FOURTH QUARTER 2025
ENVIRONMENTAL MONITORING REPORT

for

Lancaster Landfill
Mount Joy Township
Lancaster County, Pennsylvania
PADEP Facility No. 101559

Prepared for:

Lancaster Landfill
2487 Cloverleaf Road
Elizabeth, Pennsylvania 17022

Prepared by:

Langan Engineering and Environmental Services, LLC
2400 Ansys Drive, Suite 403
Canonsburg, Pennsylvania 15317

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1. INTRODUCTION

Langan Engineering and Environmental Services, LLC (Langan) completed a review of the results of the 4th Quarter 2025 environmental monitoring activities at Lancaster Landfill (the "site" or "facility") in Mount Joy Township, Lancaster County, Pennsylvania (Figure 1). Lancaster Landfill is operated by WM under Pennsylvania Department of Environmental Protection (PADEP) Solid Waste Permit No. 101559 (the "permit"). The sampling and analytical services were provided by Geochemical Testing, Inc. (Geochemical Testing) under a separate contract to WM, and Langan reviewed the quarterly data and prepared this report.

The sampling event was performed by Geochemical Testing on November 3 - 4, 2025. In accordance with the permit, the environmental monitoring program at the site provides environmental protection during and after landfill development. Field work, sampling methodologies, data evaluation, data quality assurance and quality control (QA/QC), chemical analysis, and time series analysis were conducted in general accordance with the permit. Deviations, if encountered, are described below.

Lancaster Landfill is a construction and demolition solid waste facility which operates under PADEP Solid Waste Permit No. 101559. The permit was initially issued on June 2, 1992, it was most recently renewed on September 1, 2021, and extended to December 31, 2031. The facility consists of an approximately 135-acre parcel of land, of which approximately 58.81 acres are permitted for waste disposal.

2. SITE GEOLOGY AND HYDROGEOLOGY

The information presented in this section was included in the 2007 Major Permit Modification Application (Major Mod) for the Phase I and II Landfill Expansion, which was prepared by Blazosky Associates, Inc (BAI). The Major Mod was approved by the PADEP on March 18, 2011.

2.1 Regional Physiography and Local Geology

Lancaster Landfill is located in the southwestern portion of the Narrow Neck sub-basin of the Gettysburg-Newark Basin Complex. The Gettysburg- Newark Basin Complex lies between the Great Valley and Piedmont Physiographic Providences and contains Triassic and Jurassic un-metamorphosed, sedimentary, and mafic igneous rocks.

Lancaster Landfill is underlain by conglomerate, sandstone, siltstone, and shale of the New Oxford Formation. The sedimentary units in the vicinity of Lancaster Landfill generally strike east-northeast to west-southwest (approximately N60°E) and dip approximately 50 degrees to the north-northwest.

2.2 Hydrogeology

Groundwater beneath Lancaster Landfill is present within the New Oxford Formation which is characterized by a series of interbedded sandstones, siltstones, and shales. Groundwater movement within this unit is typical of fractured bedrock formations and flows primarily through secondary porosity.

2.2.1 Hydrogeologic Properties of the New Oxford Formation

Pumping testing performed during the Major Mod permitting process indicate that the New Oxford Hydrostratigraphic Unit has an average hydraulic conductivity of 24 to 98 feet per day (ft/day). The storage coefficient is estimated to be 4.1×10^{-4} to 5.47×10^{-3} (unitless) and effective porosity is estimated to be 25 percent.

3. ENVIRONMENTAL MONITORING NETWORK

The environmental monitoring network includes groundwater and surface water monitoring locations, underdrain sampling points, leachate collection and detection zone monitoring points, a network of perimeter methane gas monitoring probes, and a network of dust fall monitoring locations (Figure 2).

3.1 Groundwater, Surface Water, and Underdrain Monitoring Networks

The groundwater, surface water, and underdrain monitoring networks at Lancaster Landfill includes quarterly sampling at groundwater wells completed within the New Oxford Formation, surface water monitoring locations around the landfill, and underdrain monitoring points from beneath the landfill. These monitoring networks have been established to meet the requirements of the permit. The monitoring well network targets the preferential flow path for the facility as described in the 2018 Groundwater Monitoring Plan, prepared by Civil & Environmental Consultants, Inc. (CEC) and is designed as an early detection monitoring system.

Form 21 Groundwater Monitoring Network				
Upgradient Wells	MW-101U			
Downgradient Wells	MW-104D	MW-105DR	MW-106DR	MW-107DR
	MW-108DR	MW-109DR	MW-110DR	MW-111DR

Form 21 Surface Water Monitoring Network				
MGSU01	MGSD02	MGSU03	MGSD04	MGSD05
MGSU06	MGSU07	MGSU07		

Form 21 Underdrain Monitoring Network				
U-C2	U-C5	U-C6A	U-C6B	U-C8A
U-C9B	U-C9C	U-C10A	U-C10B	U-C10C
U-C10D				

Several underdrains were first sampled in 2021. Four of these (U-C10A, U-C10B, U-C10C, and U-C10D) were found and first sampled during the 1st Quarter 2022. During the process to locate and identify the underdrains, the on-site contractor and ARM Group (who prepared the certification report) confirmed that U-C9A was never installed because it was determined to be unnecessary during construction. All other underdrains have been located and are sampled quarterly when flowing.

During the 1st Quarter 2022, MW-105DR and MW-106DR were installed to replace MW-105D and MW-106D at their approved locations to accommodate Cell 11 construction. In accordance with the permit, all four wells were sampled concurrently during the 1st and 2nd Quarters of 2022. The results from both sets of concurrent samples indicated that the groundwater quality in the replacement wells is generally comparable to the original wells. MW-105D and MW-106D were decommissioned in the spring of 2022.

Finally, it should be noted that additional monthly sampling occurred from February 2024 through January 2025 at several wells and leachate monitoring points to monitor groundwater quality from an unintentional disposal of mercury-impacted waste. A Sampling and Analysis Plan was submitted by CEC on January 17, 2024, and approved by the PADEP on February 21, 2024. The results of this additional sampling were included in a report submitted by CEC on March 24, 2025. As indicated in that report, mercury was not detected at any sampling location during the monitoring period. In response, PADEP issued a letter on May 14, 2025 to Lancaster Landfill requesting additional sampling from the Cell 11 LDZ. PADEP, Lancaster Landfill, and Langan then discussed the PADEP's request through email and telephone conversations, and the PADEP agreed on the proposed approach in a June 27, 2025 email. The agreed approach was ultimately documented in Lancaster Landfill's July 11, 2025 letter response. A summary of that is provided below for convenience:

> *The Cell 11 Leachate Collection Zone (LCZ) will be sampled and analyzed quarterly for total mercury until the cell is closed and capped, which is scheduled to completed be by the end of 2027. If mercury is not detected during that time, then WM will return to routine Form 50 monitoring. If mercury is detected during that time, then WM will sample the Cell 11 leachate detection zone (LDZ) quarterly for mercury until the cell is closed and capped. It should be noted that this will be in addition to the full Form 50 parameter list, which this LDZ is sampled for annually (during the 4th quarters) and includes mercury. If mercury is detected in the Cell 11 LDZ above the PADEP Groundwater Medium Specific Concentration (MSC), then total and dissolved mercury will be sampled annually in the wells hydrogeologically downgradient of Cell 11 (MW-104D, MW-105DR, and MW-106DR).*

3.2 Leachate Collection and Detection Zone Networks

The LCZ and LDZ monitoring networks includes one LCZ, which is a commingled sample for the sitewide leachate. Eleven LDZs are monitored across the site: LDZ-1 through LDZ-11.

3.3 Perimeter Methane Gas Monitoring Probes

Methane migration is monitored by a network of four perimeter gas monitoring probes installed around the perimeter of Lancaster Landfill. The current network includes probes P001 through P004.

3.4 Dust Fall Monitoring Network

Finally, dust migration is monitored by a network of four dust fall monitoring points installed around the perimeter of Lancaster Landfill. The current network includes Location A through Location D.

4. QUARTERLY MONITORING RESULTS

The following sections present a summary of the quarterly monitoring results and a discussion for each monitoring network.

4.1 Sampling Activities

Field sampling activities for the 4th Quarter 2025 were conducted from November 3 - 4, 2025 (Table 1). Monitoring well purging and sampling activities were implemented in accordance with the Groundwater Monitoring Plan (CEC, 2018) and site permit.

In accordance with the Groundwater Monitoring Plan (CEC, 2018), groundwater monitoring wells, surface water monitoring points, and the underdrains at the site are analyzed for specific parameters based on the requirements of the permit. Refer to Table 1 of the Groundwater Monitoring Plan (CEC, 2018) for complete details.

All water samples collected at the site were delivered to Geochemical Testing for chemical analysis. Geochemical Testing is certified in the Commonwealth of Pennsylvania for performing chemical analysis of the reported parameters. The PADEP Form 21s are included in Appendix A and B. The laboratory reports, laboratory quality control report, and field forms are included in Appendix B.

4.1.1 Visual Well Inspection

During each quarterly sampling event, the groundwater monitoring wells are visually inspected by Geochemical Testing for integrity, any physical damage and/or changes that may have occurred to the well or surrounding area, or signs of distressed vegetation surrounding the well. Any variation from previous sampling events is noted on the Field Information Form or the Well Condition Inspection Forms (both of which are provided in Appendix B), and Geochemical Testing discusses issues that need to be addressed with the facility. Well casing stickup length, well casing diameter, and material of construction is also recorded on the Field Information Form.

4.1.2 Groundwater Elevation Measurements

Prior to groundwater purging and sampling activities, depth to water and water level elevation [feet above mean sea level (ft amsl)] were recorded to the nearest hundredth of a foot. The water level measurements are used to prepare groundwater contours to determine groundwater hydraulic gradient and flow direction and velocity at the site. Groundwater elevations for the 4th Quarter 2025 sampling event were generally comparable to historical groundwater elevation measurements.

4.1.3 Groundwater Flow Velocity

The horizontal groundwater seepage velocities were estimated using the following equation:

$$v = \frac{(K_h i)}{n_e}$$

Where "v" is the average groundwater velocity; "K_h" is the horizontal conductivity, "i" is the average hydraulic gradient, and "n_e" is the effective porosity.

The potentiometric surface map of the New Oxford Formation Hydrostratigraphic Unit indicates that the horizontal gradient is to the northwest at 0.0298 ft/ft (Figure 3). Horizontal groundwater velocity is 11.7 ft/day (4,271 ft/year), based upon an average hydraulic conductivity of 98 ft/day and an effective porosity of 25 percent (BAI, 2007).

4.2 Groundwater Results

Nine groundwater wells were sampled during the 4th Quarter 2025. Groundwater sample analysis was completed without any difficulties and the results are representative of groundwater at the site.

The PADEP permit requires Lancaster Landfill to submit quarterly sampling results for Form 21 parameters. Lancaster Landfill is providing a quarterly review of the time-series analysis for five select leachate indicator parameters.

4.2.1 Time Series Analysis

A 5-year time series analysis was completed for five leachate indicator parameters [ammonia nitrogen, alkalinity, total dissolved solids (TDS), chloride, and sodium]. Specifically, the graphs were analyzed for significant trends, unexpected geochemical signatures, and anomalously high results

4.2.1.1 New Oxford Formation Hydrostratigraphic Unit

Figure 4 presents the time-series graphs for the monitoring wells installed around the site. No historically significant upward trends were observed, except for alkalinity at MW-109DR. However, the remaining leachate indicator parameters did not exhibit increasing trends. This well will continue to be monitored to determine if further increasing trends develop.

4.3 Surface Water Results

Seven surface water locations were sampled during the 4th Quarter 2025. The concentration of metals and general chemistry constituents were generally consistent with historical results. Surface water at the site does not appear to be influenced by leachate.

4.4 Leachate Results

During the 4th Quarter 2025, a grab sample was collected from the composite LCZ. Each LDZ was also sampled, except for LDZ-6 which was dry. In accordance with the additional leachate sampling (refer to Section 3.1), the Cell 11 LCZ was also sampled during the 4th Quarter 2025 and mercury was not detected. The PADEP Form 50s are included in Appendix C.

The average daily LCZ flow from the entire landfill during the quarter was 207.8 gallons per acre per day (g/a/d). This flow is generally comparable with historic results. Based on recommendations from the PADEP, the flows were calculated using data collected from the entire calendar quarter. The average daily LDZ flows from the landfill were:

- 3.5 g/a/d from LDZ-1;
- 0.02 g/a/d from LDZ-2;
- 1.0 g/a/d from LDZ-3;
- 0.9 g/a/d from LDZ-4;

- 0.6 g/a/d from LDZ-5;
- 3.5 g/a/d from LDZ-6;
- 5.5 g/a/d from LDZ-7;
- 0 g/a/d from LDZ-10; and
- 1.0 g/a/d from LDZ-11.

Based on current and historical analytical and flow data from the LDZs as well as the requirements of the PADEP Form 50, the LDZ sampling and analysis schedule is as follows. LDZ-1, LDZ-2, LDZ-3, LDZ-4, LDZ-5, and LDZ-10 do not appear to be influenced by leachate. Therefore, they should be sampled once per year (during the 4th quarter) for the PADEP Form 50 indicator parameters, assuming flows remain less than 10 g/a/d. LDZ-6, LDZ-7, and LDZ-11 appear to be influenced by leachate. Therefore, they should be sampled once per year (during the 4th quarter) for the full PADEP Form 50 list of parameters, regardless of flow.

Based on this discussion, LDZ-6 is scheduled to be sampled during the 1st Quarter 2026 because it was dry during the 4th Quarter 2026.

4.5 Perimeter Methane Gas Monitoring Probe Results

Field readings were collected from the perimeter methane gas monitoring probes during the quarter. For reference, 5% methane equals the lower explosive limit (LEL). Methane was not detected at or above the lower explosive limit in any probe during the 4th Quarter 2025 (Appendix D).

4.6 Dust Fall Monitoring Results

In accordance with the permit, dust fall monitoring is completed monthly at four locations around the site. Each month, the samples are submitted to Geochemical Testing for analyses via methods American Society for Testing and Materials (ASTM) D 1739-82 MOD and D 1739-98 MOD. It should be noted that ASTM D 1739-98 MOD is a conservative analysis because it includes organic matter that would otherwise be removed for via Method ASTM D 1739-82 MOD.

The 4th Quarter 2025 dust fall results indicate that the maximum dust fall of 1.5 mg/cm^2/month, as specified in PA 25 §131.3 and referenced in PA 25 §273.217, except for Locations A and B during September and Location B during October (Appendix E). A review of the laboratory case narratives indicates the exceedances do not appear to be entirely reflective of dust emissions generated from landfill operations; however, due to organic matter (insects, leaves, etc.) which is commonly present in the samples. During the month of September, Locations A and B were noted as containing brown water with dirt and leaves, and during the month of October, Location B was noted as containing brown water with dirt, insect, and leaves.

5. DISCUSSION AND CONCLUSIONS

Groundwater, surface water, underdrain, and leachate samples were collected and analyzed by Geochemical Testing according to appropriate sampling and analytical procedures and Lancaster Landfill permit. The following observations are noted for the 4th Quarter 2025 sampling event:

- The sampling event was completed on November 3 - 4, 2025.
- During the quarter, the New Oxford Formation Hydrostratigraphic Unit was calculated to have a horizontal gradient to the north at 0.0298 ft/ft and a horizontal velocity of 11.7 ft/day (4,271 ft/year) (Figure 3).
- Time-series analysis of select leachate indicator parameters shows no significant upward trends in these constituents through time, except for alkalinity at MW-109DR. However, these trends do not appear to be influenced by leachate because the remaining leachate indicator parameters were generally stable, and VOCs were not detected in these wells. Additionally, geochemical fingerprinting indicates that the groundwater at these locations is chemically dissimilar to leachate.
- The concentration of metals and general chemistry constituents in the surface water samples were generally consistent with historical results.
- Field readings were collected from the perimeter methane gas monitoring probes during the quarter. Methane was not detected at or above the lower explosive limit in any probe during the 4th Quarter 2025.
- The 4th Quarter 2025 dust fall results indicate that no sample exceeded the maximum dust fall of 1.5 mg/cm2/month, except for Locations A and B during September and Location B during October. A review of the laboratory case narratives indicates the exceedances do not appear to be entirely reflective of dust emissions generated from landfill operations; however, due to organic matter (insects, leaves, etc.) which is commonly present in the samples. During the month of September, Locations A and B were noted as containing brown water with dirt and leaves, and during the month of October, Location B was noted as containing brown water with dirt, insect, and leaves.

Overall, the conclusions of this report are:

- Continued landfilling activities do not appear to be altering the existing groundwater, surface water, or private water supply conditions.
- The groundwater, surface water, and underdrain monitoring networks can monitor the hydrostratigraphic unit and the surface water bodies at Lancaster Landfill.
- The frequency of sampling and the constituents analyzed are appropriate for determining if a release has occurred.

6. CERTIFICATION

By affixing my seal to this, I do hereby certify to the best of my knowledge, information, and belief that the information contained in this report is true and correct. I further certify I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

Name Thomas E. Antonacci, PG

Signature

Date 1/15/26

[seal]

7. REFERENCES

- Blazosky Associates, Inc (BAI, 2007). PADEP Form 6 Geologic Information. Veolia ES Lancaster, LLC; Veolia ES Lancaster Landfill; Phase I & II Landfill Expansion Application for Major Permit Modification. June 2007.
- Blazosky Associates, Inc (BAI, 2007). PADEP Form 7 Hydrogeologic Information. Veolia ES Lancaster, LLC; Veolia ES Lancaster Landfill; Phase I & II Landfill Expansion Application for Major Permit Modification. June 2007.
- Civil & Environmental Consultants, Inc., 2018. "Lancaster Landfill Groundwater and Surface Water Sampling and Analysis Plan." Submitted September 2018.

TABLES

TABLE 1
FIELD SAMPLING SUMMARY
FOURTH QUARTER 2025
LANCASTER LANDFILL

SAMPLE LOCATION	SAMPLE DATE	SAMPLE TIME	WATER LEVEL[1] (ft)	WELL DEPTH[1] (ft)	MEASURING POINT ELEV. [2] (ft amsl)	GROUNDWATER ELEV. [1] (ft amsl)	FIELD PARAMETERS pH	COND. (µS/cm)	TEMP. (deg C)	TURB. (NTU)	D.O. (mg/L)	STREAM FLOW RATE (gpm)	COMMENTS
Groundwater													
MW-101U	11/03/25	10:14	18.24	54.00	495.93	477.69	5.51	192	13.5	0.0	1.7		
MW-104D	11/03/25	10:41	40.03	76.50	418.32	378.29	6.34	508	13.6	34.0	0.2		
MW-105DR	11/03/25	9:49	33.52	60.00	410.93	377.41	5.71	619	12.8	0.9	0.4		
MW-106DR	11/03/25	9:05	38.57	103.50	427.53	388.96	6.99	278	12.4	11.3	0.3		
MW-107DR	11/03/25	11:40	25.64	50.50	466.85	441.21	6.58	809	14.7	13.2	11.7		
MW-108DR	11/03/25	12:45	33.68	80.00	471.40	437.72	6.70	428	15.0	35.0	0.1		
MW-109DR	11/03/25	10:54	57.39	101.70	435.00	377.61	5.28	527	13.9	0.0	1.2		
MW-110DR	11/03/25	9:16	8.11	32.00	428.00	419.89	6.33	709	12.7	0.0	1.5		
MW-111DR	11/03/25	11:51	30.61	120.15	486.65	456.04	5.81	278	13.4	6.4	0.4		
Surface Water													
MGSU01	11/03/25	12:20					6.87	552	15.6	13.0	12.5	1347	
MGSD02	11/03/25	9:55					7.09	392	12.3	0.0	10.5	337	
MGSU03	11/03/25	10:30					6.99	359	11.9	2.2	10.5	808	
MGSD04	11/03/25	11:45					7.38	415	14.3	0.8	11.8	1347	
MGSD05	11/03/25	12:00					7.02	391	15.1	0.0	11.5	11222	
MGSU06	11/03/25	9:15					6.80	382	13.5	0.0	13.0	5349	
MGSU07	11/03/25	8:55					6.96	384	14.5	0.0	13.5	2244	
Underdrain													
U-C2	11/04/25	8:30					7.74	524	17.5	3.3	11.1	1	
U-C5													Dry
U-C6A	11/04/25	0.39					6.03	4.87	16.20	0.00	10.80	1.00	
U-C6B													Dry
U-C8A	11/04/25	10:30					6.13	936	16.20	21.90	10.40	2.00	
U-C9B													Dry
U-C9C													Dry
U-C10A													Dry
U-C10B													Dry
U-C10C													Dry
U-C10D													Dry
Leachate													
Leachate Storage Tank	11/04/25	11:10					10.07	4060	17.4				
LDZ-1	11/04/25	8:45					9.60	4100	12.5				
LDZ-2	11/04/25	8:55					8.97	1360	20.8				
LDZ-3	11/04/25	9:05					9.30	1728	19.2				
LDZ-4	11/04/25	9:15					9.18	1017	19.4				
LDZ-5	11/04/25	9:25					8.95	1166	17.5				
LDZ-6													Dry
LDZ-7	11/04/25	10:30					9.42	4720	15.4				
LDZ-10	11/04/25	10:15					8.98	1087	19.7				
LDZ-11	11/04/25	8:05					10.05	3130	21.2				

Notes:
[1] Measured from top of the inner casing.
[2] Elevation of the top of the inner casing from field forms.

TABLE 2
LABORATORY ANALYTICAL RESULTS
FOURTH QUARTER 2025
LANCASTER LANDFILL

Chemical Constituent	Unit	Analytical	MCL/SWHS	GROUNDWATER								
				MW-101U	MW-104D	MW-105DR	MW-106DR	MW-107DR	MW-108DR	MW-109DR	MW-110DR	MW-111DR
Inorganics												
Chemical Oxygen Demand	mg/L	EPA 8260	- -	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Chloride	mg/L	EPA 8260	250 (2)	8.1	7.1	48.5	< 1.0	91.4	8.7	22.4	13.3	14.8
Iron	mg/L	EPA 8260	0.3 (2)	< 0.05	0.53	< 0.05	0.35	0.34	< 0.05	< 0.05	< 0.05	2.66
Iron, dissolved	mg/L	EPA 8260	0.3 (2)	< 0.05	< 0.05	< 0.05	0.13	< 0.05	< 0.05	< 0.05	< 0.05	1.08
pH (Field)	S.U.	EPA 8260	6.5 - 8.5 (2)	5.51	6.34	5.71	6.99	6.58	6.70	5.28	6.33	5.81
Lab pH	S.U.	EPA 8260	6.5 - 8.5 (2)	6.08 H	7.11 H	6.58 H	7.47 H	7.05 H	7.66 H	5.90 H	6.85 H	6.57 H
Sodium	mg/L	EPA 8260	- -	7.0	13.1	23.4	14.7	16.1	9.3	15.1	4.7	15.9
Sodium, dissolved	mg/L	EPA 8260	- -	7.3	13.4	22.6	15.0	16.5	9.5	15.1	5.9	15.9
Specific Conductance (Field)	µmhos/cm	EPA 8260	- -	192	508	619	278	809	428	527	709	278
Specific Conductance	µmhos/cm	EPA 8260	- -	190	478	582	250	781	394	510	694	253
Sulfate	mg/L	EPA 8260	250 (2)	17.8	40.2	87.6	< 10	24.4	36.6	144	74.0	52.8
Total Organic Carbon	mg/L	EPA 8260	- -	< 1.0	< 1.0	1.3	< 1.0	< 1.0	< 1.0	1.8	1.6	< 1.0
Total Organic Halogen	µg/L	EPA 8260	- -	< 50	< 50	< 50	< 50	< 50	< 50	57	< 50	< 50
Other Inorganics												
Alkalinity to pH 4.5	mg/L	ASTM D 1067-11	- -	40	198	116	121	243	152	81	260	49
Ammonia Nitrogen	mg/L	EPA 350.1	- -	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Arsenic	µg/L	EPA 200.8	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Arsenic, dissolved	µg/L	EPA 200.8	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Barium	mg/L	EPA 200.7	2	0.17	0.12	0.09	0.18	0.61	0.22	0.02	0.16	0.12
Barium, dissolved	mg/L	EPA 200.7	2	0.18	0.10	0.09	0.17	0.57	0.22	0.02	0.20	0.11
Calcium	mg/L	EPA 200.7	- -	16.0	57.7	56.2	26.2	91.0	54.1	52.1	89.7	14.9
Calcium, dissolved	mg/L	EPA 200.7	- -	16.5	58.6	54.0	25.5	92.7	54.4	51.6	114	15.6
Chromium	mg/L	EPA 200.7	0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chromium, dissolved	mg/L	EPA 200.7	0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Lead	µg/L	EPA 200.8	15	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	7.2	< 5.0	< 5.0
Lead, dissolved	µg/L	EPA 200.8	15	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	6.5	< 5.0	< 5.0
Magnesium	mg/L	EPA 200.7	- -	5.4	14.0	18.6	6.6	26.4	12.2	17.4	11.3	11.2
Magnesium, dissolved	mg/L	EPA 200.7	- -	5.6	14.4	17.8	6.6	27.1	12.4	17.0	14.1	11.4
Manganese	mg/L	EPA 200.7	0.05 (2)	< 0.01	0.05	0.06	0.26	0.04	< 0.01	1.02	< 0.01	1.30
Manganese, dissolved	mg/L	EPA 200.7	0.05 (2)	< 0.01	0.04	0.06	0.19	0.02	0.01	1.01	< 0.01	1.27
Nickel	mg/L	EPA 200.7	- -	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Nickel, dissolved	mg/L	EPA 200.7	- -	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Phenolics	µg/L	EPA 420.4	2000 (1)	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0
Potassium	mg/L	EPA 200.7	- -	1.7	2.4	2.9	1.3	2.2	2.1	3.7	1.2	1.7
Potassium, dissolved	mg/L	EPA 200.7	- -	1.8	2.3	2.8	1.3	2.1	2.1	4.0	1.5	1.7
Total dissolved solids	mg/L	SM 2540 C	500 (2)	122	280	308	144	382	210	288	372	174

MCL/SWHS

Federal MCLs are shown, where promulagted.

(1) PADEP Statewide Health Standards (SWHS) are shown in the when a federal MCL has not been promulagted

(2) Secondary MCL.

TABLE 2
LABORATORY ANALYTICAL RESULTS
FOURTH QUARTER 2025
LANCASTER LANDFILL

Chemical Constituent	Unit	Analytical	MCL/SWHS	SURFACE WATER						
				MGSU01	MGSD02	MGSU03	MGSD04	MGSD05	MGSU06	MGSU07
Inorganics										
Chemical Oxygen Demand	mg/L	EPA 8260	- -	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Chloride	mg/L	EPA 8260	250 (2)	53.8	34.9	15.4	26.6	34.8	25.4	40.4
Iron	mg/L	EPA 8260	0.3 (2)	2.59	0.07	0.07	0.12	0.06	0.05	0.07
Iron, dissolved	mg/L	EPA 8260	0.3 (2)	1.33	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
pH (Field)	S.U.	EPA 8260	6.5 - 8.5 (2)	6.87	7.09	6.99	7.38	7.02	6.80	6.96
Lab pH	S.U.	EPA 8260	6.5 - 8.5 (2)	7.72 H	7.90 H	7.67 H	7.98 H	7.95 H	7.68 H	7.75 H
Sodium	mg/L	EPA 8260	- -	22.3	17.1	10.3	14.2	17.3	14.1	18.5
Sodium, dissolved	mg/L	EPA 8260	- -	22.7	17.2	10.3	14.5	17.1	14.2	20.2
Specific Conductance (Field)	µmhos/cm	EPA 8260	- -	552	392	359	415	391	382	384
Specific Conductance	µmhos/cm	EPA 8260	- -	530	357	327	384	359	355	348
Sulfate	mg/L	EPA 8260	250 (2)	44.3	25.0	21.5	34.2	25.8	27.2	21.6
Total Organic Carbon	mg/L	EPA 8260	- -	3.7	3.6	1.6	2.2	3.7	2.6	4.1
Total Organic Halogen	µg/L	EPA 8260	- -	0	0	0	0	0	0	0
Other Inorganics										
Alkalinity to pH 4.5	mg/L	ASTM D 1067-11	- -	133	79	56	89	80	84	72
Ammonia Nitrogen	mg/L	EPA 350.1	- -	0.11	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Arsenic	µg/L	EPA 200.8	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Arsenic, dissolved	µg/L	EPA 200.8	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Barium	mg/L	EPA 200.7	2	0.14	0.09	0.14	0.12	0.09	0.08	0.08
Barium, dissolved	mg/L	EPA 200.7	2	0.13	0.08	0.14	0.11	0.08	0.08	0.06
Calcium	mg/L	EPA 200.7	- -	51.3	32.5	30.7	36.8	33.0	35.5	29.0
Calcium, dissolved	mg/L	EPA 200.7	- -	52.2	32.4	30.4	36.7	32.9	35.4	29.2
Chromium	mg/L	EPA 200.7	0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chromium, dissolved	mg/L	EPA 200.7	0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Lead	µg/L	EPA 200.8	15	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Lead, dissolved	µg/L	EPA 200.8	15	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Magnesium	mg/L	EPA 200.7	- -	13.2	9.6	10.3	11.3	9.8	9.7	9.6
Magnesium, dissolved	mg/L	EPA 200.7	- -	13.3	9.5	10.2	11.2	9.7	9.7	9.4
Manganese	mg/L	EPA 200.7	0.05 (2)	1.67	0.03	< 0.01	0.01	0.03	0.03	0.03
Manganese, dissolved	mg/L	EPA 200.7	0.05 (2)	1.57	0.03	< 0.01	< 0.01	0.03	0.03	0.04
Nickel	mg/L	EPA 200.7	- -	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Nickel, dissolved	mg/L	EPA 200.7	- -	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Phenolics	µg/L	EPA 420.4	2000 (1)	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0
Potassium	mg/L	EPA 200.7	- -	4.2	3.8	4.3	4.0	3.8	4.3	3.3
Potassium, dissolved	mg/L	EPA 200.7	- -	4.2	3.8	4.2	4.2	3.8	4.2	6.3
Total dissolved solids	mg/L	SM 2540 C	500 (2)	280	190	194	208	216	186	192

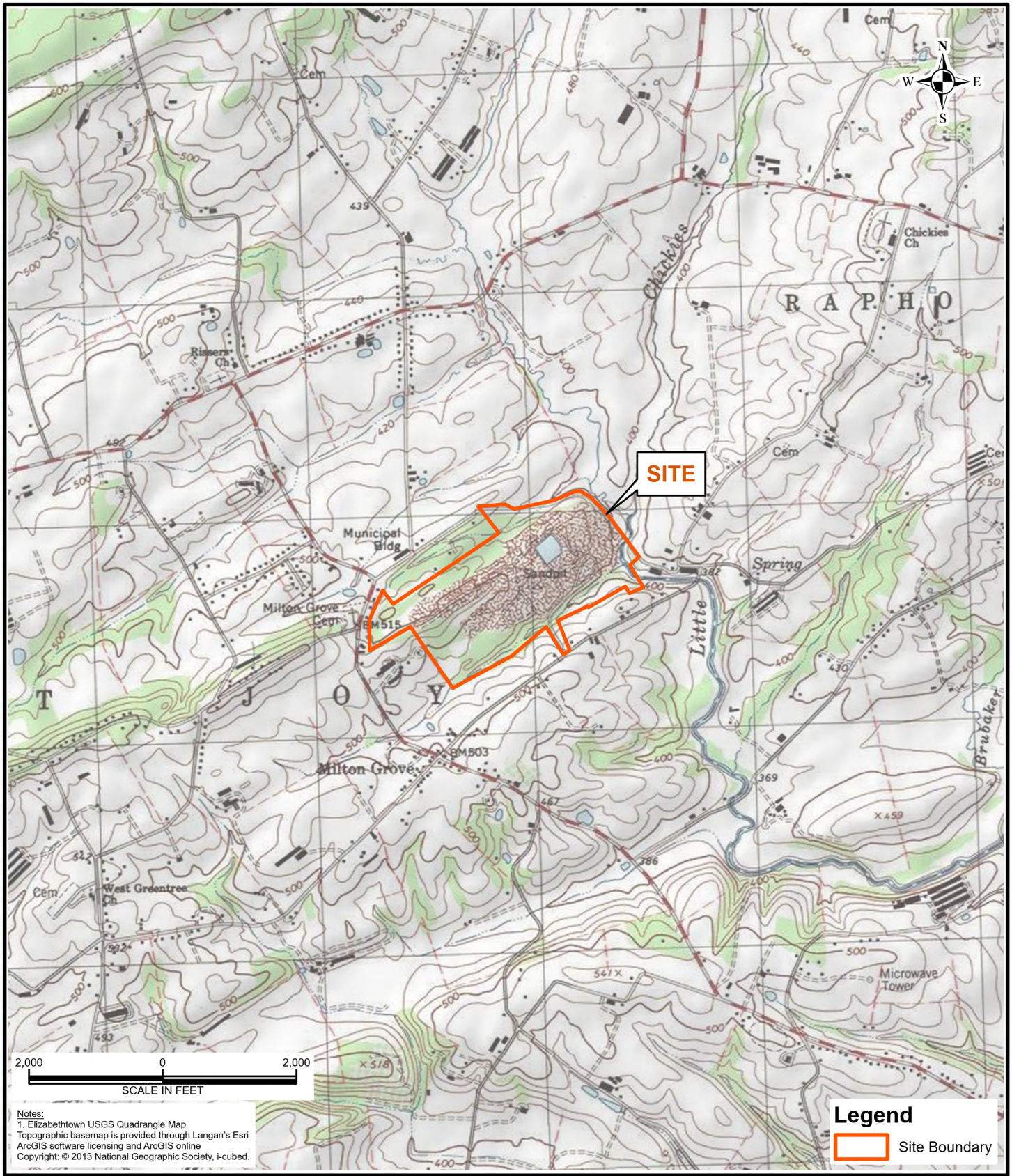
MCL/SWHS

Federal MCLs are shown, where promulagted.

(1) PADEP Statewide Health Standards (SWHS) are shown in the when a federal MCL has not been promulagted

(2) Secondary MCL.

FIGURES



LANGAN

Langan Engineering and Environmental Services, LLC

2400 Ansys Drive, Suite 403
Canonsburg, PA 15317

T: 724.514.5100 F: 724.514.5101
www.langan.com

Project	LANCASTER LANDFILL MOUNT JOY TOWNSHIP LANCASTER COUNTY PA
Figure Title	SITE LOCATION MAP
Project No.	250243901
Date	4/7/2025
Scale	1" = 2,000 feet
Drawn By	LB
Figure	1

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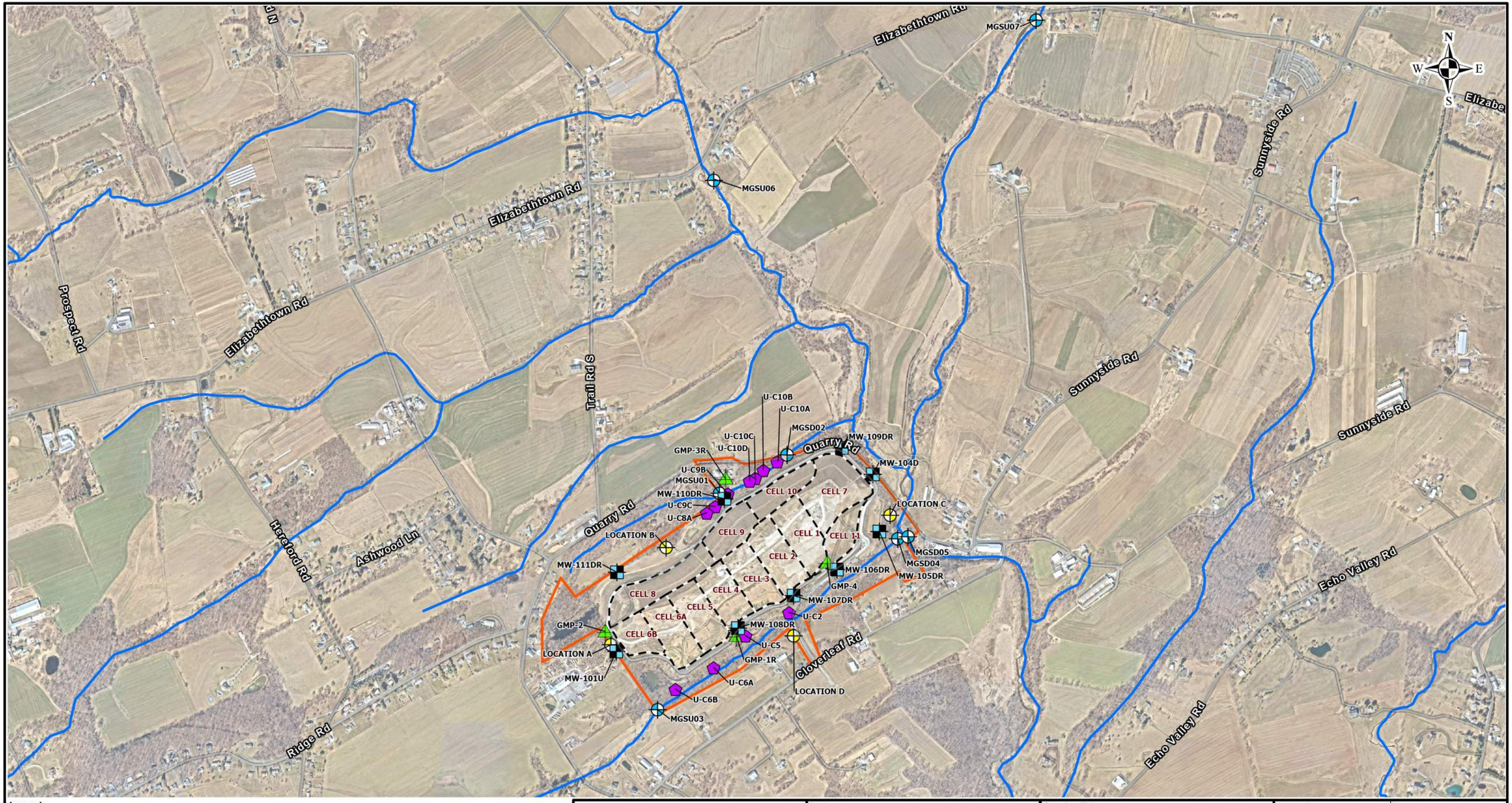

Legend

- Groundwater Monitoring Wells
- Surface Water Points'
- Underdrain Points
- Gas Monitoring Probes
- Dust Fall Monitoring Points
- PADEP 305B Stream
- Approximate Cell Location
- Site Boundary

1,000 0 1,000
SCALE IN FEET

Notes:
1. Imagery provided through Langan's subscription to Nearmap.com. Flown on 3/9/2025.

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Canonsburg, PA 15317

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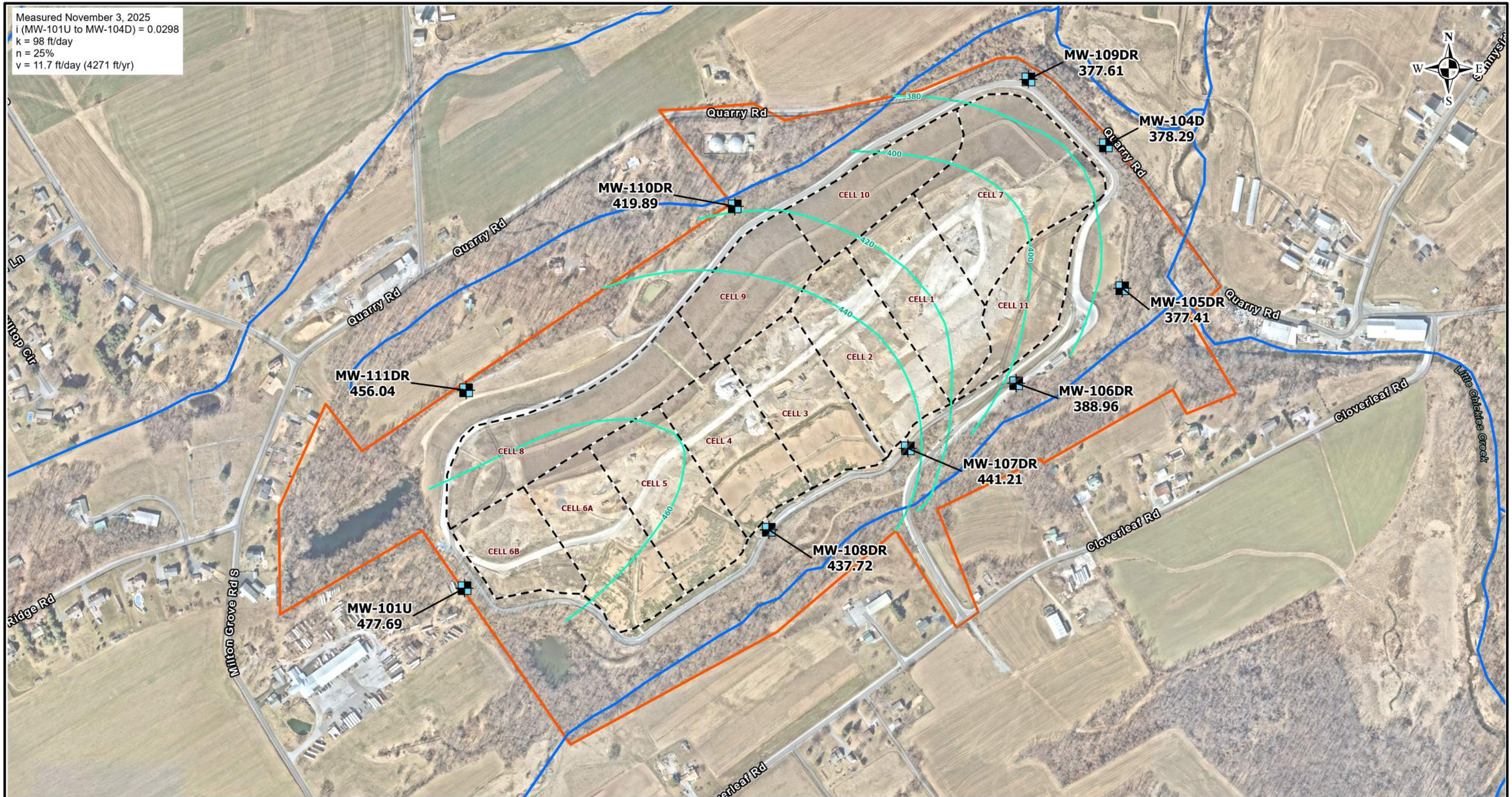
Project
LANCASTER LANDFILL
MOUNT JOY TOWNSHIP
LANCASTER COUNTY PA

Drawing Title
SAMPLE LOCATION MAP

Project No.	250243901
Date	1/15/2026
Scale	1" = 1,000 feet
Drawn By	LB
Figure	2

Path: \\langan.com\data\PIT\data9\250243901\Project Data\ArcGIS\APRX\250243901 Lancaster Landfill\250243901.aprx

Measured November 3, 2025
i (MW-101U to MW-104D) = 0.0298
k = 98 ft/day
n = 25%
v = 11.7 ft/day (4271 ft/yr)



Legend

- Groundwater Monitoring Wells
- Approximate Groundwater Elevation Contour
- PADEP 305B Stream
- Approximate Cell Location
- Site Boundary

400 0 400
SCALE IN FEET

Notes:
1. Imagery provided through Langan's subscription to Nearmap.com. Flown on 3/9/2025.
2. The groundwater elevation at MW-108DR has been omitted from the contour calculations due to anomalous readings.

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Langan Engineering and Environmental Services, LLC
2400 Ansys Drive, Suite 403
Canonsburg, PA 15317
T: 724.514.5100 F: 724.514.5101
www.langan.com

Project
LANCASTER LANDFILL
MOUNT JOY TOWNSHIP
LANCASTER COUNTY PA

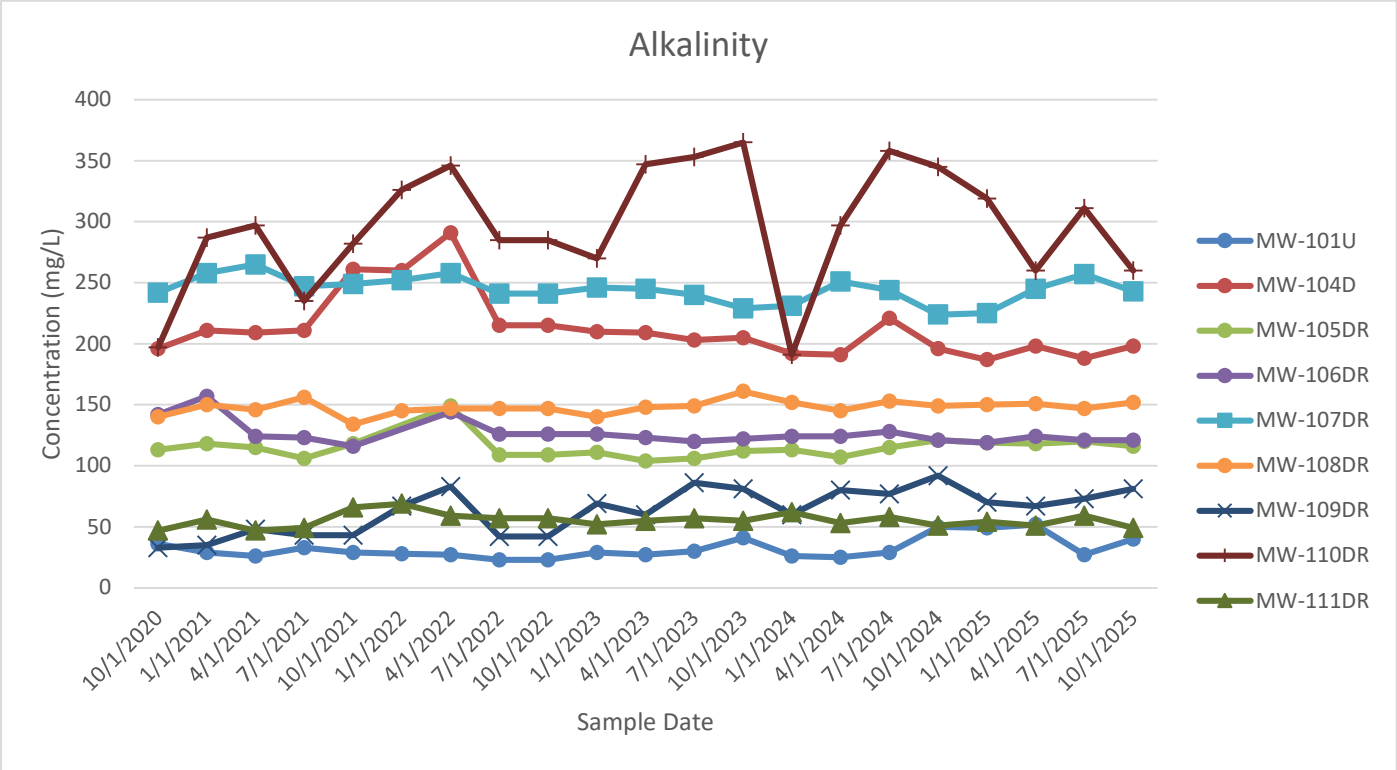
Drawing Title
NEW OXFORD FORMATION POTENTIOMETRIC SURFACE MAP

Project No.	250243901
Date	1/15/2026
Scale	1" = 400 feet
Drawn By	LB
Figure	3

Path: \\langan.com\data\PIT\data9\250243901\Project Data\ArcGIS\APRX\250243901 Lancaster Landfill\250243901.aprx

FIGURE 4

NEW OXFORD FORMATION
TIME SERIES PLOTS



Note: MW-105DR and MW-106DR were first sampled 1st Quarter 2022; prior results shown are from MW-105D and MW-106D.

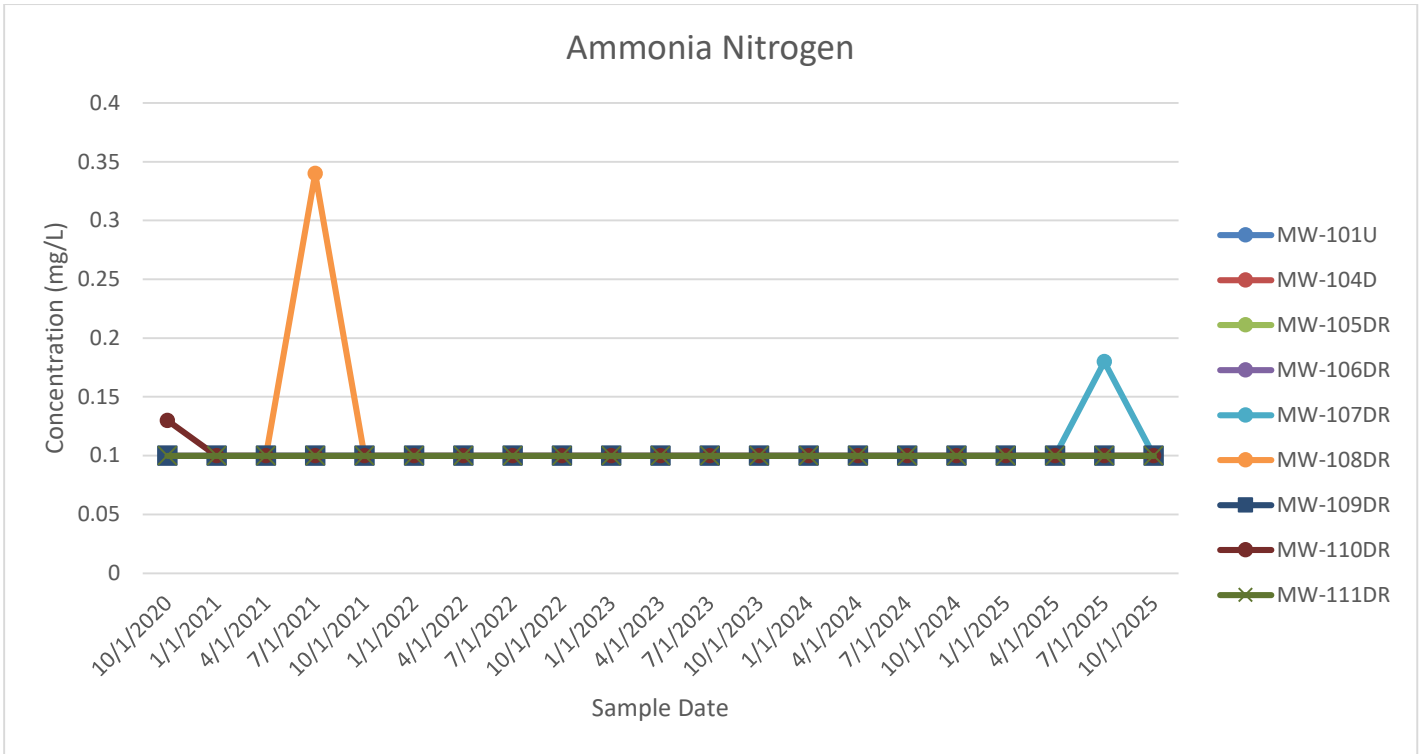
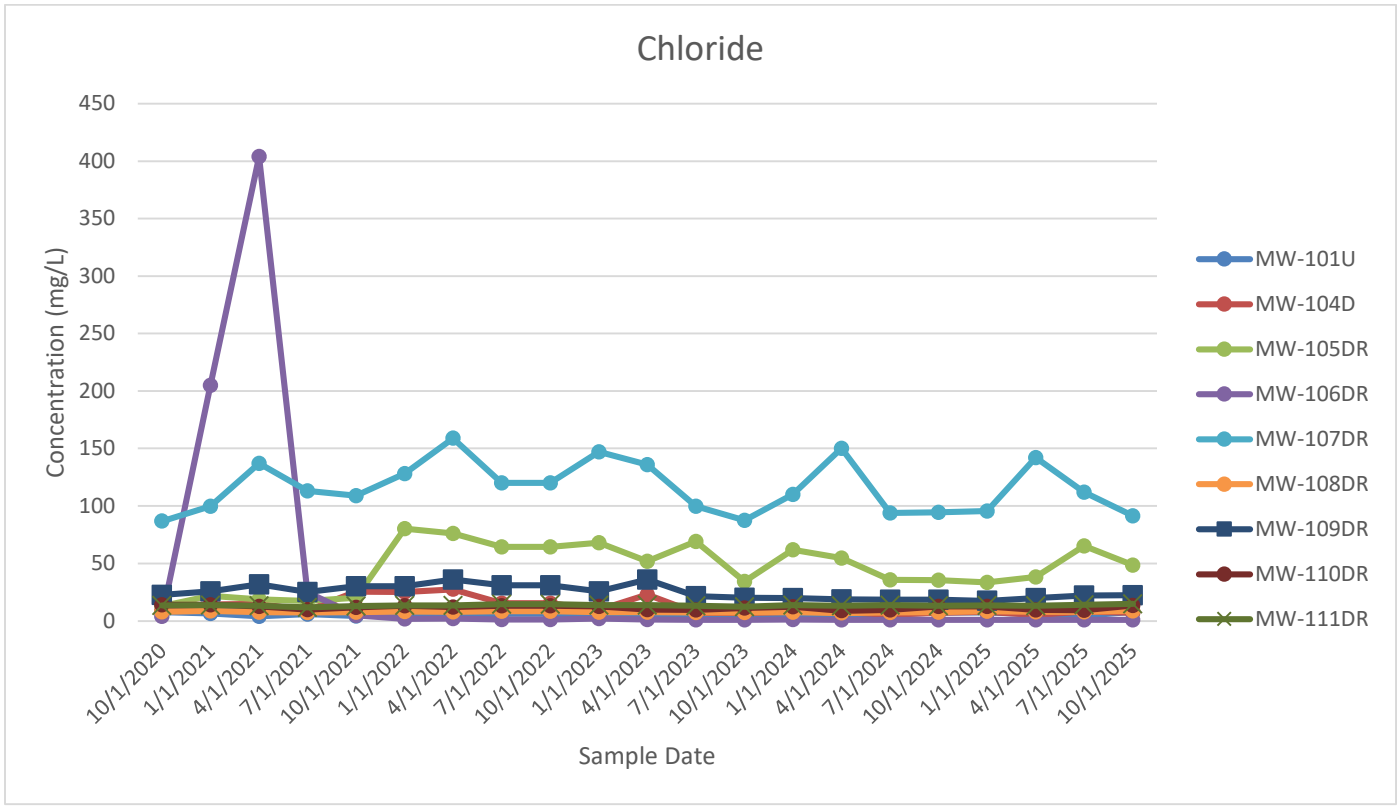


FIGURE 4

NEW OXFORD FORMATION
TIME SERIES PLOTS



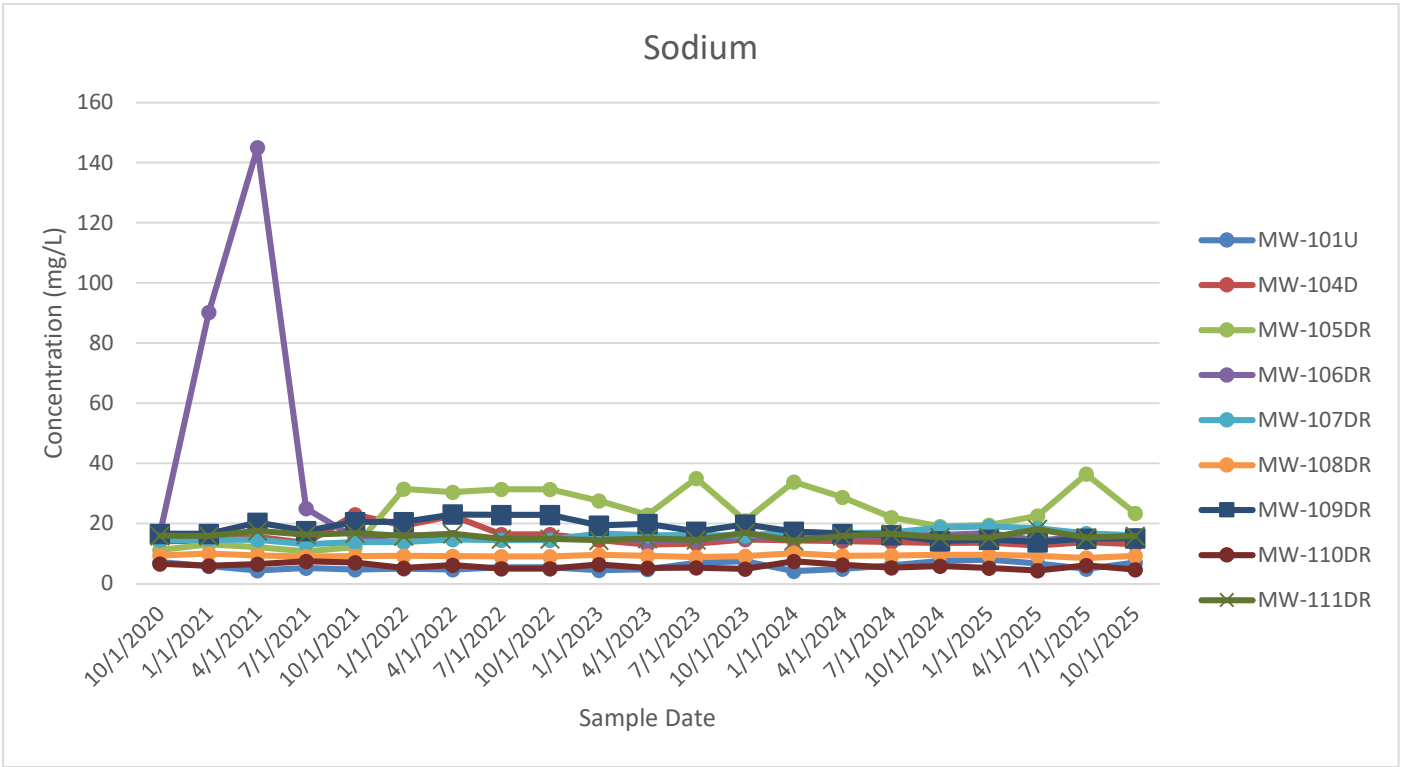
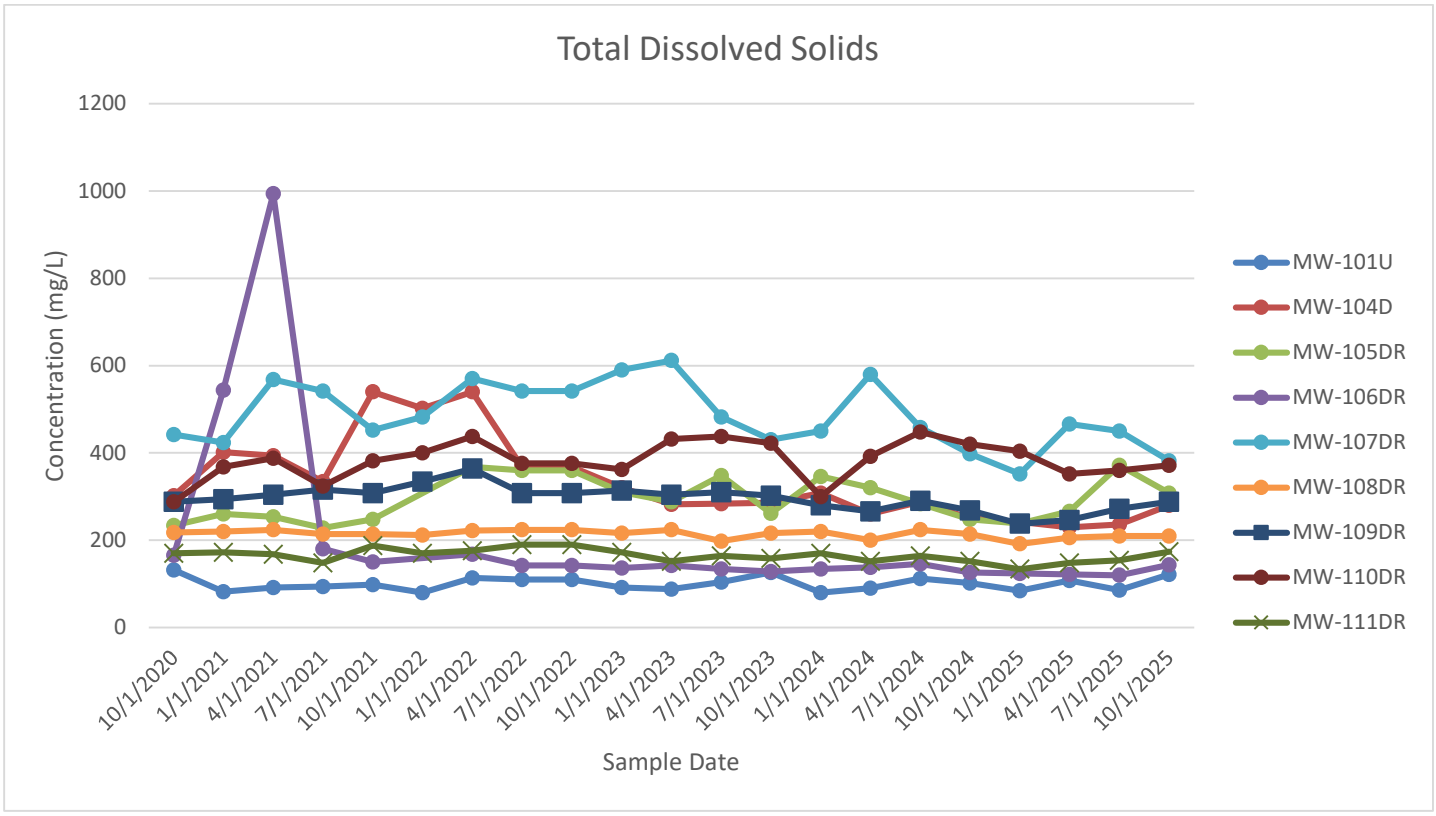


FIGURE 4

NEW OXFORD FORMATION
TIME SERIES PLOTS



APPENDICES (on CD)

Appendix A	PADEP Form 21 for Groundwater, Surface Water, and Underdrains
Appendix B	Laboratory Files and PADEP Electronic Data Deliverable
Appendix C	PADEP Form 50 for Leachate
Appendix D	Perimeter Methane Gas Monitoring Probes
Appendix E	Dust Fall Results