



May 10, 2021

Ms. Jennifer A. Andaloro, Esq.  
Office of General Counsel  
Remediation Bureau Chief  
NYS Department of Environmental Conservation  
625 Broadway, 14<sup>th</sup> Floor  
Albany, New York 12233-1500

Subject: Orange County Landfill – Site No. 336007  
May 2021 Periodic Progress Report  
STERLING File #2010-15 (Task 230)

Dear Ms. Andaloro,

In accordance with NYSDEC’s letter issued November 25, 2016, this monthly Periodic Progress Report addresses the progress in implementing the approved Remedial Action Work Plan (RAWP). The work is authorized by NYSDEC letters dated March 9, 2017 and March 20, 2017.

As outlined in the Pilot Program Work Plan (July 2020) approved by NYSDEC, STERLING is reviewing the data to evaluate the effectiveness of the operating system and to serve as the basis to assess options for long-term management of the recovered groundwater. The status of this evaluation is summarized by letter dated May 3, 2021 (copy attached).

For the balance of 2021, the following activities are planned:

	<b>Item</b>	<b>Projected Completion Date</b>
1.	Recovery Well Pumping Rate	Completed
2.	Remote Sensor Evaluation / Installation	Evaluation In Progress
3.	Data Evaluation and Completion of Long Term Groundwater Management Plan (Per the Approved July 9, 2020 Groundwater Recovery System Pilot Program Work Plan)	July 1, 2021. Evaluation underway. Refer to attached letter.
4.	Design & Construction of Groundwater Management System (Based on Long-Term Groundwater Management Plan Approved by NYSDEC)	Evaluations underway for sewer connections. Refer to attached letter.
5.	Final Engineering Report (FER) (Per December 19, 2016 Remedial Action Work Plan)	TBD, following implementation of Long-Term Groundwater Management Plan
6.	2021 Landfill Sampling Event	Fourth Quarter, 2021
7.	2021 Periodic Review Report Submission	By December 31, 2021

The Data Evaluation and Completion of the Long-Term Groundwater Management Plan (Item 3 noted above) will culminate in the submission of specific recommendations for groundwater treatment,

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conceptual design, and supporting materials for NYSDEC consideration and approval. The Long-Term Groundwater Management Plan will be implemented by the County once approved by the NYSDEC.

The Final Engineering Report (Item 5 above) will provide the documentation and certification of completion of the following corrective measures:

- Horizontal recovery well installation
- Sediment removal
- Stream bank armoring
- Groundwater treatment

In addition to the above, Orange County will make the necessary arrangements to transport the accumulated pilot test water for offsite disposal.

Please contact me should you have any questions.

Very truly yours,

STERLING ENVIRONMENTAL ENGINEERING, P.C.



Mark P. Millspaugh, P.E.  
President

[mark.millspaugh@sterlingenvironmental.com](mailto:mark.millspaugh@sterlingenvironmental.com)

MPM/bc

Email

Attachment

cc: Payson Long, NYSDEC  
Robert J. Gray, P.E., Orange County Department of Public Works  
Gary L. Polhemus, Jr., Orange County Department of Public Works  
Anthony R. Griffin, P.E., Orange County Department of Public Works  
Stacy Butler, Esq., Senior Assistant County Attorney  
Christine Voorhis, NYSDOH  
Maureen Schuck, NYSDOH Region Chief  
Stephen Lawrence, NYSDOH Site Project Manager



May 3, 2021

Mr. Robert Gray, P.E.  
Deputy Commissioner  
Orange County Department of Public Works  
P.O. Box 509, 2455-2459 Route 17M  
Goshen, New York 10924-0509

via email ([RGray@orangecountygov.com](mailto:RGray@orangecountygov.com))

Subject: Orange County Landfill  
NYSDEC Site No. 336007  
Groundwater Recovery System Pilot Program  
STERLING File #2010-15

Dear Mr. Gray,

Sterling Environmental Engineering, P.C. (STERLING) provides this progress letter as an update on implementation of the July 9, 2020 Groundwater Recovery System Pilot Program Work Plan (the "Work Plan") approved by the NYSDEC. The piston pump was installed in the horizontal groundwater recovery well beginning on July 20, 2020, and a concrete vault was installed over the well riser pipe to house the piston pump assembly. Electrical conduit and water force main were installed in a trench from the concrete vault across the landfill gravel access road to a control panel and holding tank (see attached Figures 1 and 2).

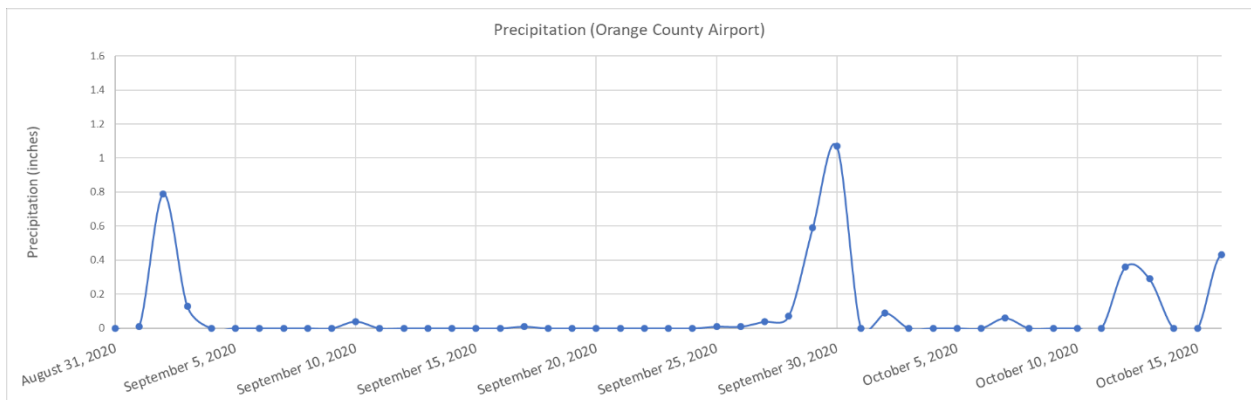
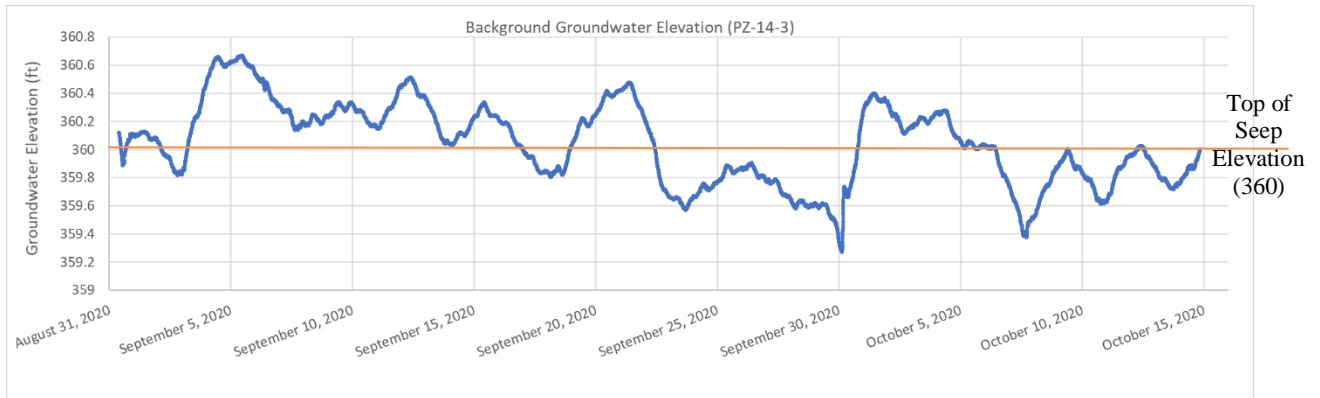
Following the completion of the pump installation, the pump was turned on to initiate startup testing on July 31, 2020. During startup testing, a manufacturer defect was detected with the control panel that required replacement. Fabrication of the replacement control panel was completed in late October 2020, and installation was completed on November 17, 2020. Startup testing was again initiated; however, a small leak was observed on December 4, 2020 in the aboveground portion of the force main from the pump to the holding tank that required pump shut down for repair. The force main was repaired on January 4 and 5, 2021, and the pump was restarted for groundwater elevation response monitoring in accordance with the Work Plan.

The pump operated continuously from January 5 to February 25, 2021. During this time, a pressure transducer was installed in piezometer PZ-14-3 for groundwater elevation monitoring. STERLING performed weekly onsite inspections to check the pump flow rate, record manual groundwater elevations, download transducer data, and observe the canal water elevation. Throughout the monitoring duration, the pump maintained a flow rate of at least 0.5 gallons per minute (gpm). No appreciable groundwater drawdown was observed in the transducer data, which is attributed primarily to the local groundwater flow condition and direct influence of the water elevation in the canal. During weekly inspections, the canal was observed to be above the top seep elevation of 360 feet. STERLING also observed that stormwater is being retained within the drainage swale along the north side of the access road immediately upgradient of the horizontal well.

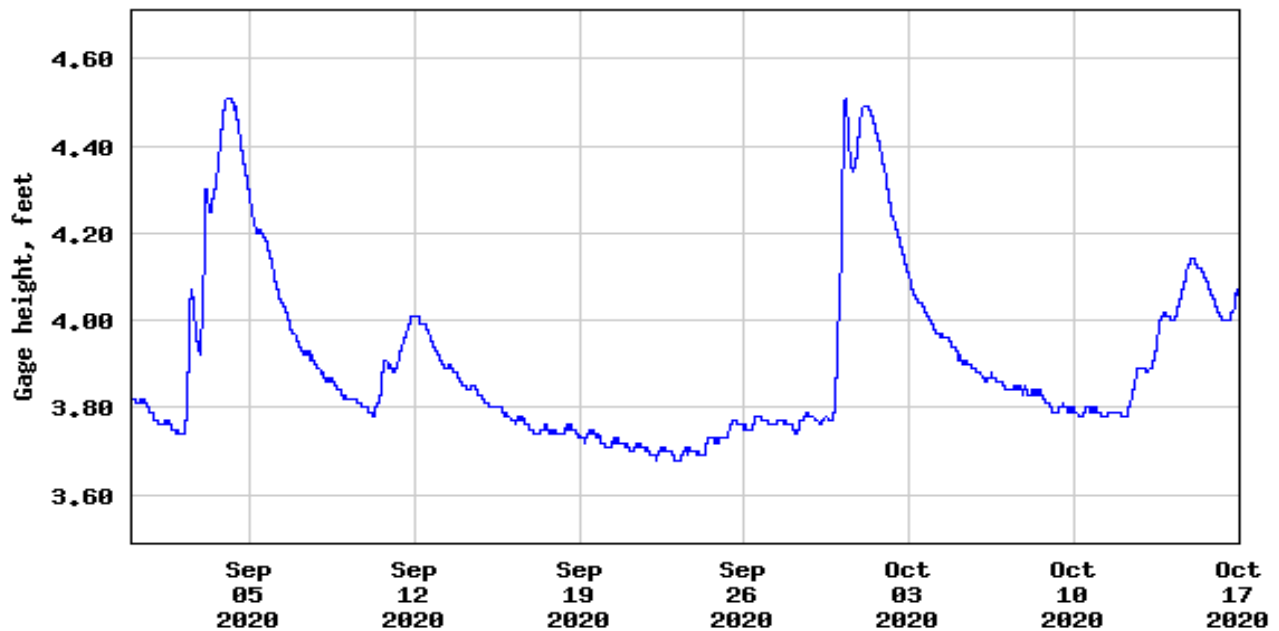
The following pages graphically represent the groundwater elevation in piezometer PZ-14-3 along with precipitation data from the Orange County Airport and stream gauge data from the Wallkill River U.S. Geological Survey gauging station at Phillipsburg approximately 4.5 miles downstream of the landfill. As shown in the graphical data, the groundwater at the extraction location is directly influenced by precipitation events and the water level in the canal.

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**Background Groundwater Elevation (August 31 to October 15, 2020)**

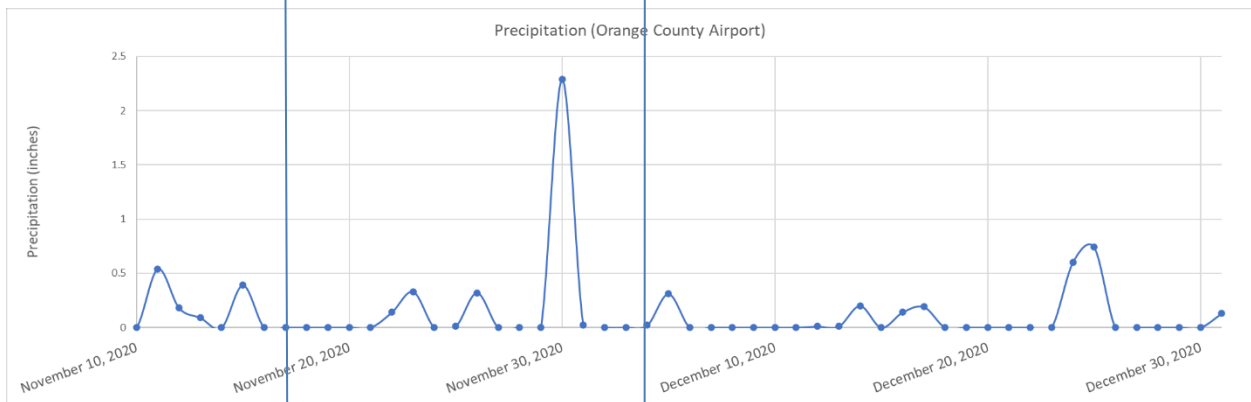
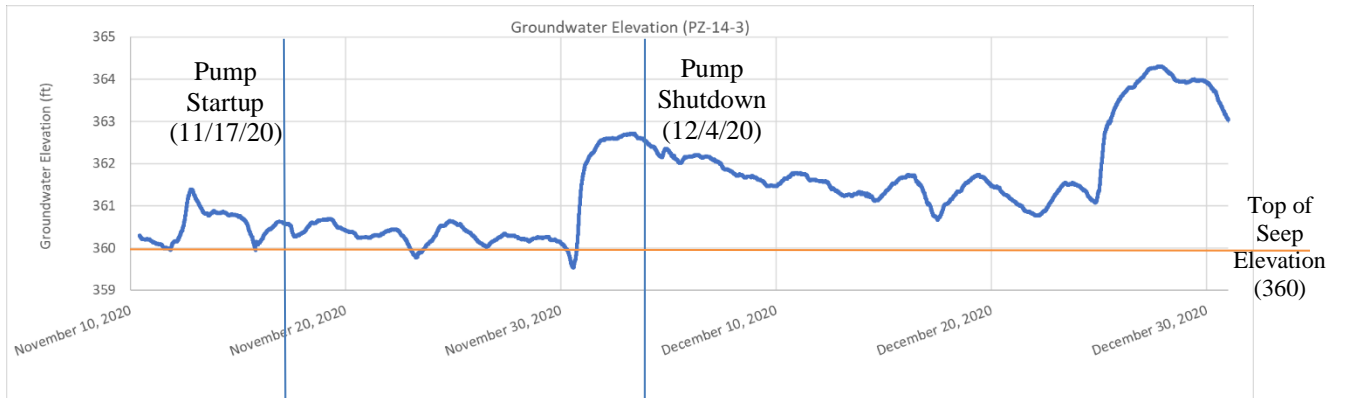


**USGS 01370520 WALLKILL RIVER AT PHILLIPSBURG NY**

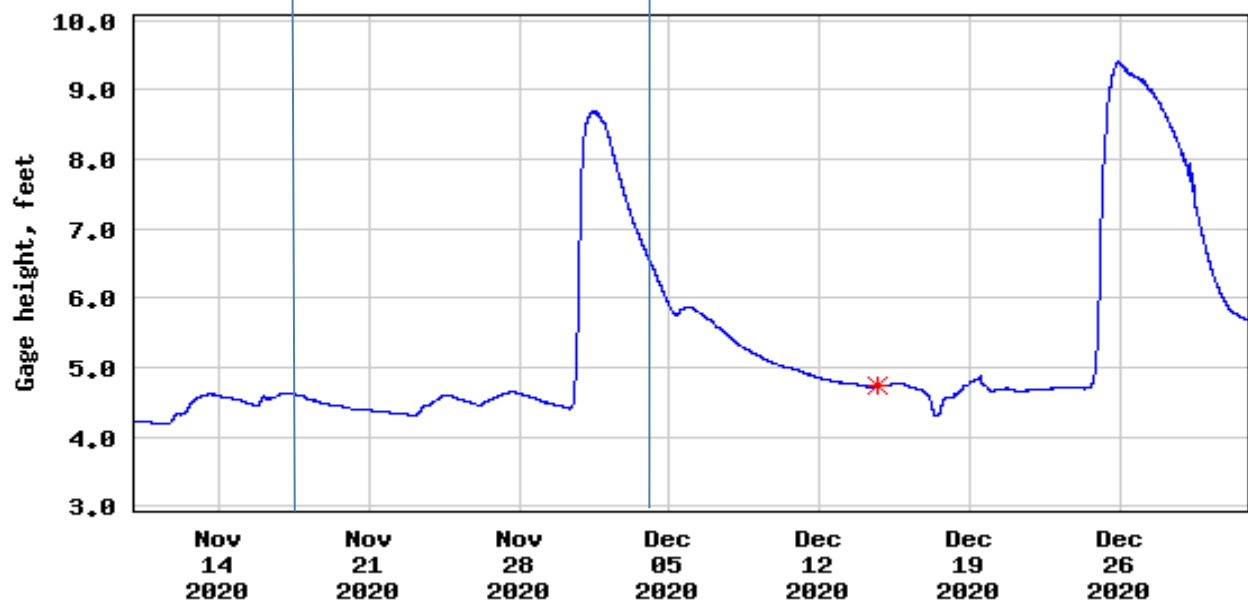


----- Provisional Data Subject to Revision -----

**Initial Startup (November 10 to December 31, 2020)**

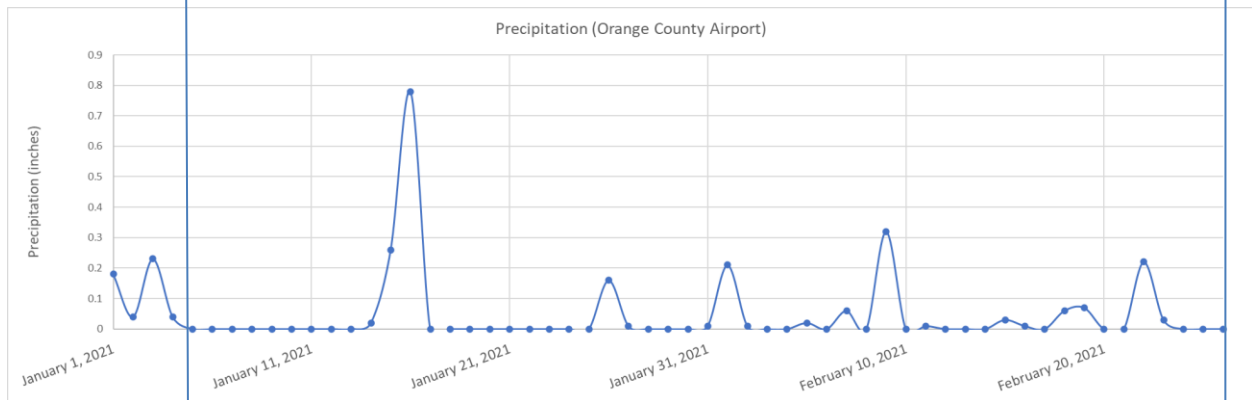
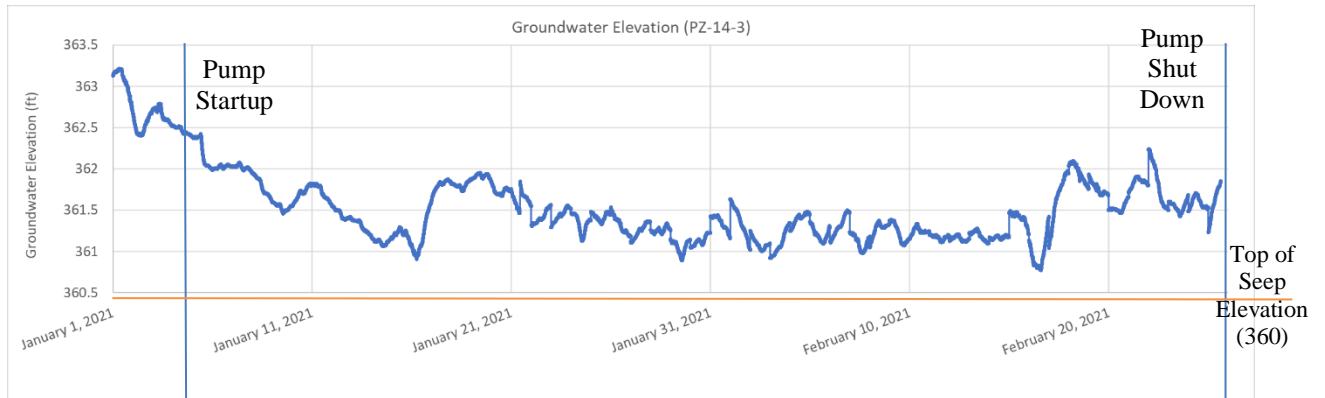


**USGS 01370520 WALLKILL RIVER AT PHILLIPSBURG NY**

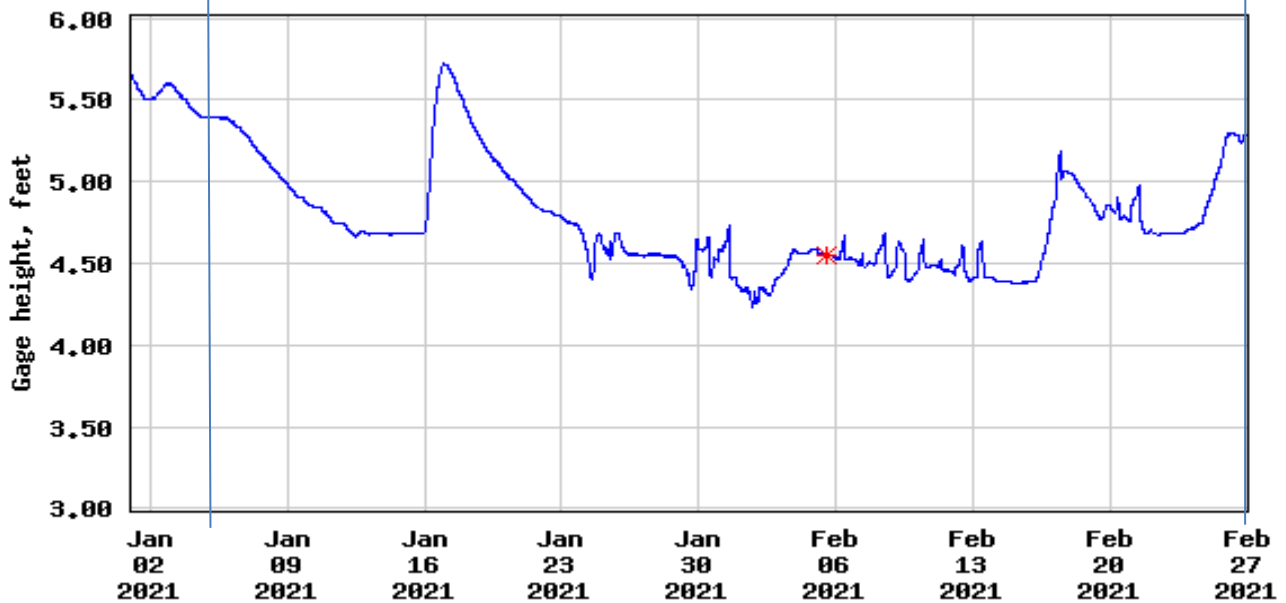


----- Provisional Data Subject to Revision -----

**Continuous Operation (January 5 to February 25, 2021)**



**USGS 01370520 WALLKILL RIVER AT PHILLIPSBURG NY**



----- Provisional Data Subject to Revision -----



Please contact me should you have any questions.

Very truly yours,

STERLING ENVIRONMENTAL ENGINEERING, P.C.



Mark P. Millspaugh, P.E.

President

[mark.millspaugh@sterlingenvironmental.com](mailto:mark.millspaugh@sterlingenvironmental.com)

MPM/am

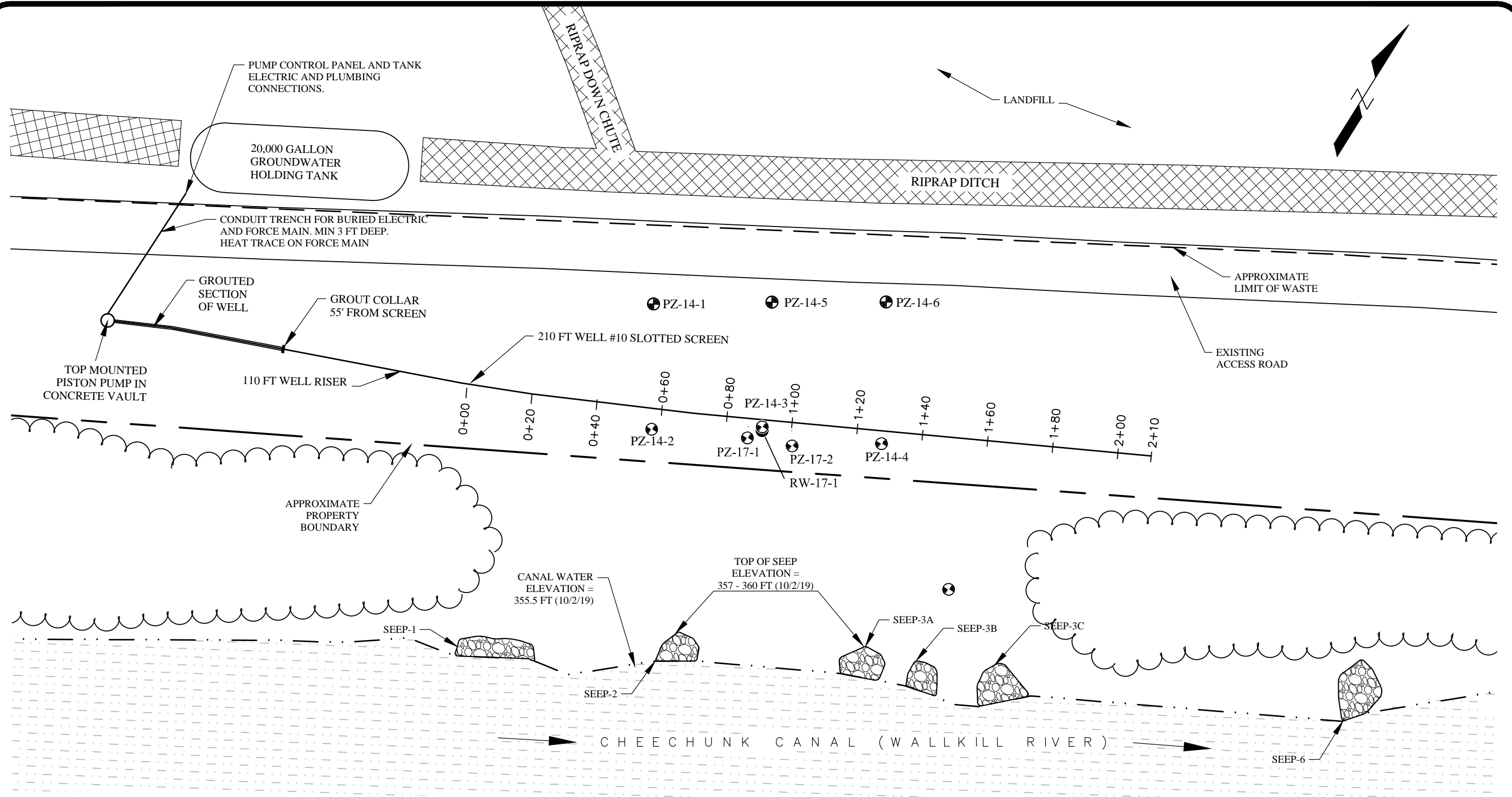
Email

Attachments: Figures 1 & 2  
Table

cc: Gary L. Polhemus, Jr., Orange County Department of Public Works  
Anthony R. Griffin, P.E., Orange County Department of Public Works  
Stacy Butler, Esq., Senior Assistant County Attorney

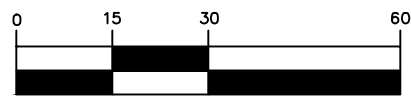


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**LEGEND:**

- PILOT RECOVERY WELL
- ▨ BANK EROSION CONTROL RIPRAP ARMORING
- ⊕ PZ-14-1 EXISTING PIEZOMETER LOCATIONS
- SEEP-1 STABILIZED SEEP LOCATIONS
- PROPERTY BOUNDARY
- - - LIMIT OF WASTE
- · - · - EDGE OF STREAM
- ~ ~ ~ TREE LINE



( IN FEET )  
1 inch = 30 ft.

**MAP REFERENCES:**

1. PROPERTY BOUNDARY AND LIMIT OF WASTE FROM DRAWINGS ENTITLED "OVERALL PLAN AND RESTRICTED PARCEL," BY THOMAS J. BARRY, DATED FEBRUARY 14, 2013.

**SURVEY REFERENCE:**

1. WATER LEVEL AND SEEP ELEVATIONS COLLECTED WITH TRIMBLE RTK GPS AND REPORTED IN NAD83 VERTICAL DATUM.

**STERLING**

Sterling Environmental Engineering, P.C.

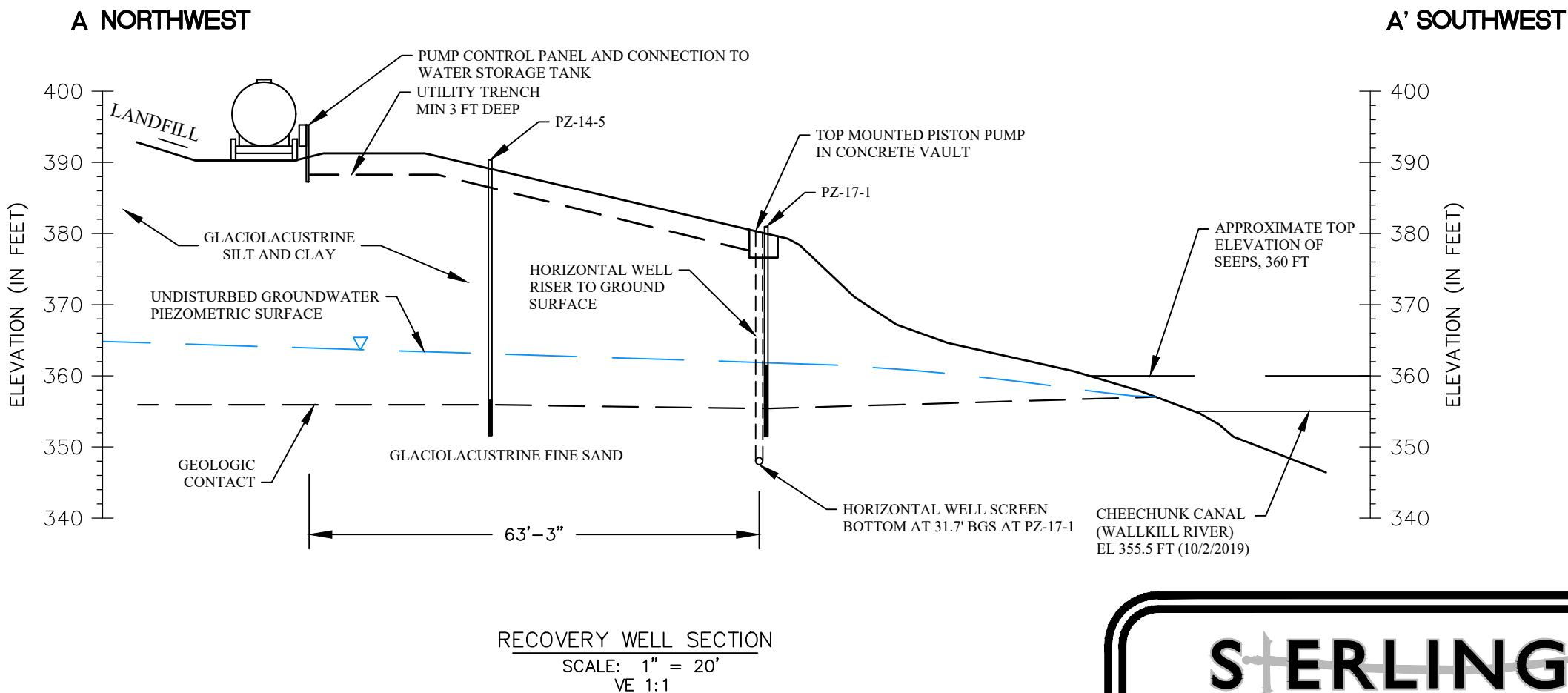
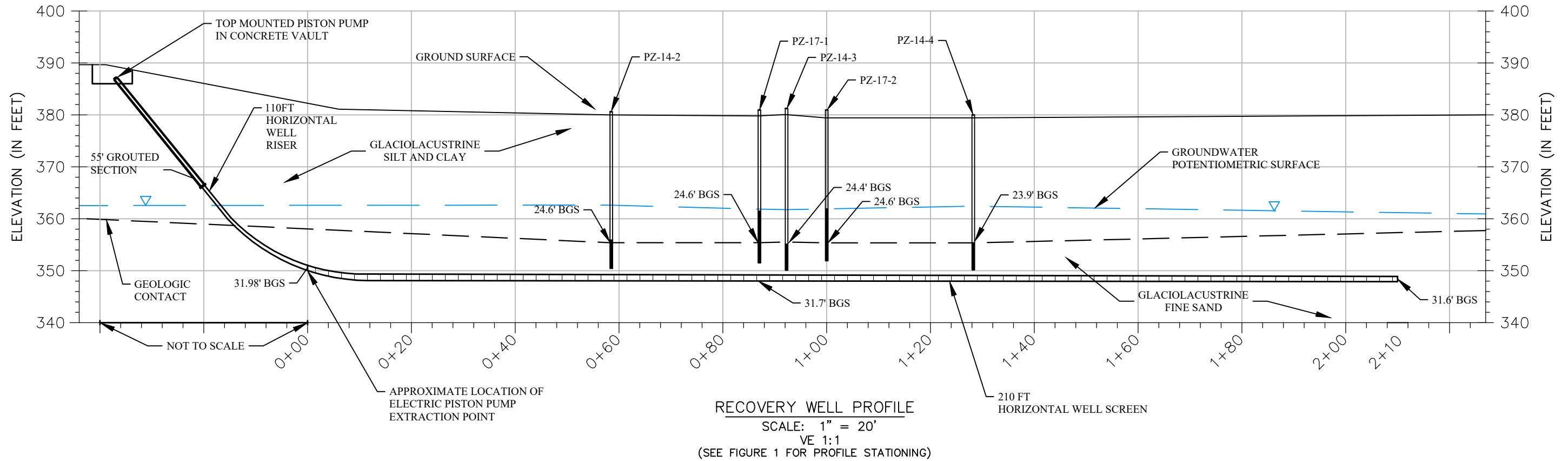
24 Wade Road • Latham, New York 12110

GROUNDWATER RECOVERY SYSTEM  
PLAN VIEW  
ORANGE CO. DEPT. OF PUBLIC WORKS  
ORANGE COUNTY LANDFILL

TOWN OF GOSHEN

ORANGE CO., NEW YORK

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**SURVEY REFERENCE:**  
 1. WATER LEVEL AND SEEP ELEVATIONS COLLECTED WITH TRIMBLE RTK GPS AND REPORTED IN NAD83 VERTICAL DATUM.

<p><b>Sterling Environmental Engineering, P.C.</b>          24 Wade Road • Latham, New York 12110</p>		HORIZONTAL RECOVERY WELL PROFILE AND SECTION <b>ORANGE COUNTY DEPT. OF PUBLIC WORKS</b> ORANGE COUNTY LANDFILL		
		TOWN OF GOSHEN	ORANGE CO., NEW YORK	
PROJ. No.: 2010-15	DATE: 5/19/2020	SCALE: AS NOTED	DWG. NO. 2010-15093	FIGURE 2

**Summary of Groundwater Analytical Results**  
**HDD Pilot Study (February 2021)**  
**Orange County Landfill, New Hampton, New York**

ANALYSIS	NY-AWQS	Units	HDD-1	HDD-2	HDD-3
			2/4/2021	2/10/2021	2/10/2021
<b>Water Quality Parameters</b>					
Dissolved Oxygen	---	mg/l	12.65	13.28	13.28
Oxidation-Reduction Potential	---	mV	201.6	224.0	224.0
pH	---	S.U.	7.65	7.64	7.64
Specific Conductance @ 25° C	---	mS/cm	1.133	1.152	1.152
Temperature		° C	1.9	0.4	0.4
Turbidity	---	NTU	1.05	1.42	1.42
<b>Leachate Indicator Parameters</b>					
Alkalinity (Total)	---	mg/l	531	505	508
BOD, 5 day	---	mg/l	ND	ND	ND
Bromide	2	mg/l	0.755	0.68	0.728
Chemical Oxygen Demand	---	mg/l	5.7 J	7.4 J	9.9 J
Chloride	250	mg/l	83.5	77.8	77.8
Chromium (Hexavalent)	0.05	mg/l	0.003 U	0.003 U	0.003 U
Color, Apparent	15	A.P.C.U.	5 U	13	13
Cyanide, Total	200	mg/l	0.001 U	0.001 U	0.001 U
Hardness	---	mg/l	571.3	546.4	528.8
Nitrogen, Ammonia	2	mg/l	0.043 J	<b>3.75</b>	<b>3.80</b>
Nitrogen, Nitrite	1.0	mg/l	0.014 U	0.016 J	0.014 U
Nitrogen, Total Kjeldahl	---	mg/l	4.54	3.86	3.89
Phenolics, Total	0.001	mg/l	0.006 U	0.006 U	0.006 U
Solids, Total Dissolved	500	mg/l	<b>630</b>	<b>660</b>	<b>680</b>
Sulfate	250	mg/l	45.6	43.8	44.3
Total Organic Carbon	---	mg/l	2.7	2.8	2.8

**Notes:**

Groundwater samples collected from holding tank after extraction by horizontal recover well.

NY TOGS 1.1.1: Water Quality Standards & Guidance Values (June 2004): Class GA

'---' = No designated standard available.

**Bold** = Value indicates reported concentration exceeds applicable water quality standard.

U = Compound was not detected at or above the laboratory method detection limit.

ND = Not Detected and No available Method Detection Limit (MDL) for this analyte.

J = Result is less than the reporting limit but greater than or equal to the method detection limit.