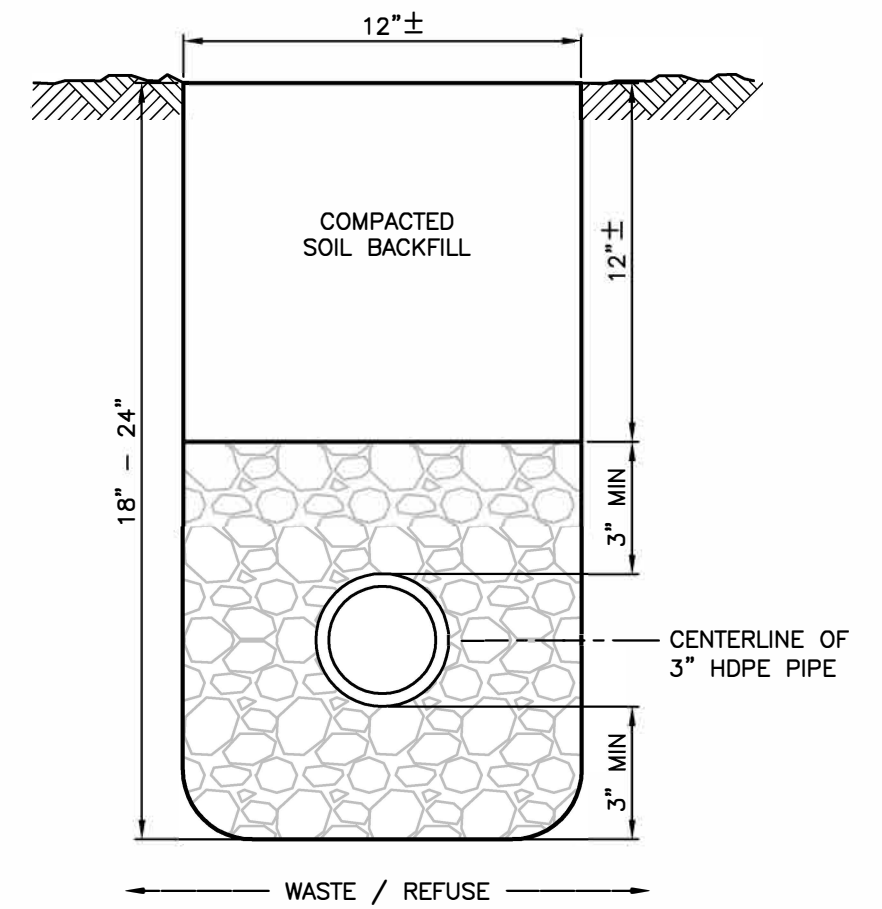
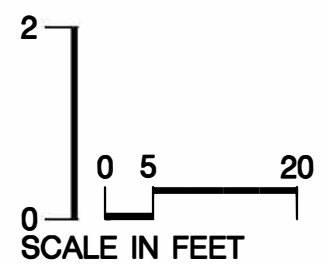
Figure 1: As-Built Drawing, 3" HDPE Lateral (Jumper) from EW-6 to EW-2



PLAN
SCALE: 1" = 20'



PROFILE



1 **PIPE BEDDING DETAIL**
1 NOT TO SCALE

PROJECT NO. 19-0726 | DESIGNED BY: FP 07.25.2019 | DRAWN BY: TMS 07.26.2019 | CHECKED BY: FP 07.27.2019 | APPROVED: FP 07.29.2019

AS-BUILT DRAWING
3" HDPE LATERAL (JUMPER) FROM EW-6 TO EW-2
DELAFIELD SANITARY TRANSFER LANDFILL
KETTLE DRIVE, DELAFIELD, WISCONSIN



SHEET
1 OF 1
FIGURE
1

Appendix B

Photo Documentation

**Sanitary and Transfer Landfill
Delafield, WI
Photo Documentation**

Photo 1: EW-2

Photo 1 shows Kanaflex hose connected to the tee at EW-2. Kanaflex hose was used to allow for flexibility and settlement of the lateral jumper over time.



**Sanitary and Transfer Landfill
Delafield, WI
Photo Documentation**

Photo 2: EW-6

Photo 2 shows the 2" bolted flanged connection from EW-6 to the lateral jumper.



**Sanitary and Transfer Landfill
Delafield, WI
Photo Documentation**

Photo 3: EW-6 to EW-2

Photo 3 shows the area of the jumper line between EW-6 and EW-2 backfilled with cover soils.

