

From: [Black, Alexis](#)
To: [SWD_Waste](#)
Subject: FW: Citrus County Class I Landfill-WACS ID No: 39859-Leachate Sump Pressure Transducers
Date: Tuesday, December 29, 2020 12:49:03 PM
Attachments: [image001.jpg](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[2020.12.15 LTR ABlack Leachate Sumps Pressure Transducer Depths.pdf](#)
[image006.jpg](#)

FL-DEP-LOGO



Alexis Black

Environmental Specialist II
Compliance Assurance Program
Florida Department of Environmental Protection
Southwest District

PLEASE NOTE: Florida has a very broad public records law. Electronic communications regarding state business are public records available upon request. Your e-mail communications may therefore be subject to public disclosure.



Please consider the environment before printing this email.

From: Troy Hays <thayes@jonesedmunds.com>

Sent: Monday, December 28, 2020 3:26 PM

To: Black, Alexis <Alexis.Black@FloridaDEP.gov>

Cc: Madden, Melissa <Melissa.Madden@FloridaDEP.gov>; Henry C. Norris
<Henry.Norris@citrusbocc.com>; Joshua L. Younce <Joshua.Younce@citrusbocc.com>

Subject: Citrus County Class I Landfill-WACS ID No: 39859-Leachate Sump Pressure Transducers

Good Afternoon Alexis,

Attached is a technical memorandum that discusses the pressure transducer depths in the leachate sumps at the Citrus County Central Landfill. The technical memorandum also details the appropriate pump on/off/alarm levels for each sump based on the sump configuration and the positioning on the pressure transducers.

I apologize for just getting this over to you today as it has been ready for submittal for a couple weeks and I forgot about it over the Holiday.

Please do not hesitate to call me with any questions or comments at 352-258-9520.

Thank you,

Troy D. Hays, PG

Senior Manager / Vice President



p. 352.377.5821 x. 1480 | c. 352.258.9520

JONESEDMUNDS.COM

730 NE Waldo Road, Gainesville, FL 32641



The information contained in this message including any attachment is confidential. It is intended for the private use of the intended addressee only. If you are not the intended addressee, please immediately notify the sender by reply email and destroy the original transmission and any attachment. Email transmission of information cannot be guaranteed to be free of error or other defect. If verification is required, request a hard-copy version. The sender disclaims liability for any defects in this message caused by email transmission including a virus. It is the responsibility of the recipient to ensure that this message is virus free.

December 15, 2020

Ms. Alexis Black
Solid Waste Section
Florida Department of Environmental Protection – Southwest District
13051 North Telecom Parkway
Temple Terrace, FL 33637-0926

RE: Citrus County Class I Central Landfill
Leachate Level Set Points
Permit No. 21375-025-SO-01
WACS Facility ID: 39859
Jones Edmunds Project No.: 03860-080-01

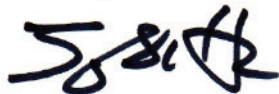
Dear Ms. Black,

Citrus County has been experiencing issues with failing leachate pumps, so a review of the leachate pumping and collection system was conducted. The pumps were set to cycle on whenever the pressure transducer recorded one foot of leachate and cycle off when there was approximately ½ foot of leachate. The pressure transducers are installed in the leachate sumps, so these levels represent leachate levels in the sump, not the levels on the liner. Because levels in the sump change very quickly (both recharge and pumping down), the pumps cycle on and off frequently and it is suspected that this is the primary cause of the recent pump failures. Based on these setpoints, there has not been over one foot of leachate on the liner at the landfill.

Jones Edmunds reviewed the leachate sump as-built drawings, the operating procedures at the facility, and the installation procedures of the pressure transducers. We prepared the attached memorandum detailing the appropriate set points for each pressure transducer in each leachate sump at the landfill. These setpoints allow more leachate buildup in the sump without approaching the one-foot limit on the liner area. This will allow longer runtimes for the pumps, less cycles, and keep the pumps submerged avoiding potential deadheading of the pumps when the leachate levels are low.

Please review the attached Technical Memorandum and contact me at (352) 377-5821 or thays@jonesedmunds.com if you have any questions. Upon your concurrence with recommendations herein, the County will implement the new pumping setpoints.

Sincerely,



Troy D. Hays, PG
Senior Manager/Vice President
730 NE Waldo Road
Gainesville, FL 32641

Y:\03860-Citrus County\Projects\080-01 Leachate System Review\Reports\2020.12.15_LTR ABlack_Leachate Pump Set Points.docx

xc: Henry Norris, Citrus County
Joshua Younce, Citrus County
Dan Sherlock, Citrus County

Attachment 1: Technical Memorandum—Leachate Sump Review

Citrus County Central Landfill - Leachate Sump Review

TO: Henry Norris, Citrus County

FROM: Troy Hays, PG, Thomas Le Blanc, EI

XC: Mark Hadlock, PE, Carol Sawyer, PE

DATE: December 9, 2020

SUBJECT: Leachate Sump Review
Jones Edmunds Project No. 03860-080-01

1 PURPOSE

Citrus County requested Jones Edmunds' assistance with evaluating the current leachate collection and disposal system of the Citrus County Central Landfill (CCCL). Various components of the leachate system have been replaced or modified as needed to keep the system in operation. A current issue that the County is facing with the leachate collection system is the placement of the pressure transducers in the pump risers and ensuring that they are adequately measuring the leachate levels in the sumps. This is of concern to the County given that Rule 62-701.400(3)(c)1 FAC, requires that leachate head is limited to 12 inches above the liner during routine landfill operations.

However, specific locations in the bottom liner system are exempt from the 12-inch rule and include the leachate sump and leachate collection trenches. As a result of the exemption, in most cases the leachate level can be above the top elevation of the sump and still remain in compliance. This is because as liquid levels increase above the top of the sump, it will start to fill the leachate collection trench before the liquid accumulates on the flatter part of the bottom liner system. The actual maximum leachate elevation varies by individual cell design and is based on the slope of the leachate collection trench and bottom liner system. For this evaluation we have limited our work to the maximum elevation of the sumps because during routine operations the leachate would normally be within the elevations of the sump.

This Technical Memorandum provides recommendations for future operation to ensure accurate recordkeeping and that leachate head requirements of Rule 62-701.400(3)(c)1, FAC are being met.

2 SUMP INFORMATION AND ASSUMPTIONS

The CCCL consists of three separate phases, Phase 1/1A, Phase 2, and Phase 3; operations for each began in 1991, 2005, and 2011, respectively. Figure 1 provides a site plan and indicates the location of each phase's risers. Phase 1/1A risers were found to be crushed

and were rehabilitated in 2010; Attachment 1 provides the as-built drawings for the rehabilitation. The sump profiles for Phase 2 and 3 are included as Attachments 2 and 3, respectively. Table 1 provides the sump elevations and current pump information for each of the primary leachate collection sumps.

Table 1 Phases 1A through 3 - Primary Leachate Collection Sump Information

	Sump		Pump	
	Bottom Elevation	Top Elevation	Manufacturer	HP
Phase 1/1A	32.50	37.00	DAB/Tesla	1 HP
Phase 2	31.00	35.00	Franklin Electric	5 HP
Phase 3	48.00	52.00	Sligo	10 HP

¹National Geodetic Vertical Datum

Because of the variety of pump manufacturers and models used in the sumps, we conservatively assumed that the diameter of the largest pump, 4 inches for the Sligo in Phase 3, was the minimum elevation of a transducer if it was attached to the pump. We also assumed that the pressure transducer is located at the top of each pump and has a mounted height of 2 inches above the elevation of the pump. In addition, the thickness of the side wall of the 24-inch HDPE SDR 17 sideslope riser is 1.5 inches. Because the method of installation of pressure transducers may vary between the sumps and various pump types, the minimum elevation of a pressure transducer is estimated at 8 inches (0.67 foot) above the bottom of the sump.

3 RECOMMENDATIONS

Tables 2 through 4 provide our recommended elevation settings for the transducers given the information and assumptions detailed above. Attachment 4 provides an example of a leachate collection sump section (Phase 2) and a summary table of our recommendations.

Table 2 Phase 1/1A Pump Setting Elevations

Phase 1/1A Sump	Elevation (NGVD)	Elevation Change (ft)
Bottom of Sump	32.50	0.00
Proposed Transducer Elevation	33.17	0.67
All Pumps Off	33.42	0.25
Primary Pump On	33.92	0.50
Secondary Pump On	34.42	0.50
High Level Alarm	34.67	0.25
Top of Sump	37.00	2.33

Table 3 Phase 2 Pump Setting Elevations

Phase 2 Sump	Elevation (NGVD)	Elevation Change (ft)
Bottom of Sump	31.00	0.00
Proposed Transducer Elevation	31.67	0.67
All Pumps Off	31.92	0.25
Primary Pump On	32.42	0.50
Secondary Pump On	32.92	0.50
High Level Alarm	33.17	0.25
Top of Sump	35.00	1.83

Table 4 Phase 3 Pump Setting Elevations

Phase 3 Sump	Elevation (NGVD)	Elevation Change (ft)
Bottom of Sump	48.00	0.00
Proposed Transducer Elevation	48.67	0.67
All Pumps Off	48.92	0.25
Primary Pump On	49.42	0.50
Secondary Pump On	49.92	0.50
High Level Alarm	50.17	0.25
Top of Sump	52.00	1.83

Figure 1
Site Plan



Attachment 1
Phase 1/1A Sump Profiles

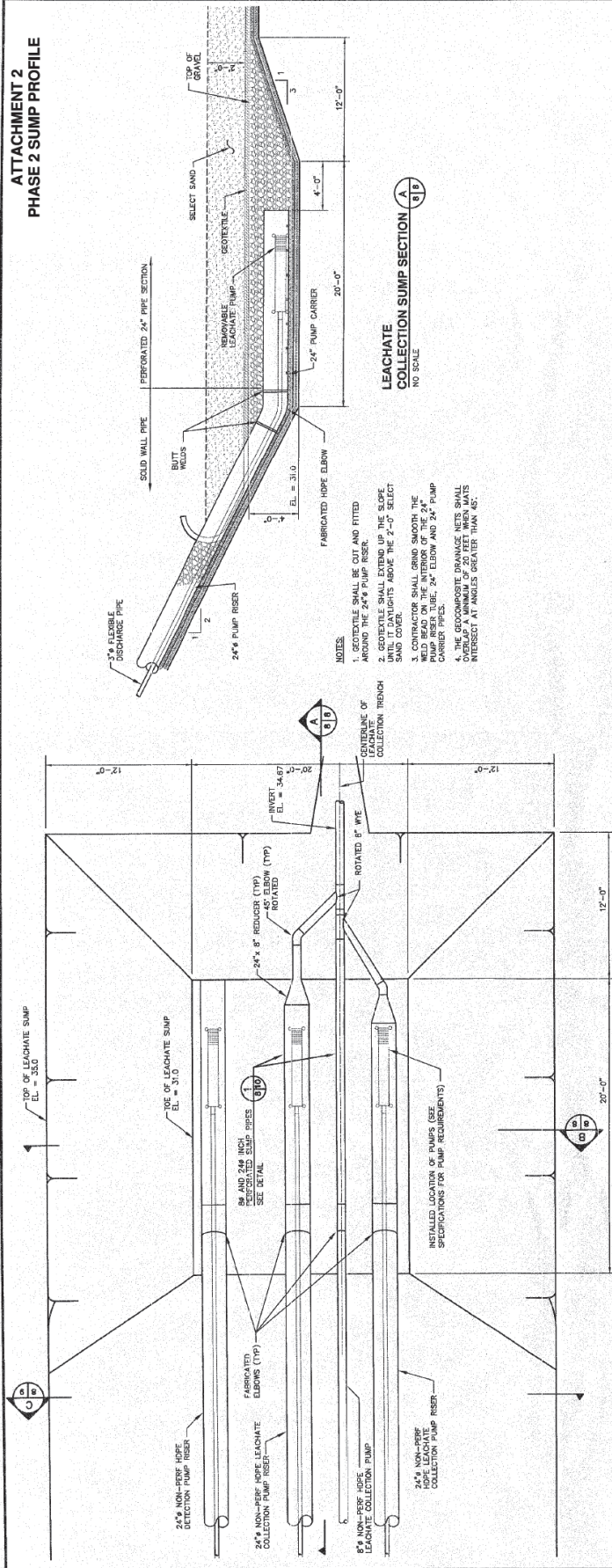
[illegible]



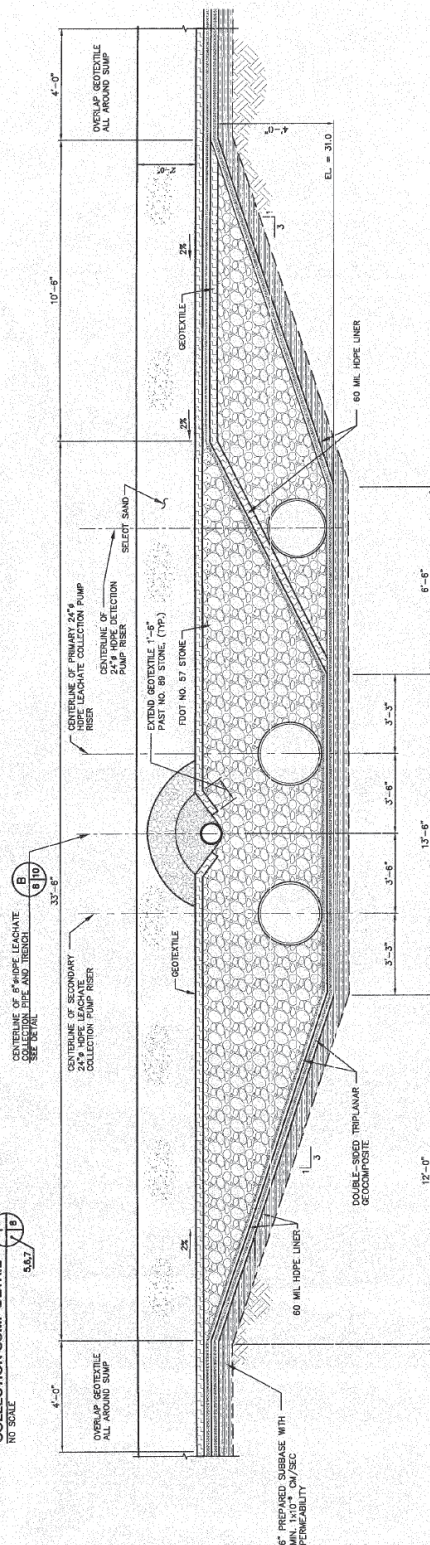


Attachment 2
Phase 2 Sump Profile

**ATTACHMENT 2
PHASE 2 SUMP PROFILE**



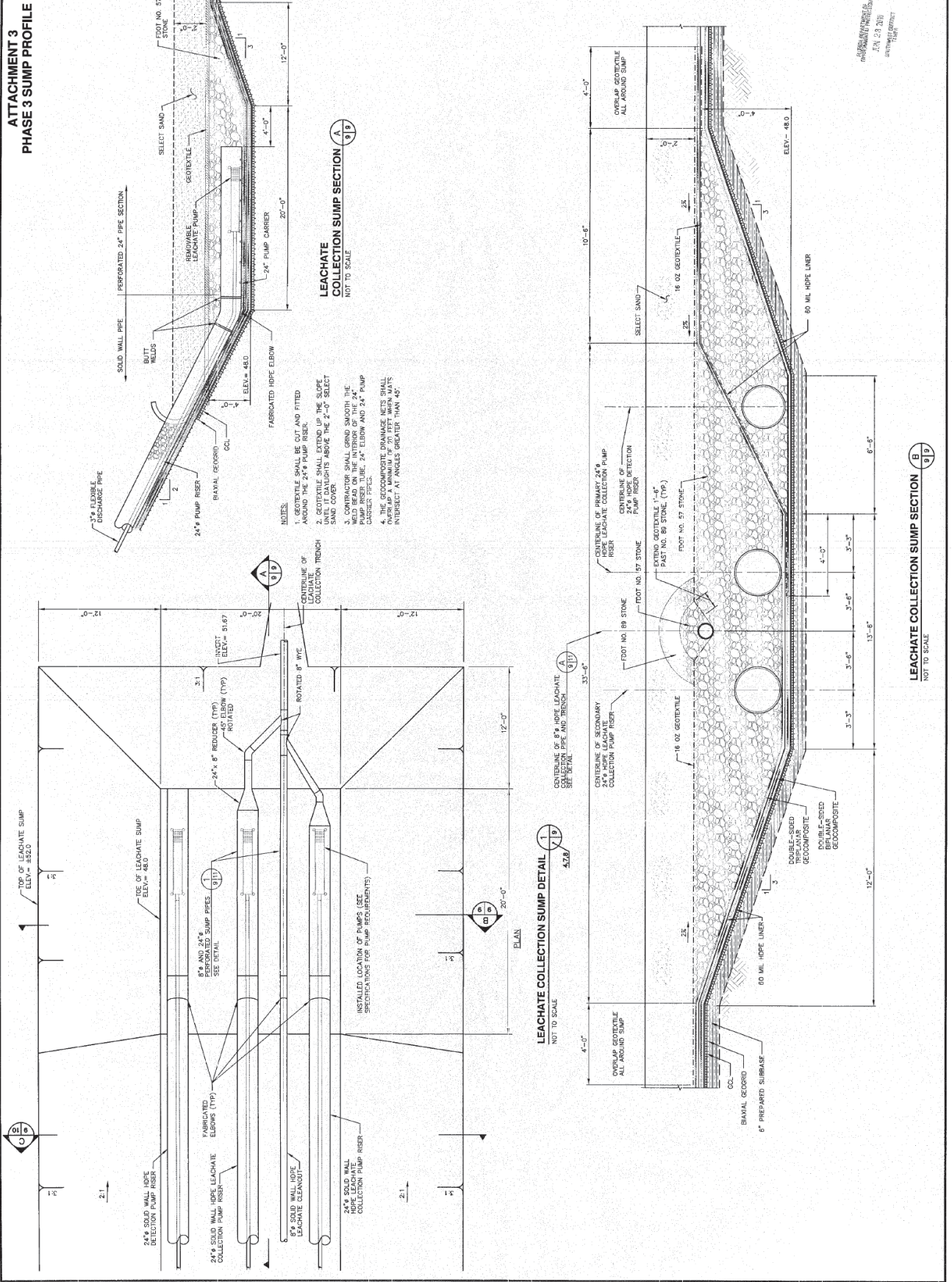
LEACHATE
COLLECTION SUMP DETAIL



LEACHATE
COLLECTION SUMP SECTION B

Attachment 3
Phase 3 Sump Profile

ATTACHMENT 3 PHASE 3 SUMP PROFILE



Attachment 4
Recommended Pump Setting Summary

Attachment 4

Recommended Pump Settings Summary

Recommended Pump Settings for the Citrus County Central Landfill

Setting	Elevation (NGVD)		
	Phase 1/1A	Phase 2	Phase 3
Bottom of Sump	32.50	31.00	48.00
Proposed Transducer Elevation	33.17	31.67	48.67
All Pumps Off	33.42	31.92	48.92
Primary Pump On	33.92	32.42	49.42
Secondary Pump On	34.42	32.92	49.92
High Level Alarm	34.67	33.17	50.17
Top of Sump	37.00	35.00	52.00

