

Daniel Brown

From: donotreply@pa.gov
Sent: Wednesday, June 28, 2023 4:16 PM
To: Daniel Brown
Cc: RA-EP-ONBASENOT@pa.gov
Subject: [EXTERNAL][RECEIVED] Scanned Forms review - Reference ID: 112964

CAUTION: This email originated from outside of LCSWMA. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Daniel Brown,

Thank you for submitting the OTHER form to DEP.

Region: SOUTHCENTRAL REGIONAL OFFICE
County: LANCASTER
Municipality: MANOR TOWNSHIP
Permit #/Project #: 101389
RPCO Reference ID#:

DEP Processing Comments (if any):

"Attn: Ms. Carrie Fleming & Mr. John Oren, P.E.

2022 LCSWMA Frey Farm Landfill Annual Operational Report"

We will review the document and associated information and notify you with any concerns.

Your form reference # is 112964. Please use this reference # for future inquiries to DEP and include on the check memo when remitting payment.

The DEP receipt date is 6/28/2023.



* This is an automated email from OnBase - DO NOT REPLY *

June 27, 2023

Ms. Carrie Fleming, Acting Program Manager
Pennsylvania Department of Environmental Protection
Bureau of Waste Management
Southcentral Region Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200

RE: **Annual Operation Report for 2022**
Frey Farm Landfill, Permit No. 101389

Dear Ms. Fleming:

In accordance with the Municipal Waste Management Regulations (Section 273.313) enclosed herein is the Annual Operation Report relating to the above referenced facility.

Enclosed is a check in the required amount of \$2,800 for administration fees. If you have any questions or concerns, please do not hesitate to contact me.

Respectfully submitted,



Daniel A. Brown

Environmental Compliance Manager

Enclosures

cc: LCSWMA: Environmental, M. Devaney, A. Rice (w/ enclosures)

Bureau of Radiation Protection (page 5, "Summary of Detected Radioactive Materials," only)
P.O. Box 8469
Harrisburg, PA 17105-8469

Office of Energy & Technology Deployment (page 6, Landfill Gas Generation, Recovery, and Beneficial Use Data," only)
Division of Energy Policy & Technology Deployment
P.O. Box 8772, 15th Floor
Harrisburg, PA 17105-8772

2022

PA DEP ANNUAL OPERATION REPORT

for the



FREY FARM LANDFILL

Site Address: 3049 River Road
Conestoga, PA 17516

BWM Permit No. 101389

Submitted by:

Lancaster County Solid Waste Management Authority

1299 Harrisburg Pike

Lancaster, Pennsylvania 17603

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MUNICIPAL WASTE LANDFILL ANNUAL OPERATION REPORT FORM INSTRUCTIONS

1. This report is due on or before June 30 each year, covering the period January 1 to December 31 of the preceding year.
2. Send one (1) copy of the report with a check for the administrative fee of \$2,800 made payable to the "Commonwealth of Pennsylvania," attention Solid Waste Manager in the respective Regional Office listed below.
3. Send one (1) copy of the completed Report Form to:
Bureau of Waste Management
Director's Office and Program Development
P.O. Box 69170
Harrisburg, PA 17106-9170
4. Send one (1) copy of page 5 "Summary of Detected Radioactive Materials" to:
Bureau of Radiation Protection
P.O. Box 8469
Harrisburg, PA 17105-8469
5. Send one (1) copy of page 6 "Landfill Gas Generation, Recovery, and Beneficial Use Data" to:
Energy Programs Office
P.O. Box 8772, 15th Floor
Harrisburg, PA 17105-8772
6. The report forms may be reproduced without modification of content.
7. All report drawings should be signed and sealed by a Pennsylvania Professional Engineer.

REGIONAL OFFICES **(and counties served)**

DEP Southeast Region
2 East Main Street
Norristown, PA 19401-4915
Phone: (484) 250-5960
Bucks - Chester - Delaware - Montgomery - Philadelphia

DEP Northeast Region
2 Public Square
Wilkes-Barre, PA 18711-0790
Phone: (570) 826-2516
Carbon - Lackawanna - Lehigh - Luzerne - Monroe -
Northampton - Pike - Schuylkill - Susquehanna - Wayne -
Wyoming

DEP Southcentral Region
909 Elmerton Avenue
Harrisburg, PA 17110-8200
Phone: (717) 705-4706
Adams - Bedford - Berks - Blair - Cumberland - Dauphin -
Franklin - Fulton - Huntingdon - Juniata - Lancaster -
Lebanon - Mifflin - Perry - York

DEP Northcentral Region
208 W. Third Street, Suite 101
Williamsport, PA 17701-6448
Phone: (570) 327-3653
Bradford - Cameron - Centre - Clearfield - Clinton -
Columbia - Lycoming - Montour - Northumberland - Potter -
Snyder - Sullivan - Tioga - Union

DEP Southwest Region
400 Waterfront Drive
Pittsburgh, PA 15222-4745
Phone: (412) 442-4000
Allegheny - Beaver - Cambria - Fayette - Greene -
Somerset - Washington - Westmoreland

DEP Northwest Region
230 Chestnut Street
Meadville, PA 16335-3481
Phone: (814) 332-6848
Armstrong - Butler - Clarion - Crawford - Elk - Erie - Forest -
Indiana - Jefferson - Lawrence - McKean - Mercer -
Venango - Warren

DEFINITIONS:

Municipal Waste - garbage, refuse, industrial lunchroom or office waste and other wastes from the operation of residential, municipal, commercial, or institutional establishments and from community activities.

Residual Waste - wastes and sludges resulting from industrial, mining, or agricultural operations and wastewater treatment facilities, water supply treatment facilities, or air pollution control facilities, and which does not qualify as a hazardous waste under Pennsylvania law.

Special Handling Wastes - sewage sludge, infectious waste, chemotherapeutic waste, construction/demolition waste, ash, and asbestos. Disposal of infectious and chemotherapeutic waste at a municipal waste landfill requires compliance with 25 PA Code Chapter 273, Subchapters D and E.



Date Prepared

06/23/2023

MUNICIPAL WASTE LANDFILL ANNUAL OPERATION REPORT FORM

Permit Number

101389

Instructions: This report is to be completed based on the preceding calendar year. Responses regarding volumes remaining should be based on availability on January 1 of the following year (ex: capacity used would be from January 1, 2001 through December 31, 2001 and remaining capacity would be as of January 1, 2002).

Facility Name: LCSWMA Frey Farm Landfill I.D. No.: Site ID # 450744

For the report period 2022 (January 1 to December 31)
(enter year)

A. FACILITY CAPACITY INFORMATION

1. Permitted Airspace*:	17,037,197	CY
2. Total Airspace Used*:	11,455,522	CY
3. Airspace Used this Report Period*:	363,856	CY
4. Total Airspace Remaining*:	5,581,675	CY
5. Waste Accepted in this Report Period:	393,918	Tons
6. Waste Accepted in Previous Years:	10,304,092	Tons
7. Total Waste Accepted:	10,698,010	Tons
8. Current Conversion Factor:	$\text{Current Conversion Factor} = \frac{\text{Waste Accepted in this Report Period}}{\text{Airspace Used this Report Period}}$ $= 1.08 \quad \text{Tons/CY}$	
9. Total Capacity Remaining:	$\text{Total Capacity Remaining} = \text{Current Conversion Factor} \times \text{Total Airspace Remaining}$ $= 6,042,836 \quad \text{Tons}$	
10. Operating Days This Report Period:	305	Days
11. Average Daily Volume of Waste Accepted**:	1,291.5	Tons
12. Estimated Remaining Life:	$\text{Estimated Remaining Life} = \frac{\text{Total Capacity Remaining}}{\text{Avg. Volume of Waste Accepted} \div \text{Operating Days}}$ $= 15.3 \quad \text{Years}$	

*All airspace capacity calculations should be based upon actual field survey or aerial mapping.

**Avg. volume of waste accepted = $\frac{\text{Waste Accepted in this Report Period}}{\text{Operating Days}}$

B. PERMIT AND OPERATION STATUS

- Have there been any changes to your compliance information?

☐ NO. If "NO," complete a copy of Form C1 "Compliance History Certification" (2540-PM-BWM0351) and attach it to this report.

☒ YES. If "YES," complete a copy of Form HW-C, "Compliance History" (2540-FM-BWM0058) and attach it to this report.

2. Have there been any changes to your Contractual Consent of Landowner (Form E) or your Compliance History Certification (Form C1)?

☒ NO.

☐ YES. If "YES," submit a revised copy of Form E, "Contractual Consent of Landowner" (2540-PM-BWM0353). Changes involving land ownership may require the submittal of Part B2 and B3 of Form C1 concerning surface or subsurface land ownership.

3. Operation Update
- | | This Report Period: | | Site Total: | |
|----------------------------------|---------------------|-------|-------------|-------|
| a. Acreage used for disposal | <u>17.9</u> | acres | <u>99.3</u> | acres |
| b. Acreage seeded | <u>5.6</u> | acres | <u>23.3</u> | acres |
| c. Acreage vegetated | <u>5.6</u> | acres | <u>23.3</u> | acres |
| d. Acreage permanently vegetated | <u>0</u> | acres | <u>40.6</u> | acres |
- e. Attach a narrative description of the progress in implementing the closure plan.

4. Monitoring Plan Evaluation

Develop and attach an evaluation of the groundwater monitoring plan required under Section 273.282 (relating to number, location and depth of monitoring points). The evaluation should determine if revisions to the groundwater monitoring plan are required due to changes in groundwater elevation, hydrogeologic conditions or other reasons. If this evaluation determines that changes in the approved groundwater monitoring plan are necessary, the operator shall immediately notify the Department and submit an application for permit modification.

☐ Revisions are required. Report is attached.

☒ Revisions are not required. Report is attached.

5. Radioactive Monitoring

Attach a summary of detected radioactive materials using the attached form:

Note to Operator: Forward a copy of the above attachment to:

Bureau of Radiation Protection,
P.O. Box 8469,
Harrisburg, PA 17105-8469

6. Landfill Gas Generation, Recovery, and Beneficial Use Data

Attach summary of landfill gas generation, recovery, and beneficial use using the attached form:

Note to Operator: Forward a copy of the above attachment to:

Office of Energy and Technology Deployment
Division of Energy Policy & Technology Deployment
P.O. Box 8772, 15th Floor
Harrisburg, PA 17105-8772

7. Landfill Benefits Monitoring

Attach a summary of the landfill benefits for this reporting period with supporting documentation using the attached form. The summary shall identify the approved benefit, the magnitude of the benefit and whether the claimed benefit was realized as anticipated. In the event that a benefit is less than the landfill had anticipated, include an explanation and any proposed corrective action to fulfill the claimed benefit.

C. FINANCIAL ASSURANCE

1. Attach a written update of the total bond liability for the facility in accordance with Section 271.331 (relating to bond and trust amount determination). Bonding worksheets can be found at www.depweb.state.pa.us. If additional bond is determined to be necessary, it shall be submitted to the Department within 90 days after the annual report is due.
☐ Additional bond is not required. Attach copy of completed bond calculation worksheets (not bond documents).
☒ Additional bond will be submitted. Attach copy of completed bond calculation worksheets (not bond documents).
2. Attach documentation of current certificate of insurance as specified in § 271.374(a) (relating to proof of insurance coverage), proving continuous coverage for public liability insurance as required by § 271.371 (relating to insurance requirement).

D. TOPOGRAPHIC MAP UPDATE

Attach a topographic map of the same scale, contour interval and grid system as the original site plans showing:

1. Contours at the beginning and the end of the report period.
2. The completed areas of the site at final elevation and the areas partially filled, but not active during the report period.
3. Areas that have final cover in place, indicating those areas where final cover was placed during the report period.

E. DRAWINGS

Attach the following:

1. An isopach drawing which clearly identifies the existing elevations as well as the final permitted elevations. These can be shown with (a) different color contour lines or (b) with contours for the existing elevations and the overfill/underfill delineated using a numerical grid.
2. A cross-sectional grid with a 50 foot horizontal interval should be submitted for areas that received waste in the past year. The same cross sections approved in the permit application should be included in the grid, if possible. Each of these cross sections should show the current grades, the grades at the beginning of the report period, the original grades, and the permitted grades. Any areas of overfill should be clearly identified on each cross section, including overfill volumes.
3. The actual field survey or aerial mapping and the calculation used to determine the airspace figures.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

CERTIFICATION OF REGISTERED PROFESSIONAL ENGINEER

This is to certify that the Topographic Map and Drawing Updates accurately represent the status of the facility and does not, to the best of my knowledge, withhold information that is pertinent to a determination of compliance with the requirements of the Department. I am aware that there are significant penalties for submitting false information.

Name Daniel N. Fellon, P.E.

(Please Print)

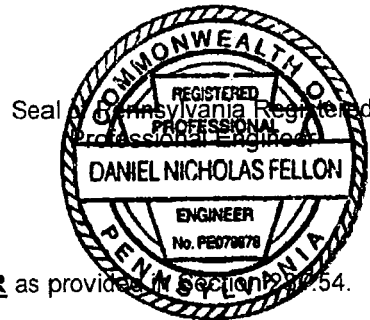
Signature 

Date 6/26/2023

Address 1129 W Governor Road; PO Box 797

Hershey, PA 17033

Telephone (717) 533-8600



F. **ALL REQUIRED ANALYSES WERE RECEIVED DURING THE YEAR** as provided in Section 254.

☒ Yes ☐ No

G. **PERMIT ADMINISTRATION FEE**

Please submit a check payable to the "Commonwealth of Pennsylvania." Attach the check to one of the copies being sent to the Regional Office.

☒ \$2,800.00

Name of Permittee: Lancaster County Solid Waste Management Authority

Facility Name: LCSWMA Frey Farm Landfill

City: Lancaster State: PA Zip: 17603 Phone No.: (717) 397-9968

TAX I.D.: 23-6006036 or SS# - -

Officer Certification

This is to certify that I have personally examined this report and am familiar with the information submitted in it and all attached documents. I am aware of the Department of Environmental Protection requirements for this report and this facility. To the best of my knowledge, information and belief, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Name of Officer Robert B. Zorbaugh

(Please Print)

Signature 

Title Chief Executive Officer

Date 6/27/2023

Telephone (717) 397-9968

IDENTIFY ALL ATTACHMENTS BY PERMIT NUMBER AND DATE PREPARED.

Permit Number

**Disposition
(Disposed on-site
rejected-DOT
exemption number,
etc.)**

Note: Use additional sheets as necessary.
Number of pages included:



LANDFILL GAS COLLECTION AND BENEFICIAL USE DATA

GENERAL INFORMATION		
Landfill Name: <u>LCSWMA Frey Farm Landfill</u>	Year Opened: <u>1989</u>	Permit #: <u>101389</u>
Owner: <u>Lancaster County Solid Waste Management Authority</u>	Year Closed (anticipated): <u>N/A</u>	
Primary Contact: <u>Daniel A. Brown</u>	Title: <u>Environmental Compliance Manager</u>	
E-Mail: <u>dbrown@lcswma.org</u>	Website: <u>www.lcswma.org</u>	
Site Address: <u>3049 River Road</u>		
City: <u>Conestoga</u>	State: <u>PA</u>	Zip: <u>17516</u>
County: <u>Lancaster</u>	Municipality: <u>Manor Township</u>	
Mailing Address (if different): <u>1299 Harrisburg Pike, Lancaster, PA 17603</u>		
Site Longitude (decimal format): <u>39.953783402</u>	Site Latitude (decimal format): <u>-76.450426788</u>	
Waste In Place (tons): <u>10,698,010</u>	Max. Capacity (tons): <u>17,548,313</u>	
Annual Acceptance Rate (actual tons): <u>393,918 (2022 actual)</u>	Potential For Expansion? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Landfill Alternative Names (if applicable): <u>N/A</u>		
LANDFILL GAS GENERATION & DISPOSITION		
Gas Collection Rate (MMscfy): <u>354.61</u> =		
Avg. Gas Volume Beneficially Used (MMscfy): <u>353.77</u> + Avg. Gas Volume Flared (MMscfy): <u>0.85</u>		
Number of Flares: <u>2</u>	Number of Gas Wells: <u>46</u>	Avg. Methane Content (percent): <u>52.8</u>
LANDFILL GAS BENEFICIAL USE PROJECTS		
PROJECT 1		
Project Status: <input type="checkbox"/> Planned/Developing <input checked="" type="checkbox"/> Active <input type="checkbox"/> Closed		
Project Developer: <u>Energy Power Partners, LLC</u>		
Project Started Operating (year): <u>2006</u>	Anticipated Length of Project Operation (years): <u>20</u>	
Project Type: <input type="checkbox"/> Direct Thermal <input type="checkbox"/> High-Btu <input checked="" type="checkbox"/> Electric Generation		
Electric Generation Capacity (MW): <u>1.6MW</u>	Annual Electric Energy Generated (kWh): <u>16,548,792</u>	
Gas Volume Used (MMscfy): <u>353.77</u>	Annual Heat Content (MMBtu/yr.): <u>188,929</u>	
Gas Use Location: Onsite: <u>Yes</u> Offsite: <u>No</u> Pipeline Miles: <u>N/A</u>		
Offsite Name: <u>N/A</u>		
Offsite Location: <u>N/A</u>		
PROJECT 2		
Project Status: <input type="checkbox"/> Planned/Developing <input type="checkbox"/> Active <input type="checkbox"/> Closed		
Project Developer: _____		
Project Started Operating (year): _____	Anticipated Length of Project Operation (years): _____	
Project Type: <input type="checkbox"/> Direct Thermal <input type="checkbox"/> High-Btu <input type="checkbox"/> Electric Generation		
Electric Generation Capacity (MW): _____	Annual Electric Energy Generated (kWh): _____	
Gas Volume Used (MMscfy): _____	Annual Heat Content (MMBtu/yr.): _____	
Gas Use Location: Onsite: _____ Offsite: _____ Pipeline Miles: _____		
Offsite Name: _____		
Offsite Location: _____		
(Additional projects may be added to back of page using the above format)		

Date Prepared

6/23/2023

**APPROVED BENEFITS IN THE DEP HARMS/BENEFITS ANALYSIS
WRITTEN REVIEW**

Permit Number

101389

For each approved benefit identified in the DEP Harms/Benefits Analysis Review, please answer and address the following statements. A copy of this page should be provided for all approved benefits.

1. Has the approved benefit been provided?

See attached narrative.

2. If the answer to question #1 is yes, please explain how the benefit has been provided.

3. If the answer to question #1 is no, please explain why the benefit was not provided.

4. If the answer to question #1 is no, please describe the proposed action that will ensure the approved benefit will be provided.

Use additional sheet(s) to explain if necessary.

2022 Annual Operations Report

Summary of Benefits

1.0 INTRODUCTION

This document presents an update to the detailed evaluation and balancing of the harms and benefits of the Frey Farm Vertical Expansion (FFVE) at the Frey Farm Landfill (FFLF), which is owned and operated by the Lancaster County Solid Waste Management Authority (LCSWMA). This evaluation has been prepared in connection with the Form D Environmental Assessment Process and as required by the PADEP Permit dated July 26, 2017, Condition #4, providing a description of mitigation measures initiated and/or completed and all benefits provided to date.

2.0 BENEFITS

2.1 *Local Fees*

Manor Township Host Fee

Over the proposed 10-year operating life of the proposed FFVE, this host fee would amount to at least \$1,020,000 per year, or a total of \$12,331,164.

The Host Benefit fees paid in 2022 were \$1,123,429.88.

2.2 *Growing Greener Fee*

For each ton of waste disposed by LCSWMA at the proposed FFVE, LCSWMA will pay \$4.00 to the Commonwealth for landfill disposal fees in support of the Commonwealth's Growing Greener program. Based upon the projected waste receipts over the life of the FFVE (1,800 tpd to 2,500 tpd over a 280-day operating year), this economic benefit, assuming that there is no fee escalation over time, will amount to approximately \$2,016,000 to \$2,800,000 per year over the proposed operating life of the FFVE. Growing Greener Fee payments would total \$20,160,000 to \$28,000,000 over the 10-year life of the disposal area.

The Growing Greener fees paid in 2022 were \$888,380.40.

2.3 *Recycling Fee*

For each ton of waste disposed by LCSWMA at the proposed FFVE, LCSWMA will pay \$2.00 to the Commonwealth as required by 25 PA Code § 273.315 (c) for recycling (Act 101) fees. Based upon the projected waste receipts over the life of the FFVE (1,800 tpd to 2,500 tpd over a 280-day operating year), this economic benefit, assuming that there is no fee escalation over time, will amount to approximately \$1,008,000 to \$1,400,000 per year over the proposed operating life of the FFVE. Recycling fee payments would total \$10,080,000 to \$14,000,000 over the 10-year life of the disposal area.



The recycling fees paid in 2022 were \$439,748.29.

2.4 *Environmental Stewardship Fee*

For each ton of waste disposed by LCSWMA at the proposed FFVE, LCSWMA will pay \$0.25 to the Commonwealth as required by 25 PA Code § 273.316 (c) for environmental stewardship fees. Based upon the projected waste receipts over the life of the FFVE (1,800 tpd to 2,500 tpd over a 280-day operating year), this economic benefit, assuming that there is no fee escalation over time, will amount to approximately \$126,000 to \$175,000 per year over the proposed operating life of the FFVE. Environmental Stewardship Fee payments would total \$1,260,000 to \$1,750,000 over the 10-year life of the disposal area.

The Environmental Stewardship fees paid 2022 were \$98,479.09.

2.5 *Operating Costs, Purchases of Goods/Services*

Over the proposed 10-year operating life of the proposed FFVE facility, LCSWMA would incur significant operating costs each year. These costs would be related to: equipment purchases; site and equipment maintenance; utility costs; and other operating costs. Additional costs will continue to include (but not limited to): surveying, health and safety provisions, mobilization/demobilization, stormwater management system modifications/upgrades, groundwater monitoring well decommissioning, utility and infrastructure modifications, existing LFG system modifications, new maintenance building installation, truck wash relocation, access road and channel construction, FFLF cap and soil cover removal, MSE berm construction, construction of approximately 9 acres of new liner system and the construction of the proposed leachate collection/detection system clearing and grubbing, excavation, soil processing, and soil stockpiling, installation of approximately 48.4 acres of new final cover and cap system, and based on the necessary upgrades and additions necessary for the existing site LFGCCS, engineering and construction quality assurance (CQA), etc.

Overall, these expenditures would be projected to amount to approximately \$49,000,000 over the 10-year facility life of the FFVE.

LCSWMA continues to make equipment purchases, perform site maintenance, pay utilities, etc. as part of normal operations. Additionally, LCSWMA continues to employ local contractors and suppliers to complete capital improvements for the facility. Therefore, this benefit has been realized during the reporting period.

2.6 *Wages and Benefits*

Over the 10-year operating life for the proposed FFVE, the total value of this benefit will be [at least] approximately \$9,881,240 (Note: This amount does not take into account cost of living and performance-based raises that are highly likely to occur. This amount also does not include professional and management-level staff whose jobs are [indirectly] partially or fully sustained due to the need for compliance, planning, engineering, and surveying tasks to be completed in support of the FFLF/FFVE).



LCSWMA has paid annual wages and benefits to its 11 full-time employees at the FFLF during 2022; therefore, this benefit has been satisfied during the reporting year.

2.7 Wage Tax Payments

During the projected 10-year operating life of the proposed FFVE, based on the estimated aggregate wages paid to facility employees and assuming an average total federal, state and local wage tax burden of 20 percent, the employees of the facility will pay, through the life of the FFVE, roughly \$197,625 per year to total \$1,976,250 over the facility's 10- year life. The annual wages paid to LCSWMA employees will not decrease with the proposed FFVE project and, in fact, are projected to increase, due to adding personnel and standard yearly wages increases.

The above-described taxes will be apportioned to various government agencies and will ultimately result in substantial public benefits. Locally, assuming a 1 percent local wage tax, aggregate local wage taxes paid by employees of the facilities will be approximately \$9,880 per year to total \$98,800 over the expected 10-year operating life of the facility.

Assuming that employees at the proposed facility will pay a 3.1 percent state tax to the Commonwealth of Pennsylvania, aggregate wage taxes paid by employees of the facilities will be approximately \$30,630 per year to total \$306,300 over the expected 10-year operating life of the facility.

LCSWMA's 11 full-time employees at the FFLF were subject to wage taxes during 2022; therefore, this benefit has been satisfied during the reporting year.

2.8 Community Benefits

Free Residential Municipal Solid Waste Disposal

As documented in the *Amendment to April 2002 Agreement*, LCSWMA continues to provide for the collection of residential municipal solid waste from residences located on River Road/Route 441 from Washington Borough Park to Safe Harbor Park, Chestnut Grove Road, Oak Road, and Observation Site Road two (2) times per year. There are approximately 174 residences that receive this benefit and was performed on May 14, 2022 and October 8, 2022.

Free Yard Waste Disposal

LCSWMA offers free waste disposal to Manor Township residents for yard waste.

Free Waste Disposal for Cleanup Crews

LCSWMA also waives tipping fees for the disposal of litter picked up by cleanup crews.



Recycling Center

LCSWMA continues to provide a local public drop-off center for recyclables and composting for the convenience of local residents with the approval of the FFVE.

Community Tours/Educational Programs

LCSWMA continues sponsorship of community information and educational services such as: (i) environmental education through site tours; and (ii) on-site presentations for residents. Community educational outreach were conducted during 2022 and LCSWMA continues to offer a virtual web tour of the FFLF which is accessible for the public and community members to view at their convenience.



Attachment 1

References to the MUNICIPAL WASTE LANDFILL ANNUAL OPERATION REPORT

1. Reference Item B.1. *Form HW-C “Compliance History”*

See Attachment 2

2. Reference Item B.3. *Narrative Description of Progress in Implementing Closure Plan*

In 2022, capped areas were reduced due to removing cap in our active expansion cell. Revegetative efforts continued on all areas having intermediate cover as needed. The total area of final capping acreage is 40.6 acres.

3. Reference Item B.4. *Groundwater Monitoring Plan Evaluation*

The groundwater monitoring plan (GWMP) was approved by the Department in October 1990. Prior to and since that date, the appropriate GWMP locations have been sampled quarterly and the results have been reported to the Department in accordance with Department regulations.

As indicated in on-going quarterly submissions to the Department, no changes in groundwater elevations or other hydrogeologic conditions at the Frey Farm Landfill have occurred which would require any revisions to the GWMP. LCSWMA has and will continue to monitor, report, and evaluate hydrogeologic conditions in accordance with the approved GWMP.

4. Reference Item B.5. *Radioactivity Monitoring*

See Page 5 of the Annual Operation Report

5. Reference Item B.6. *Landfill Gas Generation, Recovery, and Beneficial Use Data*

See Page 6 of the Annual Operation Report

6. Reference Item B.7. *Landfill Benefits Monitoring*

See attached Narrative

7. Reference Items C.1. *Financial Assurance Bonding Information*

See Attachment 3

8. Reference Items C.2. *Financial Assurance Insurance Certificates*

See Attachment 4

9. Reference Items D. and E. *Topographic Maps and Drawings*

See Attachment 5

Attachment 2

FORM HW-C

COMPLIANCE HISTORY

including Attachments “A”, “B”, “C” and “D”



FORM HW-C COMPLIANCE HISTORY

Fully and accurately provide the following information, as specified. Attach additional sheets as necessary.

Type of Form HW-C Submittal (check all that apply):

☐ Original Filing ☒ Amended Filing Date of Last Filing 12/14/2022

Type of Permit or License Submittal:

☐ New Application ☐ Renewal ☒ Annual Update ☐ Other _____
(specify)

A. General Applicant Information:

1. NAME OF PERMIT OR LICENSE APPLICANT/PERMITTEE/LICENSEE ("applicant")
(non-corporations attach documentation of legal name):

Lancaster County Solid Waste Management Authority

ADDRESS: 1299 Harrisburg Pike

Lancaster, PA 17603

TELEPHONE NUMBER: (717) 397-9968

TAXPAYER ID#: 23-6006036

PERMIT, LICENSE OR APPLICATION ID#: 101389

2. Identify the form of management under which the applicant conducts its business (check appropriate box) and describe the type(s) of business activities performed:

<input type="checkbox"/> Individual	<input type="checkbox"/> Fictitious Name
<input type="checkbox"/> Municipality	<input type="checkbox"/> Partnership
<input type="checkbox"/> Proprietorship	<input type="checkbox"/> Limited Partnership
<input type="checkbox"/> Public Corporation	<input type="checkbox"/> Government Agency
<input type="checkbox"/> Private Corporation	<input type="checkbox"/> Joint Venture
<input type="checkbox"/> Syndicate	<input type="checkbox"/> Association
<input checked="" type="checkbox"/> Municipal Authority	<input type="checkbox"/> Other Type of Business _____ (specify)

3. Type of permit, license or application (check all that apply):

☐ Hazardous Waste Permit
☐ Hazardous Waste Transporter License
☒ Municipal Waste Permit
☐ Regulated Medical, Chemotherapeutic Waste Transporter License
☐ Residual Waste Permit
☐ Other _____
(specify)

FORM HW-C**B. General Information Regarding "Related Parties"**

1. **Applicants which are a corporation or a division of a corporation**, provide the following information:
 - a. The principal shareholders or stockholders who own, hold, or control stock of five percent (5%) or more of a publicly held corporation or ten percent (10%) or more of a privately held corporation.
 - b. State the names, principal places of business and taxpayer ID numbers of all domestic and foreign parent corporations (including ultimate parent corporations), and all domestic and foreign subsidiary corporations of the applicant, as well as the subsidiary corporations of the ultimate parent corporation. Include unincorporated divisions and private corporations. A diagram of corporate structure may be provided to illustrate corporate relationships.
 - c. List all principals of the corporation that have also been principals of other corporations which have committed any violation of the Environmental Protection Acts. (See Instructions, Items 2 and 6.)
2. Provide the names and addresses of all principals, corporate officers, general and limited partners, directors, other persons performing a function similar to a director, and other persons or related parties of the applicant (see Instructions, Items 4 and 5). The relationship to the applicant must be clearly described.
3. Provide the names and addresses, or IRS tax identification numbers¹ and affiliation of other persons or related parties having or exercising control over any aspect of the proposed facility or activity that is regulated by the Department, including but not limited to, associates, agents, contractors, subcontractors, and property owners.
4. Provide the names and addresses of all owners of record of surface and subsurface areas within and contiguous to the proposed permit area. (Not applicable to transporter license applicants.)
5. Provide the names and addresses of all holders of record to a leasehold interest of surface and subsurface areas within and contiguous to the proposed permit area.
6. If the applicant, or other related party to the applicant, has a beneficial interest in, or otherwise manages or controls any other person, municipality or other related party (as described in Sections A and B) engaged in the business of solid waste collection, transportation, storage, processing, treatment, or disposal, provide the following information:
 - a. The name, address and tax identification number or employer identification number of the corporation, other person, municipality, or other entity, in which the applicant or other related party has a beneficial interest, manages, or controls as described above.

NOT APPLICABLE
 - b. The nature of the relationship or participation with the corporation, other person, municipality, or other related party.

NOT APPLICABLE

¹ Failure to provide all applicable numbers may delay processing of the application.

FORM HW-C

C. Specific information Regarding the Applicant and Its Related Parties

1. List the name and location of all of the **applicant's** and **related party's places of business and terminals** where municipal, residual and/or hazardous waste activities are conducted. Such activities include, but are not limited to generation, processing, collection, transportation and storage, treatment or disposal of solid waste, except that locations that generate only municipal waste need not be listed.
 - a. Frey Farm Landfill, 3049 River Road, Conestoga, PA 17516
 - b. Frey Farm Landfill Treatment Plant, 3049 River Road, Conestoga, PA 17516
 - c. Lancaster County Resource Recovery Facility, 1911 River Road, Bainbridge, PA 17502
 - d. LCSWMA Transfer Station, 1299 Harrisburg Pike, Lancaster, PA 17604
 - e. Household Hazardous Waste Facility, 1299 Harrisburg Pike, Lancaster, PA 17604
 - f. Susquehanna Resource Management Complex, 1670 South 19th Street, Harrisburg, PA 17104
 - g. Susquehanna Resource Management Complex Ash Landfill, 1670 South 19th Street, Harrisburg, PA 17104
2. List all **permits or licenses issued** by the Department or any other state or federal agency under the Environmental Protection Acts to the applicant or any other persons or related parties identified in Sections A or B, that are currently in effect or have been in effect at any time in the ten years previous to the date on which this form is notarized. This list is to include the type of permit or license, permit or license number, location, address, issuance date and expiration date.

See Attachment "C"

3. List all **permit or license denials** issued by the Department or any other state or federal agency under the Environmental Protection Acts to the applicant or any other person or related party identified in Section A or B, within ten years previous to the date on which this form is notarized. Include the type of permit or license, permit or license number, location, denial date and reason for denial.

NONE

4. List all persons or related parties identified in Sections A or B which have filed for or been discharged from **bankruptcy** within 10 years previous to the date on which this form is notarized. Specify the circumstances of bankruptcy including those for which the debtor sought to abandon property or to be discharged from any environmental liability subject to the Environmental Protection Acts. Include the name of the bankruptcy court, docket number and description and location of any property involved.

NONE

D. Compliance Background:

(Note: Copies of specific documents must be made available to the Department upon its request)

FORM HW-C

Compliance History:

List all **"Enforcement Actions"** issued by the Department or any other state or federal or county agency to the applicant or those persons or related parties identified anywhere in response to Sections A, B or C using the following format grouped by state and location in chronological order.

Date	Location	Permit/ License/ EPA ID #	Issuing Agency	Type of Action	Nature of Violation	Disposition	Dollar Amount of Penalty
------	----------	---------------------------------	-------------------	----------------------	------------------------	-------------	--------------------------------

Enforcement actions include but are not limited to:

All **notices of violation (NOVs)**, issued by any regulatory agency to the applicant or those persons or related parties identified anywhere in Sections A, B or C concerning the Environmental Protection Acts, or any other environmental statute, regulation or ordinance.

All **administrative orders, civil penalties, permit or license suspensions/revocations, bond forfeiture actions, and civil penalty** actions adjudicated by any judicial body against the applicant or those persons or related parties identified anywhere in Sections A, B or C concerning the Environmental Protection Acts, or a regulation or order or a condition of a permit or license.

All **consent orders, consent adjudications, consent decrees or monetary settlements (settlement agreements, letter agreements, settlement letters or consent assessments)** between the applicant or those persons or related parties identified anywhere in Sections A, B or C and any state, federal or county agency regarding the Environmental Protection Acts, or any other environmental statute, regulations or ordinance.

All **court proceedings** in which those persons or related parties identified anywhere in Sections A, B or C have been involved in relation to the Environmental Protection Acts.

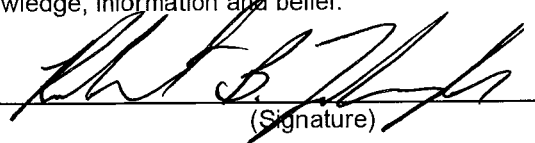
All **summary, misdemeanor, or felony convictions, or pleas of guilty or no contest** that have been obtained against the applicant or those persons or related parties identified anywhere in Sections A, B or C, pursuant to the Environmental Protection Acts, or for any acts involving the generation, storage, treatment, transportation, processing, or disposal of municipal, residual or hazardous waste.

For all persons and municipalities identified in Section A, B or C, indicate all violations committed and any subsequent enforcement actions taken regarding the facility or activity not previously listed in this section, concerning the Environmental Protection Acts.

State the reasons for suspension, revocation, or denial of any permit/permit application or license/license application filed by the applicant or any related party concerning the Environmental Protection Acts. Provide the date, location and nature of the violations, type of action, issuing agency, dollar amount of any monetary penalty associated with the action and permit, license, EPA ID# or other identifying number if applicable.

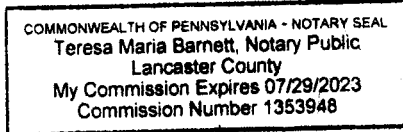
FORM HW-C

I hereby certify that I have the authority to respond to the above questions on behalf of the applicant, and that the information provided herein is true and correct to the best of my knowledge, information and belief.


(Signature)

Name: Robert B. Zorbaugh
(Print or Type Name)

Title: Chief Executive Officer
(Print or Type Title)



Sworn to and subscribed before me this

27th day of June,

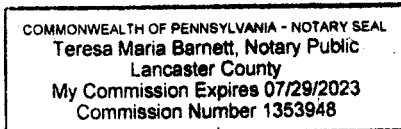
2023.


Notary Public


(Signature)

Name: Daniel A. Brown
(Print or Type Name)

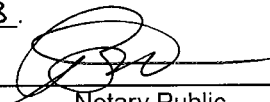
Title: Environmental Compliance Manager
(Print or Type Title)



Sworn to and subscribed before me this

27th day of June,

2023.


Notary Public

Attach copy
of Articles of Incorporation

(For Corporations, see the Instructions, Item 9, regarding signatures and submission of Articles of Incorporation.)

LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY
JANUARY 2023

BOARD OF DIRECTORS	ADDRESS	PHONE/FAX
George Rettew (Spouse: Jackie) Chair – Term Exp. 12/31/26 Year <i>Appointed: 2017</i> Email: grettew68@comcast.net	1078 Olde Forge Crossing Lancaster, PA 17601	Cell: 717-940-6252
John Blowers (Spouse: Lisa) Vice Chair– Term Expires 12/31/25 Year <i>Appointed: 2021</i> Email: jblowers1@gmail.com	102 Strasburg Pike Lancaster, PA 17602	Cell: 717-475-0921
J. Scott Ulrich (Spouse: Louise) Secretary - Term Exp. 12/31/22 <i>Year Appointed: 2011</i> Email: jscottulrich@gmail.com	1410 Picket Drive Lancaster, PA 17601	Cell: 717-575-6598
R. Edward Gordon (Spouse: Jean) Treasurer – Term Exp. 12/31/23 <i>Year Appointed: 2003</i> Email: yanskis@comcast.net	1016 Stonemanor Dr. Lancaster, PA 17603	Cell: 717-940-8395
Daniel J. Becker Member – Term Exp. 12/31/26 <i>Year Appointed: 2023</i> Email: db@beckereng.net	135 Brunners Grove Road Reinholds, PA 17569	Cell: 717-278-8432
Michael W. Brubaker (Spouse: Cindy) Member – Term Exp. 12/31/24 <i>Year Appointed: 2015</i> Email: mwbrubaker@gmail.com	40 South Broad Street Lititz, PA 17543	Work/Cell: 717-945-9139
Joseph R. Deerin Member – Term Exp. 12/31/24 <i>Year Appointed: 2012</i> Email: jdeerin@deerincompanies.com	1414 Valley Road Lancaster, PA 17603	Work: Cell: 717-735-5545 Cell: 717-314-2260 Home: 717-392-8237
Steve Dzurik (Spouse: Kristin) Member – Term Exp. 12/31/26 <i>Year Appointed: 2012</i> Email: steve_dzurik@ajg.com	484 Lancer Drive Columbia, PA 17512	Home: 717-285-3863 Work: Cell: 443-798-7476 Fax: 717-682-8227 443-798-7290
Karen M. Weibel Member – Term Exp. 12/31/23 <i>Year Appointed: 2009</i> Email: kweibel@ptd.net	202 North Cedar Street P.O. Box 112 Lititz, PA 17543	Home: 717-626-5028 Cell: 717-314-4628 Fax: 717-626-9142

LCSWMA Executive Team	1299 Harrisburg Pike Lancaster, PA 17603	Phone: 397-9968 Fax: 397-9973
Robert B. Zorbaugh (Spouse: Stacy) Chief Executive Officer Email: bzorbaugh@lcswma.org	1832 Fritz Lane Lancaster, PA 17602	Office: 717-735-0162 Cells: 717-666-8014 717-669-2526
Thomas F. Adams (Spouse: Brittainy) Chief Operating Officer Email: tadams@lcswma.org	1981 New Danville Pike Lancaster, PA 17603	Office: 717-735-0180 Cell: 717-327-9951
Daniel G. Youngs (Spouse: Crystal) Chief Financial Officer Email: dyoungs@lcswma.org	826 S. 14 th Avenue Lebanon, PA 17042	Office: 717-735-0164 Cell: 717-644-5099
Michelle Marsh Chief Business Development Officer Email: mmarsh@lcswma.org	157 W. Market Street Marietta, PA 17547	Office: 717-735-0178 Cell: 717-572-3188
Alex Henderson (Spouse: Molly) General Counsel Email: ahenderson@lcswma.org	2051 Rice Road Lancaster, PA 17603	Office: 717-735-0175 Cell: 717-475-9177

**Attachment “B”
Reference FORM HW-C Item B.4.**

**FREY FARM LANDFILL
CONTIGUOUS LANDOWNERS**

Aaron C. Frey
3106 River Road
Conestoga, PA 17516

Ann M. Kirchner
3100 River Road
Conestoga, PA 17516

Anthony L. Wenger
3126 River Road
Conestoga, PA 17516

Brian J. Sensenich
3076 River Road
Conestoga, PA 17516

Craig A. Frey
3232 Anchor Road
Washington Boro, PA 17582

John G. Miller
3052 River Road
Conestoga, PA 17516

Hans E. Weber
3088 River Road
Conestoga, PA 17516

Manor Township
950 West Fairway Drive
Lancaster, PA 17603

ATTACHMENT C

Reference Form HW-C; Section C.2

LCSWMA Permit List

LCSWMA Permits; DEP Client #4660

Lancaster County Waste Plan

Issued: 10/06/2014

Expires: 10/06/2034

Resource Recovery Facility:

1911 River Road, Bainbridge, PA 17502

DEP site ID #241770; facility ID #255039 (Covanta Client ID# 2839)

<u>Bureau</u>	<u>Number</u>	<u>Regarding</u>	<u>Start</u>	<u>End</u>
BLRWM	400592	Municipal Waste	01/07/2019	3/30/2029
BWQM	36-62776	AST/UST	Annual	
	3688402	Water Storage Ponds	2/22/1989	No Expiration
BSWC	3688802	Earth Disturbance	2/22/1989	No Expiration
BCEC	3688532	Drinking Water	11/5/1991	No Expiration
BAQC	36-05013	Title V	02/01/2022	1/31/2027
SRBC	20180908	Groundwater Usage	9/8/2018	9/30/2033

Notes: (1) The Facility holds EPA ID #0000103713

Susquehanna Resource Management Complex:

1670 S. 19th Street, Harrisburg, PA 17104

DEP site ID#450856; facility ID# 481371 (RRF)/ # 478223 (LF)

<u>Bureau</u>	<u>Number</u>	<u>Regarding</u>	<u>Start</u>	<u>End</u>
BLRWM	100758	Municipal Waste (SRMC)	11/28/2022	11/29/2032
BLRWM	100759	Municipal Waste (Ash Landfill A)	Closed	
BLRWM	100992	Municipal Waste (Ash Landfill B)	7/11/2018	6/1/2028
BWQM	403508	Stormwater NPDES – PAG-03	09/24/2016	03/23/2023
BAQC	22-05007	Title V	03/01/2023	02/29/2028
CRW	122022-9	Industrial User	12/21/22	12/20/2027
SRBC	20140906	Groundwater Usage	10/1/2014	9/30/2029

Transfer Station:

1299 Harrisburg Pike, Lancaster, PA 17603

DEP site ID #577359/556046; facility ID 596402

Notes: (1) HHW Facility holds EPA ID # PAD987284932

<u>Bureau</u>	<u>Number</u>	<u>Regarding</u>	<u>Start</u>	<u>End</u>
BLRWM	100009	Municipal Waste	12/10/2013	4/12/2024
BWQM	PAR403505	Stormwater NPDES – PAG-03	9/24/2016	3/23/2023
	36-17038	AST/UST	Annual	

ATTACHMENT C
Reference Form HW-C; Section C.2
LCSWMA Permit List

Frey Farm Landfill:

3049 River Road, Conestoga, PA 17516

DEP site ID #450744; facility ID #477357; client ID #4703/#4660

<u>Bureau</u>	<u>Number</u>	<u>Regarding</u>	<u>Start</u>	<u>End</u>
BLRWM	101389	Municipal Waste	09/29/2020	5/26/2031
BWQM	PAR503501	Stormwater NPDES – PAG-03	9/24/16	3/23/2023
BAQC	36-05081	Title V (BAQC facility id #522092)	1/1/2022	12/31/2026
LASA	377	Leachate Discharge	3/27/2021	3/26/2026
SRBC	20220907	Groundwater Usage	09/15/2022	12/5/2031
PA Dept. of Ag	RP00010K	Dead Animal Disposal License	01/01/2023	12/31/2023
BAQ	GP3-36-0581 & GP-9-36-05081	Portable Nonmetallic Mineral Processing Plant and Diesel or No. 2 Fuel-Fired IC Engine	2/28/2019	2/29/2024
BAQ	GP3-36-0581B & GP-9-36-05081B	Portable Nonmetallic Mineral Processing Plant and Diesel or No. 2 Fuel-Fired IC Engine	5/14/2021	5/31/2026

Creswell Landfill:

3049 River Road, Conestoga, PA 17516

DEP site ID #248683

<u>Bureau</u>	<u>Number</u>	<u>Regarding</u>	<u>Start</u>	<u>End</u>
BLRWM	100008	Municipal Waste	Closed	
BWQM	PA0043486	CWLTP NPDES	2/1/2022	01/31/2027
BAQC	36-05081	Title V	1/1/2022	12/31/2026
SRBC	GP-01-20220901	General Permit GP-01 Groundwater Remediation Projects	09/15/2022	12/31/2050

INASHCO Metals Recovery Facility:

<u>Bureau</u>	<u>Number</u>	<u>Regarding</u>	<u>Start</u>	<u>End</u>
BWQM		Stormwater NPDES – PAG-03 Non-Exposure Certification	12/01/2022	11/30/2027

Frey Farm Liquid Treatment Plant:

DEP site ID #497686

<u>Bureau</u>	<u>Number</u>	<u>Regarding</u>	<u>Start</u>	<u>End</u>
BLRWM	301317	Residual Waste (Expired)	6/10/1998	6/9/2008
LASA	377	Leachate Discharge	3/27/2021	3/26/2026

ATTACHMENT C
Reference Form HW-C; Item C.2.
LCSWMA Permit List

Miscellaneous LCSWMA Permit Information:

- 1) LCSWMA Federal I.D.# (tax #): 23-6006036
- 2) LCSWMA Dunn and Bradstreet #: 06-709-5828
- 3) LCSWMA Unique Entity Identifier (UEI): MY4MWC6GTLL9
- 4) SIC; 4953 Refuse Systems (solid waste landfills, combustors)
- 5) NAICS;
 - a) 562212 (Waste Treatment and Disposal; Solid Waste Landfills); LF
 - b) 562998 (All Other Miscellaneous Waste Management Services); TS
 - c) 562213 (Waste Treatment and Disposal; Solid Waste Combustors); RRF
- 6) Other DEP-recognized sites owned by LCSWMA include:
 - a) CFI; site ID #577301
 - b) Lancaster Malleable LF; site ID #248940
- 7) Other miscellaneous permit information:
 - a) SRMC Covanta Stormwater NPDES Permit #PAS503501
 - b) Spotted Lanternfly Permit PA-20190508569 Permit Issued 5/20/19
 - c) Waste Tire Transporter Authorization License; Issued 1/4/2023; Expires 1/31/2024
 - d) US DOT Number 468748

ATTACHMENT “D” Reference FORM HW-C Item D.

DATE	LOCATION	PERMIT/ LICENSE/ EPA ID#	ISSUING AGENCY	TYPE OF ACTION	NATURE OF VIOLATION	DISPOSITION	DOLLAR AMOUNT OF PENALTY
4/20/12	Resource Recovery Facility	400592	PaDEP/BAQC	CACP	Emission Limits Violations; 2nd Qtr 2010	Comply/Closed	\$400
1/6/2012	Transfer Station	100009	Comm. of PA	Non-traffic citation	Non-traffic citation, Axle was grease soaked thus reducing brake efficiency	Civil Penalty Paid	\$142.00
5/10/12	Transfer Station	100009	Comm. of PA	Non-traffic citation	Non-traffic citation, Brake alignment	Civil Penalty Paid	\$392.00
6/1/12	Resource Recovery Facility	400592	PaDEP/ BWSM	NOV	Public Water Supply Permit, Total Coliform Exceedence	Corrected/Abated	N/A
7/13/12	Transfer Station	100009	PaDEP/BWM	NOV	Failure to disclose prior violations	Comply/Closed	N/A
2/20/14	Susquehanna Resource Management Complex	100758	PaDEP/BWM	Non-Compliance	Surface water discharge	Comply/Closed	N/A
2/20/14	Susquehanna Resource Management Complex	100758	PaDEP/BWM	Non-Compliance	Ash handling violation	Comply/Closed	N/A
3/18/14	Susquehanna Resource Management Complex Ash Landfill	100992	PaDEP/BWM	NOV	Leachate overflow	Comply/Closed	N/A
5/4/14	Susquehanna Resource Management Complex Ash Landfill	100992	PaDEP/BWM	NOV	Leachate overflow	Comply/Closed	N/A
01/28/16	Susquehanna Resource Management Complex	100758	PaDEP/BAQC	CACP	Emission Limits Violations; 1 st Qtr 2014 – 1 st Qtr 2015	Civil Penalty Paid	\$5,400
12/30/19	Susquehanna Resource Management Complex	100758	PA DEP / BAQC	TBD	Emission Limits Violations: 2 nd Qtr 2015 – 1 st Qtr 2017	Civil Penalty Paid	\$42,129.65
04/05/18	Resource Recovery Facility	400592	PA DEP / BAQC	CACP	3rd Qtr 2010 – 1 st Qtr 2017 Emission Exceedences	Civil Penalty Paid	\$42,196.23

ATTACHMENT “D” Reference FORM HW-C Item D.

DATE	LOCATION	PERMIT/ LICENSE/ EPA ID#	ISSUING AGENCY	TYPE OF ACTION	NATURE OF VIOLATION	DISPOSITION	DOLLAR AMOUNT OF PENALTY
05/01/19	Creswell Landfill	PA0043486	PA DEP/ BCW	NOV	Discharge Limits Exceeded	Comply/Closed	N/A
01/13/2020	Frey Farm Landfill	377	LASA	NOV	Discharge Limit Exceeded	Comply/Closed	N/A
06/23/2021	Resource Recovery Facility	400592	PA DEP / BAQC	CACP	2 nd Qtr 2017 – 1 st Qtr 2019 Emission Exceedences	Civil Penalty Paid	\$8,700
11/12/2021	Resource Recovery Facility	400592	PA DEP / BAQC	CACP	2 nd Qtr 2019 – 4 th Qtr 2020	Civil Penalty Paid	\$2,050
11/16/2021	Resource Recovery Facility	PWS# 7360978	PA DEP / BSDW	NOV	Failure to Monitor – DRR – Week of 8/29/2021-9/4/2021	Comply/Closed	N/A
02/18/2022	Susquehanna Resource Management Complex	100758	PA DEP / BAQC	CACP	2 nd Qtr 2017 – 1 st Qtr 2019 Emission Exceedences	Civil Penalty Paid	\$35,097
05/31/2022	Susquehanna Resource Management Complex	100758	PA DEP / BAQC	CACP	2 nd Qtr 2019 – 1 st Qtr 2020 Emission Exceedences	Civil Penalty Paid	\$13,924

Attachment 3

BONDING INFORMATION

2022 Annual Operations Report

LCSWMA Frey Farm Landfill – Bonding Information

Currently, the LCSWMA Frey Farm Landfill has an approved Closure/Post-Closure Bond in the amount \$9,447,860. In accordance with Department requirements, an annual review of the line items and supporting information was completed for calendar year 2022. In summary:

Frey Farm Landfill Bond Comparison		
	2021	2022
Decontaminating the Facility	\$ 11,766	\$ 12,170
Capping/closure	\$4,002,158	\$ 8,207,601
Groundwater Monitoring	\$ 632,019	\$ 1,345,587
Surface Water Monitoring	\$ 45,519	\$ 82,246
Private Water Supply Monitoring	\$ 330,634	\$ 545,910
Gas Monitoring	\$ 84,221	\$ 31,160
Gas Collection/Maintenance	\$ 573,641	\$ 1,482,605
Other Monitoring	\$ 192,063	\$ 241,449
Leachate Management	\$ 2,011,308	\$ 502,534
Borrow Area Closure	\$ 26,499	\$ 15,431
Maintenance Costs	\$ 1,098,642	\$ 843,035
Admin; inflator, contingency	\$ 1,995,599	\$ 3,260,883
Total	\$11,004,068	\$16,570,612

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet A - Decontaminating the Facility Supporting Calculations & Assumptions

Date Prepared:

5/3/2023

A-1	Maximum volume of waste to be moved or disposed as part of closure (tons)	\$	400	tons
A-2	Estimated volume of contaminated soils or materials <i>It is assumed that there are no contaminated soils or materials on site from prior accidents, spills or prior remediation.</i>	\$	-	
A-3	Total volume of waste (A1 + A2)	\$	400	tons
A-4	Unit cost to dispose off-site <i>400 tons / 50 tons/hr = 8 hr</i> <i>\$150.00/hr (per each operator/equip.) x 2 operator/equip. = \$2400.00</i> <i>\$2400.00 / 400 tons = \$6.00/ton</i> <i>\$6.00/ton + \$6.25/ton (PADEP Disposal Fees) = \$12.25/ton</i>	\$	12.25	/ton
A-5	Total cost to dispose of waste (A3 x A4)	\$	4,900.00	
A-6	Est. volume of contaminated liquid generated during decontamination (Gallons)		50,000	gal
A-7	Unit cost to treat/dispose of contaminated liquids, including transportation	\$	0.019	
A-8	Total cost to dispose of contaminated liquids (A6 x A7))	\$	950.38	
A-9	Estimated volume of fill material		500	cy
A-10	Unit cost of acquiring, transporting, placing and stabilizing (i.e. revegetating) fill material (include costs for off-site purchase if soil not available on-site)	\$	5.64	/cy
	Excavation - RS Means 312316420305, Lancaster PA, 2023 Quarter 1, plus 15% for loading trucks. Total O&P.	\$	1.70	/cy
	Hauling - RS Means 312323203014, Lancaster PA, 2023 Quarter 1. Total O&P.	\$	2.97	/cy
	Grading - RS Means 312216103310, Lancaster PA, 2023 Quarter 1. Total O&P.	\$	0.35	/cy
	RS Means 329219130100, Lancaster PA, 2023 Quarter 1. Total O&P. Assumes 1 yard thickness	\$	0.62	/cy
A-11	Total cost to fill (A9 x A10)	\$	2,820	
Equipment Decontamination Costs				
A-12	Equipment decontamination cost (A6b)	\$	3,500	LS
	RS Means 050110516220, Lancaster PA, 2023 Quarter 1. Metal Steam Cleaning. Assumes 5 days and 2,000 square feet. Total O&P.	\$	0.35	
Bonding Worksheet A - Decontaminating the Facility		\$	12,170	

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet B - Cap and Final Cover Placement Supporting Calculations & Assumptions

Date Prepared: 1/27/2023

B-1	Volume of fill required for area not at final/intermediate grade, but would require filling prior to capping.	2,000 cy
B-2	Maximum area to be capped and covered (this should include all areas at final grade and not capped, intermediate grades and areas to be filled to get to intermediate grades then capped).	58.71 acres
B-3	Closure design, surveying and development of construction drawings (use \$750.00*acre of B2).	\$ 44,033
a	Construction and maintenance of access roads (Lump sum) <i>Access roads are constructed and maintained as needed throughout the operating life of the facility. In an event of premature closure no additional roads will be required or constructed. Refer to Worksheet K for maintenance costs.</i>	\$ 30,000 LS
Material Volumes/Areas		
B-4	Earthen Materials	
a	Structural Fill <i>Structural fill thickness.</i>	0 cy N/A ft
b	Intermediate Cover ($B2 \times 50\% \times 43,560 \times \text{Thickness}/27$) <i>Assume that 6" of existing intermediate cover will have to be stripped from the vegetated areas (i.e. uncapped areas) and stockpiled and then replaced with 6" of clean intermediate cover soils. Also assume that only 50% of the area will need stripping.</i>	23,680 cy 0.50 ft
c	Clay Cap Material ($B2 \times 43,560 \times \text{Thickness}/27$) <i>Clay Cap Material Thickness</i>	0 cy ft
d	Final Cover Soil ($B2 \times 43,560 \times \text{Thickness}/27$) <i>Final Cover Soil Thickness</i>	189,438 cy 2 ft
e	Sand/Stone ($B2 \times 43,560 \times \text{Thickness}/27$) - not needed due to using geosynthetics <i>Max. Part. Size 1/4"</i> <i>Sand/Stone Thickness</i>	0 cy ft
f	Other (Top Soil) ($B2 \times 43,560 \times \text{Thickness}/27$) <i>Top Soil Thickness</i>	0 cy 0.00 ft
B-5	Synthetic Materials	
a	Geotextile (sq. ft.) = acres in (B2) x 43,560 ft ² /acre x 1.05 <i>Allows 5% extra material; for 3D "need" vs. 2D "survey"</i>	2,685,278 ft ²
b	FML (sq. ft.) = acres in (B2) x 43,560 ft ² /acre x 1.05 <i>Allows 5% extra material; for 3D "need" vs. 2D "survey"</i>	2,685,278 ft ²
c	Drainage Layer (sq. ft.) = acres in (B2) x 43,560 ft ² /acre x 1.05 <i>Allows 5% extra material; for 3D "need" vs. 2D "survey"</i>	2,685,278 ft ²
d	Other (sq. ft.) = acres in (B2) x 43,560 ft ² /acre	0 ft ²
B-6	Cap Penetrations: Estimate the number of cap penetrations that will need to be installed for closure of the facility including, but not limited to gas extraction wells, cleanouts, valve pits, etc. <i>Assume one per acre for areas to be capped (typical well density).</i>	59

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet B - Cap and Final Cover Placement Supporting Calculations & Assumptions

Date Prepared: 1/27/2023

Material Unit Costs	
B-7	Unit cost to place or regrade material to reach final grades (this may include additional waste placement to reach grade)
	4.79 /cy
	Excavation - RS Means 312316420305, Lancaster PA, 2023 Quarter 1, plus 15% for loading trucks. Total O&P.
	\$ 1.70 /cy
	Hauling - RS Means 312323203014, Lancaster PA, 2023 Quarter 1. Total O&P.
	\$ 2.97 /cy
	Grading - RS Means 312216103310, Landcaster PA, 2023 Quarter 1. Assumes 1-ft thickness. Total O&P.
	\$ 0.12 /cy
B-8	Earthen Materials
a	Structural Fill - Unit Cost to place
	\$ - /cy
b	Intermediate Cover - Unit Cost to place
	\$ 4.79 /cy
	Excavation - RS Means 312316420305, Lancaster PA, 2023 Quarter 1, plus 15% for loading trucks. Total O&P.
	\$ 1.70 /cy
	Hauling - RS Means 312323200014, Lancaster PA, 2023 Quarter 1. Total O&P.
	\$ 2.97 /cy
	Grading - RS Means 312216103310, Lancaster PA, 2023 Quarter 1. Adjusted for 1-foot thickness. Total O&P.
	\$ 0.12 /cy
c	Clay Cap Material - Unit Cost to place
	\$ - cy
d	Final Cover Soil - Unit Cost to place
	\$ 4.90 /cy
	Excavation - RS Means 312316420305, Lancaster PA, 2023 Quarter 1, plus 15% for loading trucks. Total O&P.
	\$ 1.70 /cy
	Hauling - RS Means 312323200014, Lancaster PA, 2023 Quarter 1. Total O&P.
	\$ 2.97 /cy
	Grading - RS Means 312216103310, Landcaster PA, 2023 Quarter 1. Adjusted for 2-foot thickness. Total O&P.
	\$ 0.23 /cy
e	Sand/Stone - Unit Cost to place
	\$ - cy
f	Other (Top Soil)
	\$ - cy
B-9	Synthetic Materials
a	Geotextile - Unit cost to place
	0.410 ft ²
	Based on multiple, similar facility construction pricing in PA & 2020 FFLF project inflated to 2023
b	FML - Unit cost to place
	0.900 ft ²
	Based on multiple, similar facility construction pricing in PA & 2020 FFLF project inflated to 2023
c	Drainage Layer - Unit cost to place
	0.983 ft ²
	Based on multiple, similar facility construction pricing in PA & 2020 FFLF project inflated to 2023
d	Other - Unit cost to place
	\$ - ft ²
B-10	Cap Penetration Unit Cost to fabricate and install each cap penetration
	\$ 350.00 /each
	Based on multiple, similar facility construction pricing in PA
B-11	Unit cost to construct Erosion & Sedimentation Structures (i.e. channels, letdowns, etc.)
	\$ 7,500 /acre
	Based on multiple, similar facility construction pricing in PA
B-12	Revegetation Cost - Unit cost to revegetate
	\$ 1,239 /acre
	Seeding rate used:
	- lbs/acre

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet B - Cap and Final Cover Placement Supporting Calculations & Assumptions

Date Prepared: 1/27/2023

<i>Lime rate used:</i>	-	tons/acre
<i>Fertilizer rate used:</i>	-	tons/acre
<i>Mulch rate used:</i>	-	tons/acre
<i>RS Means 329219130020, Lancaster PA, 2023 Quarter 1. Total O&P.</i>	1,238.6	
B-13 Cost Summary		
a Fill required to bring area to final/intermediate grade (B1 x B7)	\$	9,573
b Construction Drawings (B3)	\$	44,033
c Construction Roads (B3a)	\$	30,000
d Structural Fill (B4a x B8a)	\$	-
e Intermediate Cover (B4b x B8b)	\$	113,347
f Smoothing Layer Material (B4c x B8c)	\$	-
g Final Cover (B4d x B8d)	\$	928,876
h Sand/Stone (B4e x B8e)	\$	-
i Other (B4f x B8f)	\$	-
j Geotextile (B5a x B9a)	\$	1,100,964
k FML (B5b x B9b)	\$	2,416,750
l Drainage Layer (B5c x B9c)	\$	2,639,628
m Other (B5d x B9d)	\$	-
n Penetrations (B6 x B10)	\$	20,549
o E & S Structures (B2 x B11)	\$	440,325
p Revegetation (B2 x B12)	\$	72,719
Subtotal	\$	7,816,763
CQA costs (use 5% of subtotal)	\$	390,838
Bonding Worksheet B - Cap and Final Cover Placement	\$	8,207,601

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet C - Groundwater Monitoring System Supporting Calculations & Assumptions

Date Prepared:

C-1	Number of wells in the approved monitoring plan	19
a	Shallowest well depth	28 ft
b	Deepest well depth	299 ft
c	Average well depth	106.4 ft
d	Number with dedicated pumps	19
C-2	Unit cost to upgrade an existing well with a dedicated pump <i>RS Means 331113101510, Lancaster PA, 2023 Quarter 1. Total O&P.</i>	\$ 1,386.21 /well
C-3	Unit cost to install a well (assume average well depth, and include drilling, installation, developing and pump installation) <i>Public water supply wells, wells domestic water, drilled, 4" to 6" diameter (2023 RSMeans 331113100100, Total O&P).</i>	\$ 7,591.09 /well
	<i>Well casing, 2023 RSMeans, Lancaster PA, 331113108254, Total O&P.</i>	\$ 35.50 /ft
	<i>Cost to develop well, 2023 RSMeans 331113108500, Lancaster PA, Total O&P. Assumes 2 hours (\$822.73/hr)</i>	\$ 20.38 /ft
		\$ 1,645.46 /well
C-4	Number of wells to be installed (wells in the approved plan that haven't been installed)	0
C-5	Number of wells to be replaced over the life of the monitoring period (use 10% of line 1 and round up)	2
C-6	Number of pumps to be replaced/repared (use 25% of line 1 over the monitoring period)	5
C-7	Unit cost to purge and sample a well (assume average well depth, and include methane monitoring, record keeping and shipping) <i>Per Laboratory Rates for 2022. Inflated to 2023 dollars using 7%.</i>	\$ 173.89 /well
C-8	Unit cost to analyze sample(s)	
a	Quarterly (25 PA Code 273.284, 277.284 or 288.254) <i>Per Laboratory Rates for 2022. Inflated to 2023 dollars using 7%.</i>	\$ 337.05 /well
b	Annually (25 PA Code 273.284, 277.284, or 288.254) <i>Per Laboratory Rates for 2022. Inflated to 2023 dollars using 7%.</i>	\$ 385.20 /well
C-9	Unit cost to analyze data (includes review of lab QA/QC data, database input, form completion, statistical analysis and data review). <i>Per 2022 rates. Inflated to 2023 dollars using 7%.</i>	\$ 39.24 /well
C-10	Cost to purge, sample and analyze - quarterly <i>C7 + C8a + C9</i>	\$ 550.18 /well
C-11	Cost to purge, sample and analyze - annually <i>C7 + C8b + C9</i>	\$ 598.33 /well
C-12	Number of years of sampling (30 + time to close)	31 years
C-13	Cost Summary - Groundwater Monitoring System	
a	System upgrade <i>(C1 -C1d) x C2</i>	\$ -

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet C - Groundwater Monitoring System Supporting Calculations & Assumptions

Date Prepared:

b	Wells to be installed C3 x C4	\$ -
c	Wells to be replaced C3 x C5	\$ 14,423
d	Pumps to be replaced C2 x C6	\$ 6,584
e	Cost of quarterly monitoring C1 x 3 x C10 x C12	\$ 972,165
f	Cost of annual monitoring C1 x C11 x C12	\$ 352,415
Subtotal		\$ 1,345,587
Adjustment for resampling, assessments, etc.		
a	Use 0% of subtotal if no assessment in last 2 years. Enter 1 for yes, and 0 for no below:	0 \$ -
b	Use 5% of subtotal if assessment in last 2 years. Enter 1 for yes, and 0 for no below:	0 \$ -
c	Use 10 % if currently in assessment, abatement or increase monitoring (MW-15A Increased Monitoring) Enter 1 for yes, and 0 for no below:	0 \$ -
Bonding Worksheet C - Groundwater Monitoring System		\$ 1,345,587

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet D - Surface Water Monitoring System Supporting Calculations & Assumptions

Date Prepared:

Solid Waste Surface Water Sampling

D-1	Number of surface points monitored for Solid Waste Permit	0
D-2	Unit cost to sample a surface point (recordkeeping and shipping) <i>Estimated at 2/3 cost to purge/sample</i>	\$ 115.93 /point
D-3	Unit cost to analyze sample(s)	
a	Quarterly (25 PA Code 273.284 or 288.254) <i>Per Laboratory Rates for 2022. Inflated to 2023 dollars using 7%.</i>	\$ 337.05 /point
b	Annually (25 PA Code 273.284 or 288.254) <i>Per Laboratory Rates for 2022. Inflated to 2023 dollars using 7%.</i>	\$ 385.20 /point
D-4	Unit cost to analyze data (includes review of lab QA/QC data, database input, form completion, and data review)	\$ 57.96 /point
D-5	Cost to sample and analyze - quarterly (D2+D3a+D4)	\$ 511 /point
D-6	Cost to sample and analyze - annually (D2+D3b+D4) Included in D-5	\$ 559 /point
D-7	Number of years of sampling (30 + time to close)	31 years

NPDES Surface Discharge Sampling

D-8	Number of NPDES outfalls monitored	2
D-9	Monitoring frequency (i.e. monthly, quarterly, etc.)	2 /year
D-10	Number of samples to be taken per point/year	2
D-11	Unit cost to sample a surface point (record keeping & shipping)	\$ 115.93 /point
D-12	Unit cost to analyze sample(s) (including data review and completing DMR)	\$ 487 /point
D-13	Number of years of sampling (30 + time to close)	31 /years
D-14	Cost Summary - Surface Water Monitoring	
a	Cost of Quarterly Surface Water Monitoring $D1 \times 4 \times D5 \times D7$	\$ -
b	Cost of Annual Surface Water Monitoring $D1 \times D6 \times D7$ Included in D-14a	\$ -
c	Cost of NPDES Monitoring $D8 \times D10 \times (D11 \times D12) \times D13$	\$ 74,769
d	NPDES renewals over post-closure period (includes application development, fees, etc.) Use 10% of D14c.	\$ 7,477
	Subtotal	\$ 82,246

Adjustment for resampling, assessments, etc.

BONDING CALCULATIONS**LCSWMA: FFLF-2022 AOR****Bonding Worksheet D - Surface Water Monitoring System
Supporting Calculations & Assumptions****Date Prepared:**

a	Use 0% of subtotal if no assessment in last 2 years. <i>Enter 1 for yes, and 0 for no below:</i>		
		0	\$ -
b	Use 5% of subtotal if assessment in last 2 years. <i>Enter 1 for yes, and 0 for no below:</i>		
		0	\$ -
c	Use 10 % if currently in assessment, abatement or increase monitoring (MW-15A Increased Monitoring) <i>Enter 1 for yes, and 0 for no below:</i>		
		0	\$ -
Bonding Worksheet D - Surface Water Monitoring System			\$ 82,246

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet E - Private Water Supply Monitoring Supporting Calculations & Assumptions

Date Prepared:

Date Prepared:		
E-1	Number of private water supplies monitored.	10
E-2	Unit cost to sample a well (include methane monitoring, record keeping and shipping)	\$ 80.25 /well
	<i>Labor Costs (includes travel and sampling for all supplies under E1 above)</i>	\$ 552.50
	<i>Vehicle and equipment costs</i>	\$ 250.00
E-3	Unit cost to analyze sample(s) quarterly (Act 101 Section 1103)	\$ 285.00 /well
E-4	Unit cost to analyze data (includes review of lab QA/QC data, database input, form completion, and data review)	\$ 75.00 /well
	Labor Rate for data review	\$ 150.00
	Hours per for review of each form	0.5
E-5	Total cost for quarterly sampling (E2 +E3+E4)	\$ 440.25 /well
E-6	Number of years of sampling (30 + time to close)	31 /years
E-7	Cost Summary - Private Water Supply Monitoring	
a	Cost of quarterly monitoring	\$ 545,910
	<i>(E5 x 4 x E6) x E1</i>	
Bonding Worksheet E - Private Water Supply Monitoring		\$ 545,910

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet F - Gas Monitoring System Supporting Calculations & Assumptions

Date Prepared:

F-1	Number of probes in the approved monitoring plan.	8
a	Shallowest probe depth	14 ft.
b	Deepest probe depth	41 ft.
c	Average probe depth	18.875 ft.
d	Number of probes installed	8
F-2	Unit cost to install a probe (including drilling and installation)	\$ 4,500.00 /probe
F-3	Number of probes to be installed (probes in the approved plan that haven't been installed)	0
F-4	Number of probes to be replaced over the life of the monitoring period (use 5% of F1 and round up)	1
F-5	Unit cost to monitor a probe (include record keeping)	\$ 26.88 /probe
	Hourly rate for employee performing monitoring	\$ 65.00
	Number of locations that can be checked per hour	8
	Hourly rate for employee reviewing monitoring result	\$ 150.00
	Number of results that can be reviewed per hour	8
F-6	Number of probe and structure monitoring events per year	4 /year
F-7	Number of years of monitoring (30 + time to close)	31 /years
F-8	Cost Summary - Gas Monitoring System	
a	System Completion	\$ -
	F3 x F2	
b	Probe replacement	\$ 4,500
	F2 x F4	
c	Probe monitoring	\$ 26,660
	F1 x F5 x F6 x F7	
	Subtotal	\$ 31,160
	Adjustment for resampling, assessments, etc.	
a	Use 0% of subtotal if no assessment in last 2 years. Enter 1 for yes, and 0 for no below:	0 \$ -
b	Use 5% of subtotal if assessment in last 2 years. Enter 1 for yes, and 0 for no below:	0 \$ -
c	Use 10 % if currently in assessment, abatement or increase monitoring (MW-15A Increased Monitoring) Enter 1 for yes, and 0 for no below:	0 \$ -
	Bonding Worksheet F - Gas Monitoring System	\$ 31,160

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet G - Gas Collection System Supporting Calculations & Assumptions

Date Prepared:

G-1	Number of wells in the approved monitoring plan	~	46
a	Shallowest well depth		32 ft
b	Deepest Well		239.8 ft
c	Average well depth		122.2 ft
d	Number of wells installed		0
e	Number of pumping wells		0
G-2	Cost for flare or other control device installation <i>All necessary flares are installed.</i>	\$	-
G-3	Unit cost to install a well (including drilling, installation and connection to active system) Well Installation Cost <i>(Based on 2023 onsite proposal from engaged FFLF Contractor)</i>	\$	7,083 /well
G-4	Unit cost to install a gas well requiring liquid removal (including drilling, installation and connection to active system)	\$	- /well
G-5	Number of wells to be installed (wells in the approved plan that haven't been installed)		28
G-6	Number of gas wells requiring liquid removal to be installed		0
G-7	Estimate the length of collection piping to be installed		3,467 ft
G-8	Unit cost to install collection piping (include excavation, pipe bedding, pipe, backfilling, regrading, revegetating, surveying, and QA/QC)	\$	17.54 /ft
	<i>Piping - RS Means 221113780086, Lancaster PA, 2023 Quarter 1. Total O&P</i>	\$	7.25 /cy
	<i>Trenching - RS Means 312316130050, Lancaster PA, 2023 Quarter 1. Total O&P</i>	\$	10.29 /cy
G-9	Number of wells to be replaced/repared over the life of the monitoring period (use 10% of G-1 and round up)		5
G-10	Unit cost to monitor well and balance system monthly (include monitoring of methane, oxygen, carbon dioxide or nitrogen, temperature, pressure, and NSPS record keeping)	\$	56.71 /well
	<i>Monitoring Time</i>		8 min/well
	<i>8 minutes/well x number of wells in G-1</i>		6 hrs/event
	<i>NSPS Follow-up Monitoring</i>		24 hr/month
	<i>NSPS Recordkeeping</i>		10 hr/month
	<i>Total Monthly Gas Monitoring Time</i>		40 hr/month
	<i>Gas Technician Rate</i>	\$	65.00 /hr
		\$	2,608.67 /month
G-11	Unit cost to conduct surface monitoring (NSPS)	\$	4,680.00 /event
	<i>Initial SEM Event</i>		48 hrs/event
	<i>Perimeter and Building</i>		12 hrs/quarter
	<i>Follow-up Monitoring</i>		12 hrs/quarter
	<i>Total Monitoring Time</i>		72
	<i>Technician Rate</i>	\$	65.00 /hr
G-12	Control System Information		N/A
a	Number and size of blowers		

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet G - Gas Collection System Supporting Calculations & Assumptions

Date Prepared:

b	Flare Dimensions	
c	Current flow rate	
d	Other features	
G-13	Cost of electricity to run system	\$ - /year
G-14	Cost to maintain system (including daily check, weekly charts, maintenance, etc.)	\$ - /year
G-15	Cost of annual blower maintenance (including greasing, bearing check and alignment)	\$ - /year
G-16	Cost of stack testing (once per five years)	\$ - /event
G-17	Estimate the volume of condensate generated per year	gallons
G-18	Cost of condensate management (including pumping, testing and treatment/disposal) <i>See Line 17 above.</i>	\$ - /year
G-19	Number of years to run system (30 + time to close)	31 /years
G-20	Cost Summary - Gas Collection System	
System Installation		
a	Additional well installation (G5 x G3)	\$ 198,333
b	Additional pumping well installation (G4 x G6)	\$ -
c	Cost of collection piping (G7 x G8)	\$ 60,811
d	Well replacement (G3 x G9)	\$ 35,417
e	Enclosed ground flare system (G2)	\$ -
System Installation Subtotal		\$ 294,561
f	Cost of monitoring/balancing (G1 x 12 x G10 x G19)	\$ 970,424
g	Cost of surface monitoring (G11 x 1.5 x G19)	\$ 217,620
h	Electric Cost (G13 x G19)	\$ -
i	System maintenance cost (G14 x G19)	\$ -
j	Blower maintenance cost (G15 x G19)	\$ -
k	Stack testing cost (G16 x (G19/5))	\$ -
l	Condensate management cost (G18 x G19)	\$ -
System monitoring and maintenance subtotal		\$ 1,188,044
Adjustment for miscellaneous maintenance items (including knockout pot maintenance, thermocouple replacement, flame detector replacement, flame arrestor maintenance, flare maintenance, enrichment/startup gas replacement, pneumatic valve maintenance, sump maintenance, panel board maintenance, etc.)		
Enter age of flare system		
a.	Use 0% of subtotal if system < 2 yrs old	
b.	Use 5% of subtotal if system > 2 yrs old, but < 5 yrs old	
C.	Use 10% of subtotal if system > 5 yrs old	0%
Miscellaneous maintenance subtotal		\$ -

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

**Bonding Worksheet G - Gas Collection System
Supporting Calculations & Assumptions**

Date Prepared:

Bonding Worksheet G - Gas Collection System	\$ 1,482,605

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet H - Other Monitoring and Reporting Supporting Calculations & Assumptions

Date Prepared:

Please list the annual costs to maintain the following permits/registrations that apply.
Additional space is provided for items applicable to your facility, but not listed.

H-1	Title V or other air permit (include the annual permit fee, cost to complete emission inventory and emission fees)	\$	-	/year
H-2	NSPS Annual Report preparation cost	\$	-	/year
H-3	Local permit or Host Agreement requirements <i>Assumes 1 year only; then ash fill "closed"</i>	\$	2,080	/year
H-4	UST/AST registration	\$	-	/year
H-5	Other - Annual Report-BLRWM <i>Assumes 1 year only; then ash fill "closed"</i>	\$	4,935	/year
H-6	Other - AIMS Report	\$	2,655	/year
H-7	Other - Semi-annual Compliance Certification	\$	1,400	/year
H-8	Other - Quarterly LASA Report	\$	3,284	/year
H-9	Other - SRBC <i>Assumes 1 year only; then ash fill "closed"</i>	\$	2,260	/year
	Other - Act 220 <i>Assumes 1 year only; then ash fill "closed"</i>	\$	675	/year
	Other - eGGRT <i>Assumes 1 year only; then ash fill "closed"</i>	\$	3,990	/year
Subtotal		\$	21,279	
H-10	Number of years of monitoring/maintenance (30 + time to close)		31	years
Bonding Worksheet H - Other Monitoring and Reporting		\$	241,449	

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet I - Leachate Management Supporting Calculations & Assumptions

Date Prepared:

5/26/2023

I-1 Number of years of leachate management (30 years + closure period) 31 years

I-2 Annual leachate volume generated 1,677,901 gal/year

According to Form 25, Attachment 25-1 Section 3.1.2- Predicted Leachate Flows details the worst case scenario for the maximum amount area to be capped in the event of premature closure, which is used in Worksheet B. However, the worst case leachate generation rate according to Form 25, Attachment 25-1 occurs during the fifth year of operation (12,669,468 gallons/year).

gal/day

or

In an event of premature closure during Incremental Closure Conditions (worst case scenario), it is assumed that the leachate generation rate during closure year will remain equal to the HELP Model Estimate. It is also assumed that the leachate generation rate for the 30-year post-closure period will decline an order of magnitude every five years.

12,669,468 gal/year

The leachate decline rate is calculated as follows:

Closure Year	12,669,468 gal/year
Year 1	10,769,048 gal/year
Year 2	8,868,628 gal/year
Year 3	6,968,207 gal/year
Year 4	5,067,787 gal/year
Year 5	3,167,367 gal/year
Year 6	1,266,947 gal/year
Year 7	1,038,896 gal/year
Year 8	810,846 gal/year
Year 9	582,796 gal/year
Year 10	354,745 gal/year
Year 11	126,695 gal/year
Year 12	103,890 gal/year
Year 13	81,085 gal/year
Year 14	58,280 gal/year
Year 15	35,475 gal/year
Year 16	12,669 gal/year
Year 17	10,389 gal/year
Year 18	8,108 gal/year
Year 19	5,828 gal/year
Year 20	3,547 gal/year
Year 21	1,267 gal/year
Year 22	1,039 gal/year
Year 23	811 gal/year
Year 24	583 gal/year
Year 25	355 gal/year
Year 26	127 gal/year
Year 27	38 gal/year
Year 28	0 gal/year
Year 29	0 gal/year
Year 30	0 gal/year

I-3 Annual cost to manage leachate volume (include pump and pipe maintenance, electricity and monitoring) \$ 2,700.00

Discharge to POTW

I-4 Unit cost to discharge to a POTW \$ 0.0064 /gal

On-site Treatment (including pretreatment)

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet I - Leachate Management Supporting Calculations & Assumptions

Date Prepared:

5/26/2023

I-5	Unit cost for treatment of leachate (include equipment maintenance, electricity, personnel, chemicals, sludge disposal, etc.)		/gal
I-6	Annual cost to maintain NPDES permit (include sampling, analysis, report preparation, and factor in five year renewal application preparation and fees)	\$ -	/year
Interim Trucking of Leachate			
I-7	Unit cost to transport and dispose of leachate <i>Not applicable.</i>	\$ -	/gal
I-8	NPDES Permit (cost to prepare application, fees and sampling/analysis)	\$ -	/year
I-9	Cost to construct on-site treatment or pretreatment system or connection to POTW	\$ -	
I-10	Unit cost for treatment of leachate (include equipment, maintenance, electricity, personnel, chemicals, etc.)	\$ -	/gal
I-11	Annual cost to maintain NPDES permit (include sampling, analysis, report preparation, and factor in five year renewal application preparation and fees)	\$ -	
I-12	Cost Summary		
a.	Cost to manage/convey leachate (I1 x I3)	\$ 83,700	
	<i>If discharge to POTW</i>		
b	Discharge to POTW cost (I1 x I2 x I4)	\$ 335,079	
	<i>If have on-site treatment</i>		
c	Treatment cost (I1 x I2 x I5)	\$ -	
d	NPDES maintenance cost (I1 x I6)	\$ -	
	<i>If you currently truck leachate</i>		
e	Cost of trucking leachate for three years (I2 x 3 x I7)	\$ -	
f	NPDES permit (I8)	\$ -	
g	Cost to construct onsite treatment system or connection to POTW (I9)	\$ -	
h	Treatment cost ((I1 -3) x I2 x I10)	\$ -	
i	NPDES maintenance cost ((I1 -3) x I11)	\$ -	
	<i>If you currently store leachate in impoundments</i>		
j	Size of pond(s)	0.0	acres
k	Volume of material to be removed (including liner system and minimum of 12" of soil)	0	cy
l	Unit cost to dispose of materials	\$ -	\$/cy
m	Cost to dispose of materials (I12k x I12l)	\$ -	
	<i>The material will be disposed within the landfill prior to closure, no off-site disposal required.</i>		

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet I - Leachate Management Supporting Calculations & Assumptions

Date Prepared:

5/26/2023

n	Volume of structural backfill	0 cy
o	Cost for backfill (I12n x Worksheet B, B8a)	\$ -
p	Revegetation cost (I12j x Worksheet B, B12)	\$ -
	Subtotal	\$ 418,779
	Adjustment for maintenance, equipment replacement and contingencies, etc. Please note that these are cumulative and you must add all of the percentages that apply to arrive at the final adjustment percentage. The minimum is 10%.	
a	Add 10% of subtotal if pumps are used to convey leachate.	\$ 41,878
b	Add 5% of subtotal if flow volume to POTW is restricted.	
c	Add 10% of subtotal if leachate is stored in ponds.	
d	Add 10% of subtotal if onsite treatment.	
e	Add 15% if trucking leachate.	
f	Add 10% if current leachate generation exceeds 5MG/year.	\$ 41,878
	Final Adjustment Factor	20%
g	Adjustment (subtotal x factor)	\$ 83,756
	Bonding Worksheet I - Leachate Management	\$ 502,534

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet J - Borrow Area Closure Supporting Calculations & Assumptions

Date Prepared:

How do I start? Select a likely "worst case" scenario where you would have a maximum amount of the borrow area open and in need of closure. Provide a description of the scenario with references to site development stages.

0

J-1	Size of borrow area	5 acres
	<i>Soil Borrow Project Closed in 2012, Form 37 Approval Received</i>	
J-2	Volume of material required for regrading	8,067 cy
J-3	Unit cost to regrade (provide equipment and rates)	\$ 0.35 /cy
	<i>Grading - RS Means 312216103310, Landcaster PA, 2023 Quarter 1. Assumes 1 yard thickness. Total O&P.</i>	\$ 0.35
J-4	Earthen Materials	
a	Structural Fill	0 cy
b	Unit cost to place (including cost of material, excavation, transportation, processing, and placement)	cy
c	Topsoil	cy
d	Unit cost to place (including cost of material, excavation, transportation, processing, and placement)	\$ - cy
J-5	Revegetation Cost (Unit cost to revegetate) - From B12	\$ 1,239 /acre
	<i>Seeding rate used:</i>	lbs/acre
	<i>Lime rate used:</i>	tons/acre
	<i>Fertilizer rate used:</i>	tons/acre
	<i>Mulch rate used:</i>	tons/acre
J-6	E & S Controls	\$ 1,136 /acre
J-7	Bond Maintenance Cost (required if off-site borrow area)	\$ - LS
J-8	Other costs (provide detail)	\$ -
J-9	Cost Summary	
a	Fill/Regrading (J2 x J3)	\$ 2,823
b	Structural Fill (J4a x J4b)	\$ -
c	Topsoil (J4c x J4d)	\$ -
d	Revegetation (J1 x J5)	\$ 6,193
e	E & S Controls (J1 x J6)	\$ 5,680
f	Bond Maintenance (J7)	\$ -
g	Other (J8)	\$ -
	Subtotal	\$ 14,697
	CQA/Project Management Costs (Use 5% of subtotal)	\$ 735
	Bonding Worksheet J - Borrow Area Closure	\$ 15,431

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet K - Facility Maintenance Costs Supporting Calculations & Assumptions

Date Prepared:

K-1	Size of facility	175 acres
K-2	Size of waste placement footprint	58.71 acres
K-3	Size of borrow areas on site	5 acres
K-4	Size of leachate ponds on site Refer to Worksheet I, Item 12]	0.0 acres
K-5	Size of sedimentation ponds on site	3.9 acres
K-6	Length of stormwater conveyance ditches	8,500 LF
K-7	Number of years of site management (30 years+ closure period)	31 years
K-8	Annual Cost to repair cap and final cover	
a	Acres (use 1% of K2)	0.5871 acres
b	Unit cost to repair final cover <i>Based on Worksheet B, B13g, assume that only 90% of final cover soil will be reused: (B13g/B2)x10%</i>	\$ 1,582 /acre
c	Unit cost to repair cap <i>Unit cost from Worksheet B Unit Cost = (Lines B9b + Line B9c) * 43,560 sf/acre Assume that 90% of geosynthetics will be reused.</i>	\$ 8,202 /acre
d	Unit cost to repair vegetation <i>Unit Cost from Worksheet B Line B12</i>	\$ 1,239 /acre
e	Total Unit Cost (K8b + K8c + K8d)	\$ 11,023 /acre
K-9	Annual Cost to repair and maintain E & S facilities	
a	Length of stormwater conveyance ditches (use 3% of K6)	255 ft
b	Sedimentation pond repair volume (use 20% of K5)	0.78 acres
c	Unit cost to repair channels Excavation - RS Means 312316420305, Lancaster PA, 2023 Quarter 1, plus 15% for loading trucks. Total O&P. Hauling - RS Means 312323200014, Lancaster PA, 2023 Quarter 1. Total O&P.	\$ 5.17 /LF \$ 1.70 \$ 3.47
d	Unit cost to repair ponds <i>Assumes 6-inches of regrading and revegetation cost per worksheet B</i>	\$ 3,780 /acre
e	Total annual cost (K9a x K9c) + (K9b x K9d)	\$ 4,266 /year
K-10	Annual Cost to repair and maintain leachate ponds	
a	N/A	0.00 acre
b	N/A	\$ - /acre
K-11	Annual cost to repair and maintain leachate tanks Number and size of tanks (enter the total tank capacity in gallons)	
a	(2 tanks, 1 MG capacity each).	2,000,000
b	Annual unit cost to maintain tanks	\$ 0.0005 LS

BONDING CALCULATIONS

LCSWMA: FFLF-2022 AOR

Bonding Worksheet K - Facility Maintenance Costs Supporting Calculations & Assumptions

Date Prepared:

K-12 Annual cost to repair fences and gates (attach details)		\$	3,000.00	LS
<i>Lump Sum Estimate</i>				
K-13 Annual cost to maintain site roads				
a	Length of site roads		10,500	LF
b	Annual length of site roads to be repaired (2% of K13a)		210	ft
c	Unit cost to repair roads	\$	42.43	/LF
<i>Base Course. RS Means 321123230050, Lancaster PA, Quarter 1 2023. Total O&P. Assumes 1' thick and 22' wide.</i>		\$	4.07	/LF
<i>Asphalt. RS Means 321126130570, Lancaster PA, Quarter 1 2023. Total O&P. Assumes 10" thick and 22' wide.</i>		\$	38.36	
K-14 Cost Summary - Facility Maintenance				
a	Cost to repair cap/cover (K7 x K8a x K8e)	\$	200,621.53	
b	Cost to repair E & S facilities (K7 x K9e)	\$	132,259.82	
c	Cost to maintain leachate ponds (K7 x K10a x K10b)	\$	-	
d	Cost to maintain leachate tanks (K7 x K11a x K11b)	\$	31,000.00	
e	Cost to repair fences and gates (K7 x K12)	\$	93,000.00	
f	Cost to maintain site roads (K7 x K13b x K13c)	\$	276,192.78	
Subtotal		\$	733,074.12	
1. Please refer to the instructions. This should reflect unit costs to bring in a contractor to complete the work and should include mobilization, equipment cost, operator costs, material costs and clean-up and inspection costs. Costs not incurred annually should be determined and divided among the years between events. The costs should also include replacements of pumps and meters, electricity used (pumps, heat tracing, etc.) valve replacement and sludge disposal.				
2. This should include access to all maintenance and monitoring areas including but not limited to the disposal area, ponds, leachate conveyance system, tanks, discharge locations, gas extraction, system wells, gas probes, groundwater monitoring system and surface water monitoring points.				
Adjustment for maintenance, equipment replacement and contingencies, etc. Please note that these are cumulative and you must add all of the percentages that apply to arrive at the final adjustment percentage. The minimum adjustment is 10%.				
a	Add 5% of subtotal if final slopes or benches have been modified from what is specified in 25 PA Code 273.234(f) <i>Are final slopes or benches greater than that specified? Enter 1 for yes and 0 for no below.</i>		0%	
		0		
b	Add 5% of subtotal if more than 30% of stormwater channels are unlined <i>Are more than 30% of stormwater channels unlined? Enter 1 for yes and 0 for no.</i>		0%	
		0		
c	Add 5% of subtotal if the length of site access roads exceeds 5 miles <i>Is the length of site access roads greater than 5 miles? Enter 1 for yes and 0 for no.</i>		0%	
		0		
d	Add 10% for mowing		0%	
Final Adjustment Factor			15%	
e	Adjustment (subtotal x adjustment factor)	\$	109,961.12	
Bonding Worksheet K - Facility Maintenance Costs		\$	843,035.24	

BONDING CALCULATIONS**LCSWMA: FFLF-2022 AOR****Bonding Worksheet L - Summary Cost Worksheet
Supporting Calculations & Assumptions****Date Prepared:**

Cost Summary - Landfills		
L-1	Decontaminating the facility	\$ 12,170
L-2	Capping/Closure	\$ 8,207,601
L-3	Groundwater Monitoring System	\$ 1,345,587
L-4	Surface Water Monitoring	\$ 82,246
L-5	Private Water Supply Monitoring	\$ 545,910
L-6	Gas Monitoring	\$ 31,160
L-7	Gas Collection and Maintenance	\$ 1,482,605
L-8	Other Monitoring	\$ 241,449
L-9	Leachate Management	\$ 502,534
L-10	Borrow Area Closure	\$ 15,431
L-11	Facility Maintenance Costs	\$ 843,035
L-12	Other Costs	
L-13	Other Costs	
Subtotal		\$ 13,309,728
Inflation		
L-14	Inflation rate (projected inflation for the next three years based on the inflation for the prior three years). <i>Based on CPI Inflation Calculator for 2018-2021</i>	7.00%
L-15	Inflation cost for facility (subtotal x L14)	\$ 931,681
Contingency and administrative fees		
L-16	Administrative fees (5%) (subtotal x 0.05)	\$ 665,486
L-17	Project Management (5%) (subtotal x 0.05)	\$ 665,486
L-18	Contingency fee amount (subtotal x rate of contingency fee from Table 1 <i>Contingency fee percentage from Table 1</i>)	\$ 998,230
Bonding Worksheet L - Summary Cost Worksheet		\$ 16,570,612

Attachment 4

CERTIFICATES OF INSURANCE



CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY)
03/21/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Aon Risk Services Central, Inc. Chicago IL Office 200 East Randolph Chicago IL 60601 USA	CONTACT NAME:	
	PHONE (A/C. No. Ext): (866) 283-7122	FAX (A/C. No.): (800) 363-0105
	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	NAIC #
INSURED Lancaster County Solid Waste Management Authority 1299 Harrisburg Ave. Lancaster PA 176032515 USA	INSURER A: Zurich American Ins Co	16535
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

Holder Identifier :

COVERAGES**CERTIFICATE NUMBER:** 570098403422**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

Limits shown are as requested

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:			GLO437324515	04/01/2023	04/01/2024	EACH OCCURRENCE \$2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$500,000 MED EXP (Any one person) \$10,000 PERSONAL & ADV INJURY \$2,000,000 GENERAL AGGREGATE \$4,000,000 PRODUCTS - COMP/OP AGG \$4,000,000
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS ONLY			BAP 4373246-15	04/01/2023	04/01/2024	COMBINED SINGLE LIMIT (Ea accident) \$2,000,000 BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)
	UMBRELLA LIAB <input type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input type="checkbox"/> RETENTION						EACH OCCURRENCE AGGREGATE
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	N/A	WC437324415	04/01/2023	04/01/2024	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE-EA EMPLOYEE \$1,000,000 E.L. DISEASE-POLICY LIMIT \$1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: Creswell Landfill Permit #100008, Manor Township, Lancaster County, PA, Frey Farm Landfill Permit #101389, Manor Township, Lancaster County, PA, Transfer Station Permit #10009, Manheim Township, Lancaster County, PA, Resource Recovery Facility, Permit #400592, Conoy Township, Lancaster County, PA, Frey Farm Landfill Treatment Plant, Permit #301317, Manor Township, Lancaster County, PA, SRMC City of Harrisburg Permit #100758, SRMC Ash Landfill A City of Harrisburg Permit #100759, SRMC Ash Landfill B City of Harrisburg/Dauphin County Permit #100992. Certificate Holder is included as Additional Insured in accordance with the policy provisions of the general liability policy.

CERTIFICATE HOLDER**CANCELLATION**

PA Dept of Environmental Protection Bureau of Waste Management PO Box 8471, 14th Floor Rachel Carson State Office Building Harrisburg PA 17105-8471 USA	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE <i>Aon Risk Services Central, Inc.</i>

Certificate No : 570098403422

Attachment 5

TOPOGRAPHIC MAPS AND DRAWINGS

1. ***Topographic Map Update***

Enclosed are Drawings titled: "2021 Topographic Survey" and "2022 Topographic Survey", which displays the topography of the landfill at the beginning and end of calendar year 2021 and 2022.

2. ***Isopach Drawing***

Enclosed is Drawing titled: "Isopach", which indicates the cut or fill to reach final permitted elevation of the landfill on a 50' grid.

3. ***Cross Sections***

Enclosed is Drawing titled: "Cross Sections" (four sheets), which show top of protective cover, grades at the beginning and end of the report period, and permitted final cover grades at 50 foot intervals across areas of the landfill that were active during calendar year 2022.

NOTES:

1. EXISTING TOPOGRAPHY HAS BEEN CREATED FROM A DRONE AERIAL SURVEY PROVIDED BY DAVID MILLER/ASSOCIATES, INC., FLIGHT DATED: 01/08/2022 SUPPLEMENTED WITH AS-BUILT SURVEY OF THE POST CONSTRUCTION CONDITIONS OF VERTICAL EXPANSION, STAGE 2 CONSTRUCTION AREAS PROVIDED BY BREHM-LEBO ENGINEERING, INC. DATED: 08/22/2022.
2. THIS SHEET WAS ORIGINALLY PRODUCED AS A COLOR DRAWING. NON-COLOR REPRODUCTIONS DO NOT SUFFICIENTLY DIFFERENTIATE AMONG FEATURES DEPICTED ON THIS DRAWING.

LEGEND

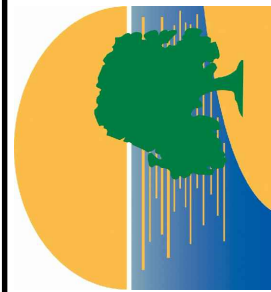
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- EXISTING PROPERTY BOUNDARY
- - - EXISTING LANDFILL CELL BOUNDARY
- EXISTING BUILDING / STRUCTURE
- OE OE EXISTING OVERHEAD ELECTRIC
- EXISTING PPL TOWER
- EXISTING PPL EASEMENT
- EXISTING ANCHOR TRENCH
- 12 LANDFILL CROSS-SECTION



This drawing, its contents, and each component of this drawing are the property of and proprietary to ARM Group LLC and shall not be reproduced or used in any manner except for the purpose identified on the Title Block, and only by or on behalf of this client for the identified project unless otherwise authorized by the express, written consent of ARM Group LLC.

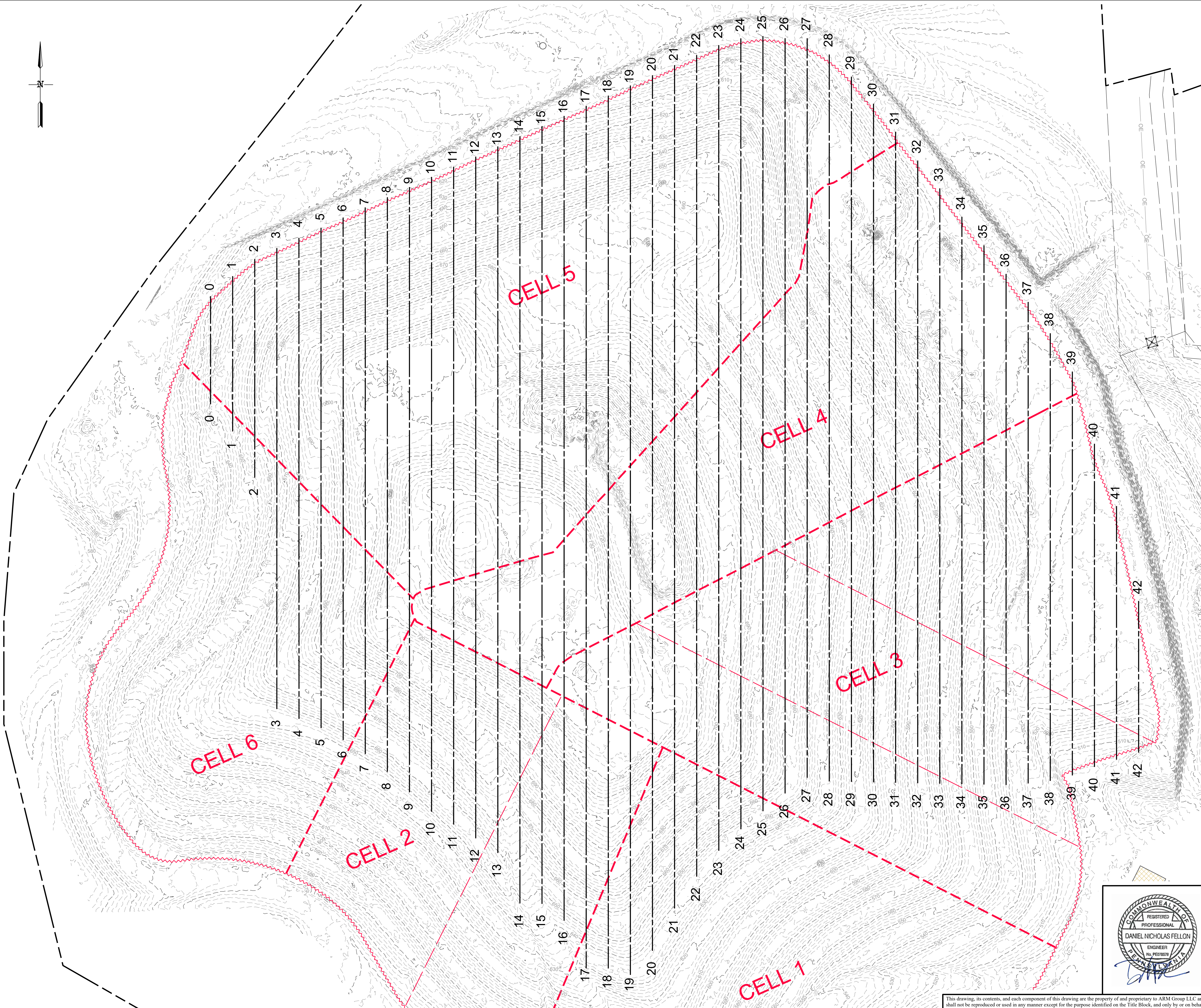


Sheet 1	2021 TOPOGRAPHIC SURVEY			
	2022 ANNUAL OPERATIONS REPORT			
	MANOR TOWNSHIP LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY LANCASTER COUNTY, PENNSYLVANIA			
Designed by	ARM	1" = 100'	 SCALE IN FEET	
Checked by	DNF	Date		
Drawn by	BAA	Project No.		
Graphic Scale	0	100	200	300
No.				
Date				
Revision				

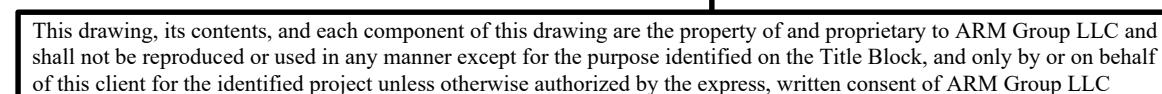
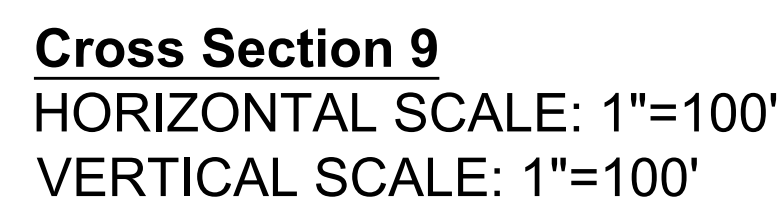
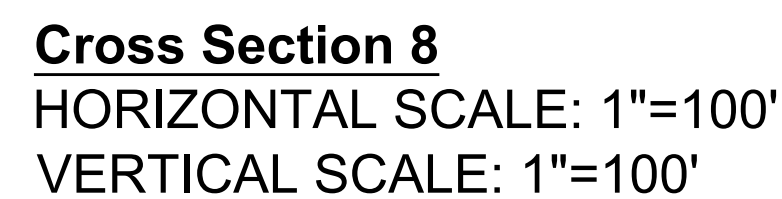
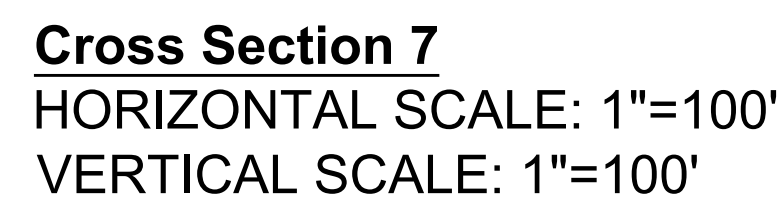
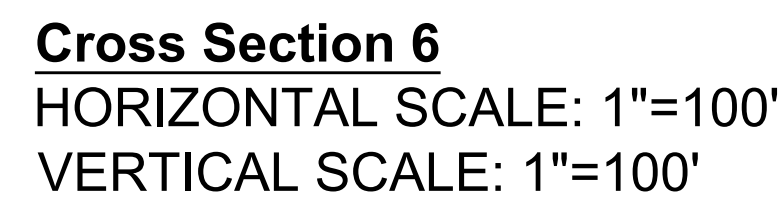
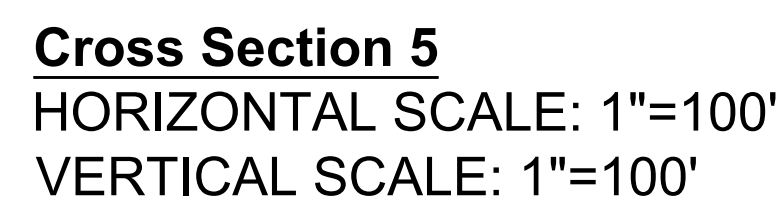
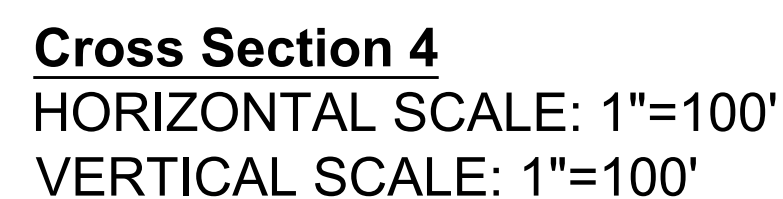
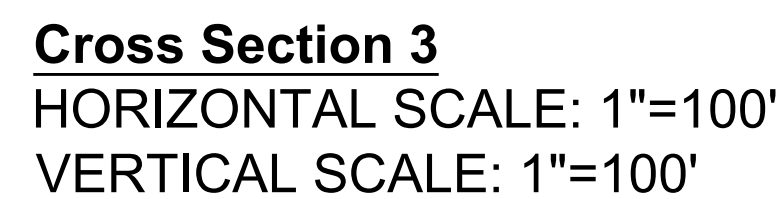
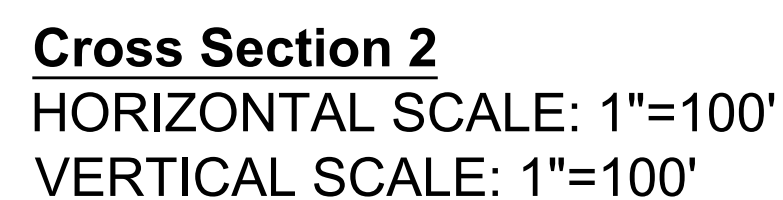
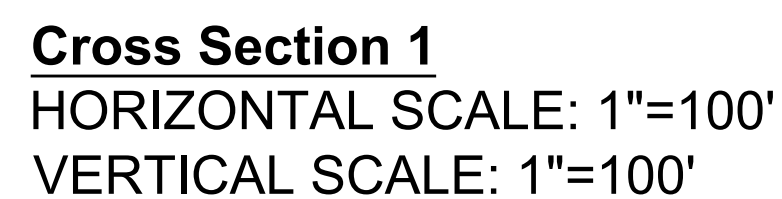
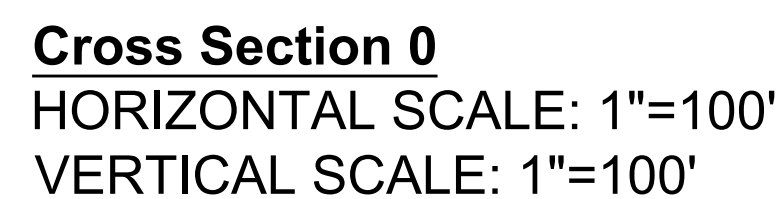


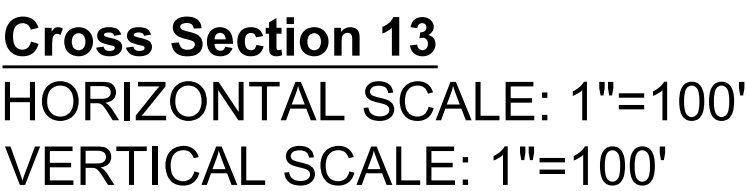
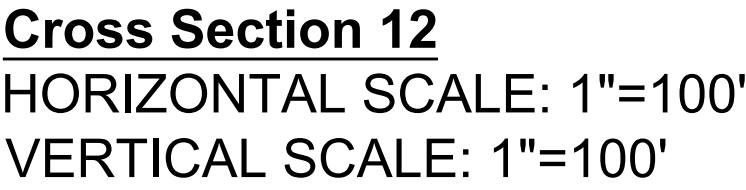
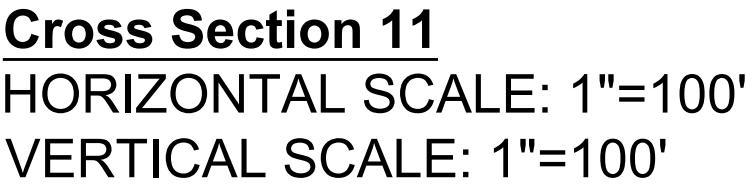
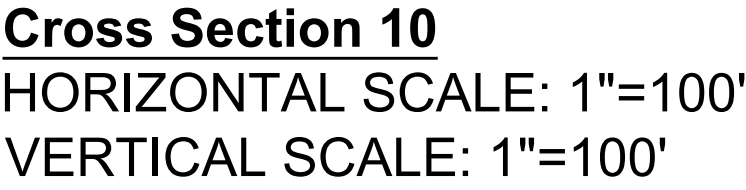
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2. THIS SHEET WAS ORIGINALLY PRODUCED AS A COLOR DRAWING. NON-COLOR REPRODUCTIONS DO NOT SUFFICIENTLY DIFFERENTIATE AMONG FEATURES DEPICTED ON THIS DRAWING.

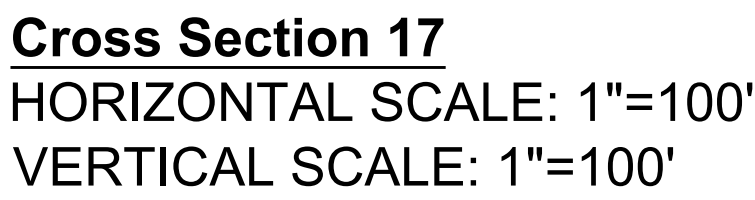
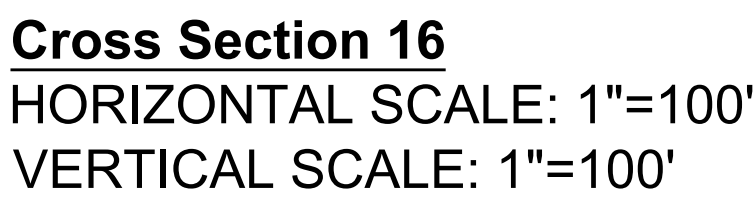
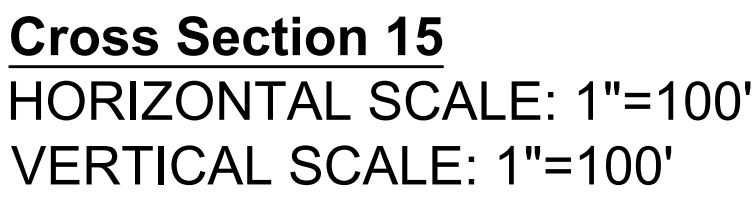
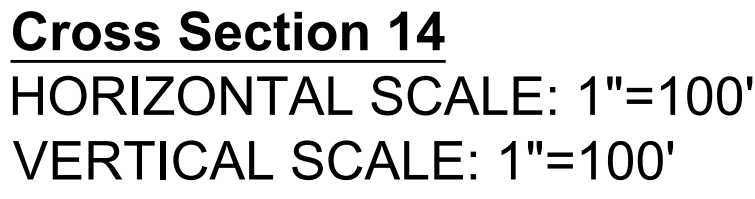
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	EXISTING PROPERTY BOUNDARY
	EXISTING LANDFILL CELL BOUNDARY
	EXISTING BUILDING / STRUCTURE
	EXISTING OVERHEAD ELECTRIC
	EXISTING PPL TOWER
	EXISTING PPL EASEMENT
	EXISTING ANCHOR TRENCH
	LANDFILL CROSS-SECTION

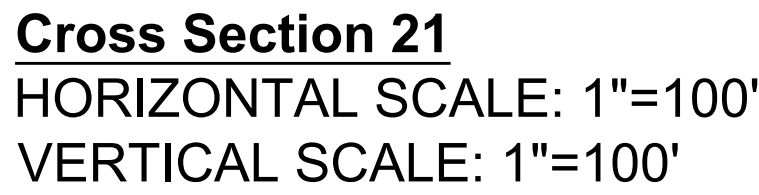
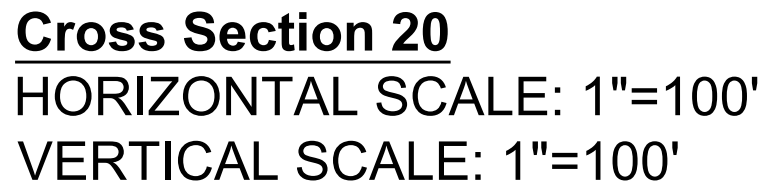
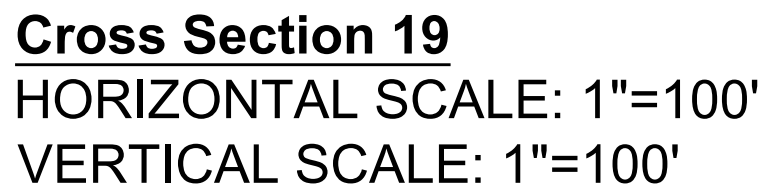
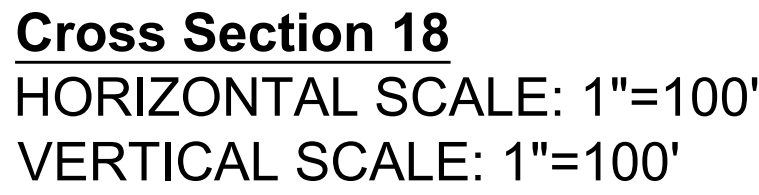


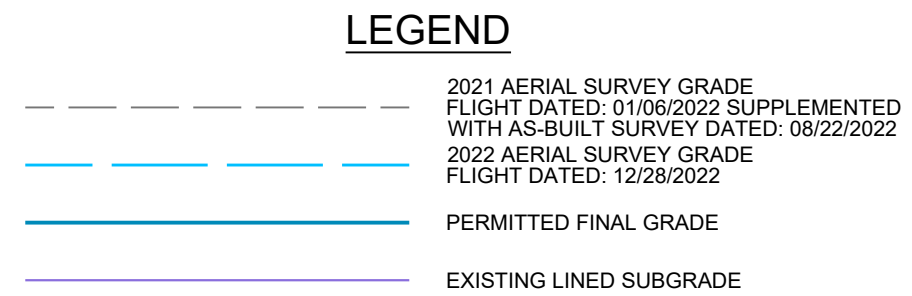
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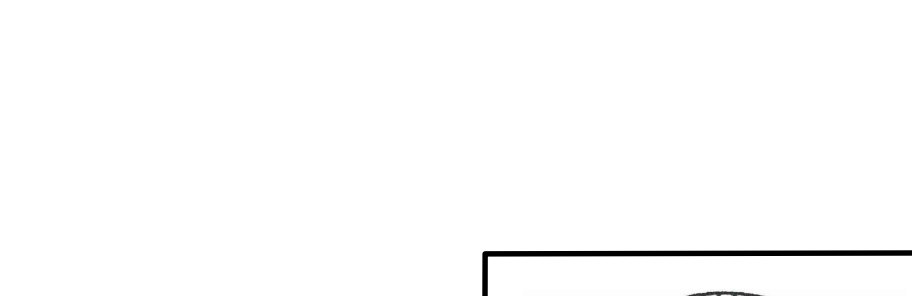




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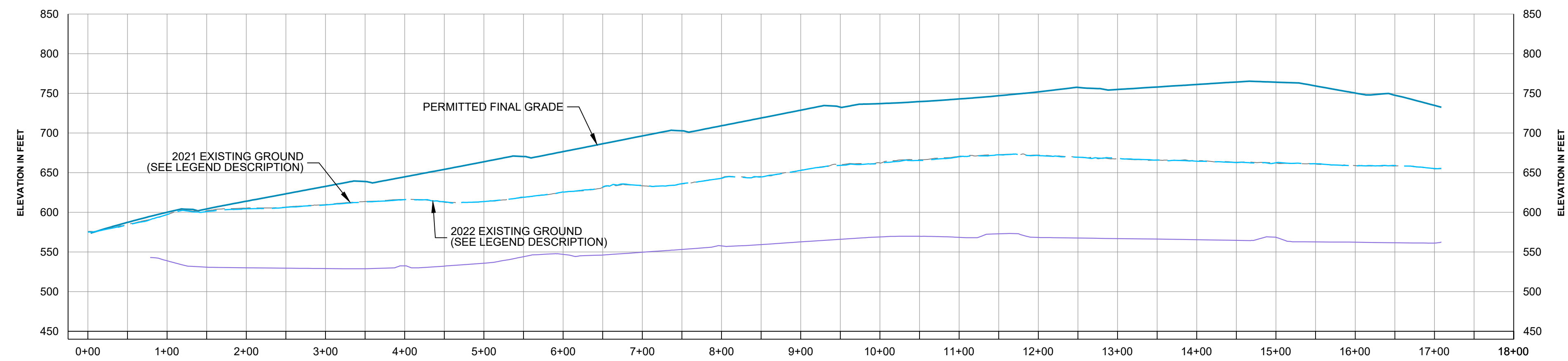
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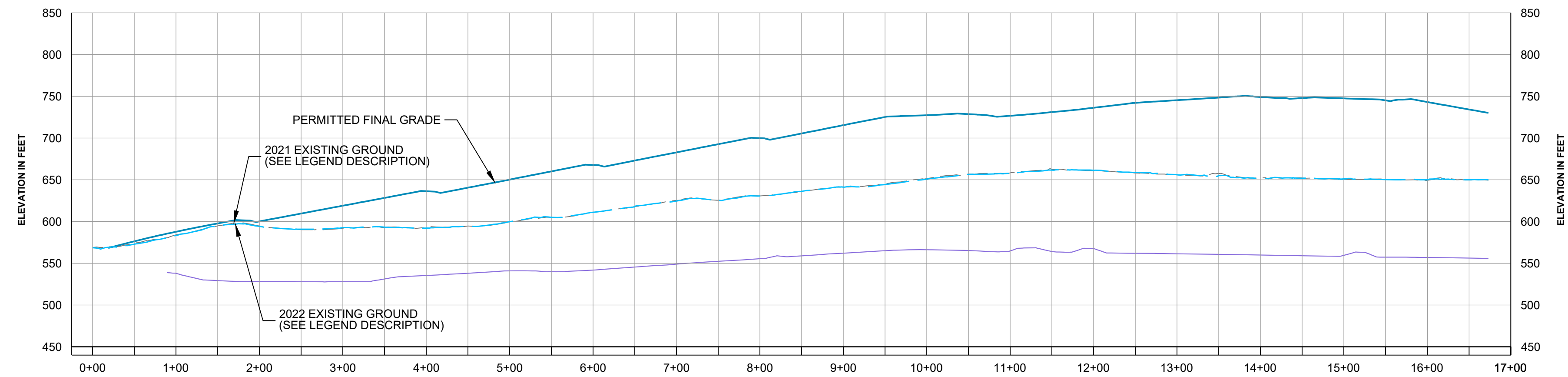


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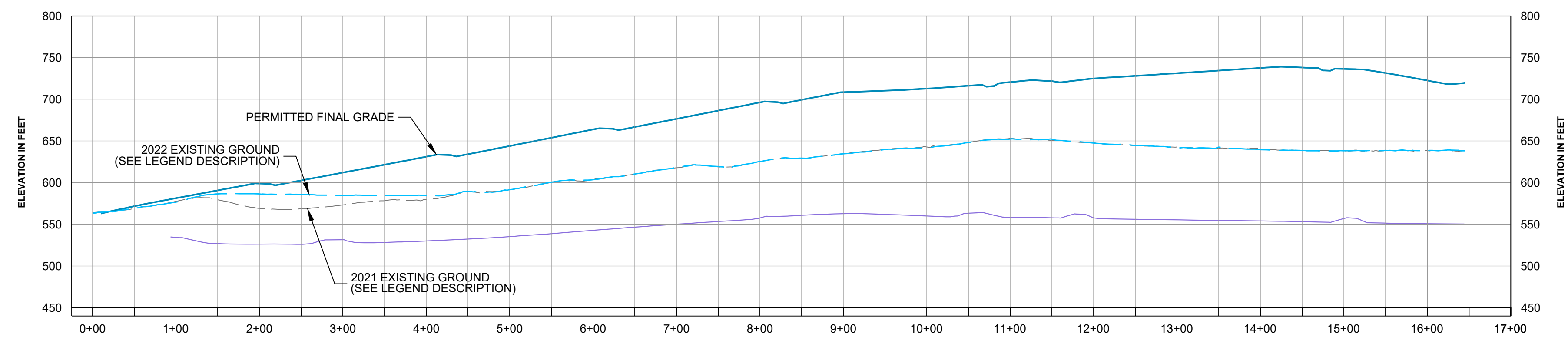




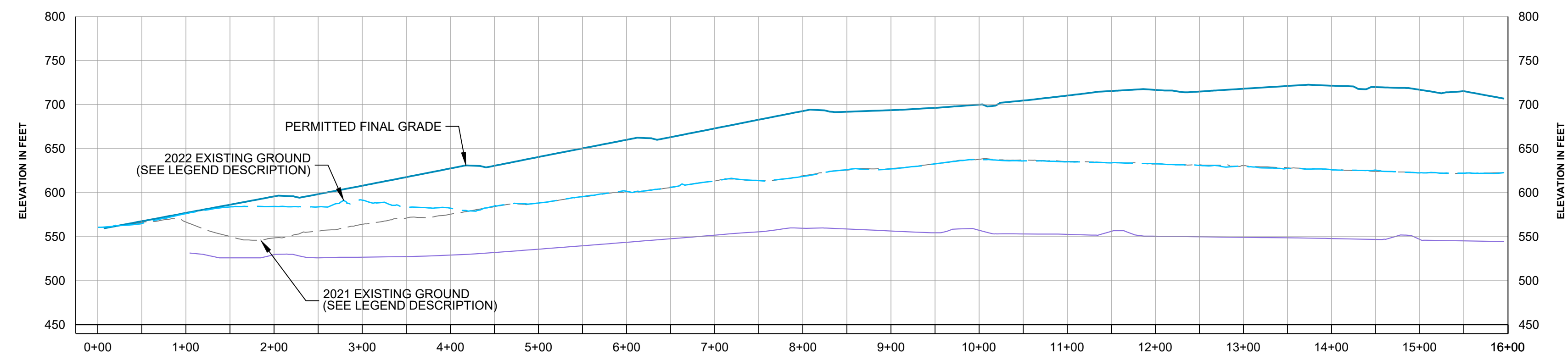
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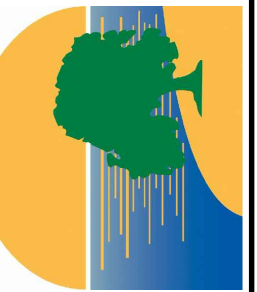
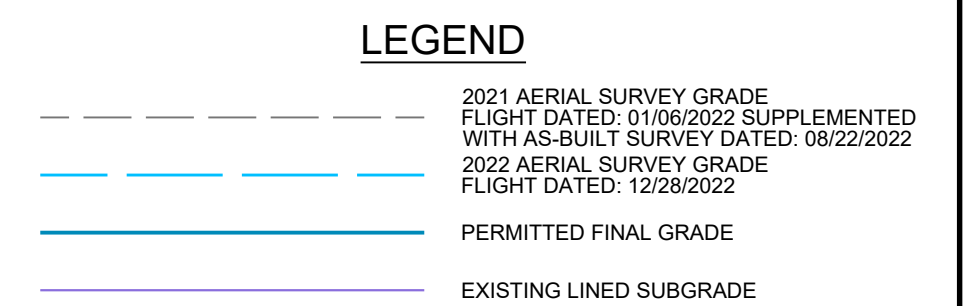
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Cross Section 29
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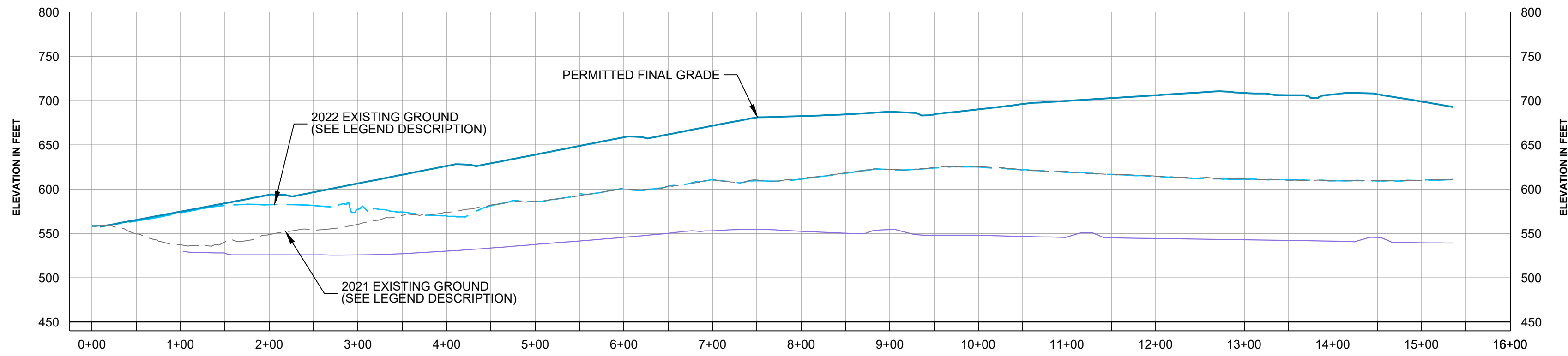
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	No	Revision	Date	By

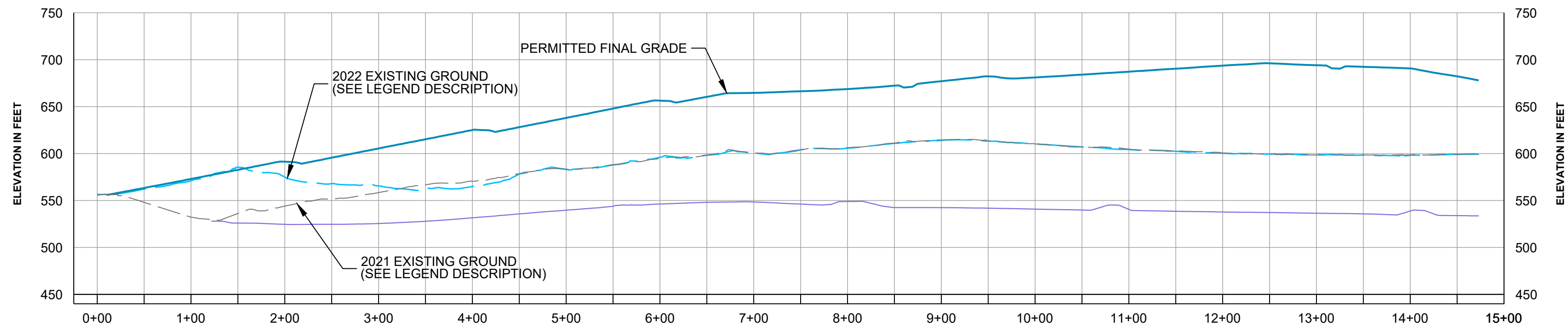
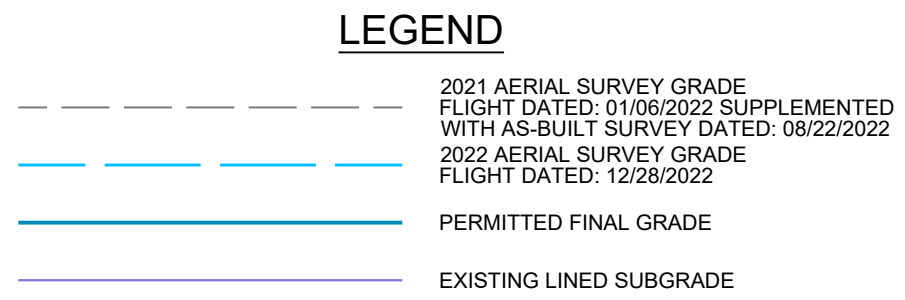
checked	ARM	AS NOTED
drawn	DNF	05/15/2023
	BAA	23010838
graphic scale		

<p>LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY</p>	<p>MANOR TOWNSHIP LANCASTER COUNTY, PENNSYLVANIA</p>
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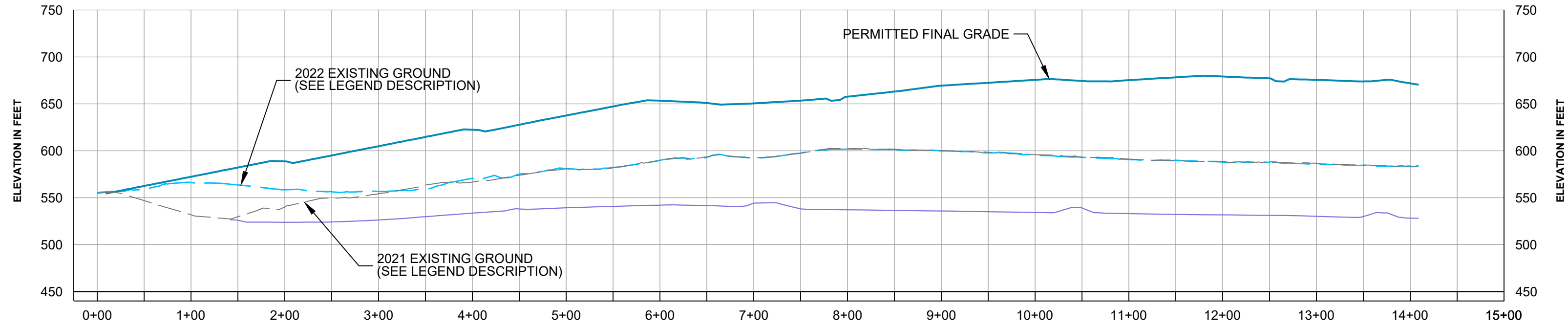




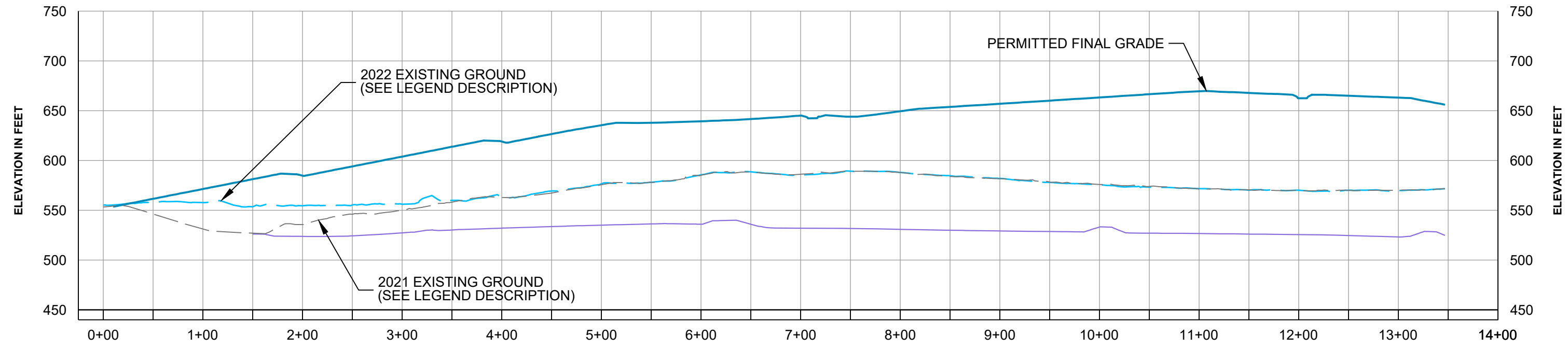
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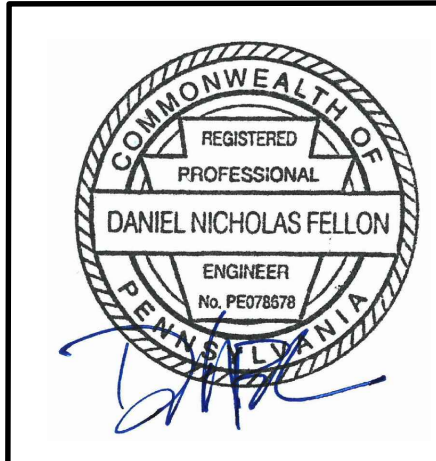
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Cross Section 32
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Cross Section 33
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=100'



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Sheet	10	CROSS SECTIONS (SHEET 7 OF 9)	2022 ANNUAL OPERATIONS REPORT	MANOR TOWNSHIP LANCASTER COUNTY, PENNSYLVANIA	MANOR TOWNSHIP LANCASTER COUNTY, PENNSYLVANIA	MANOR TOWNSHIP LANCASTER COUNTY, PENNSYLVANIA
Designed	ARM	Checked	DNF	Drawn	BAA	Graphic Scale
Scale	AS NOTED	Date	05/15/2023	Project No.	23010838	
No.		Date		Revision		

Project No.

23010838

Project Title

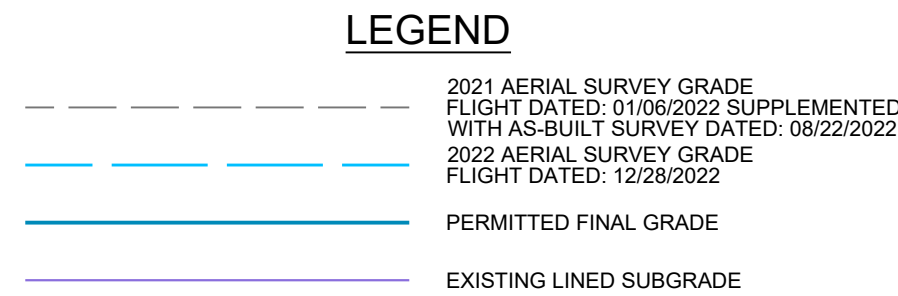
2022 ANNUAL OPERATIONS REPORT

Client

MANOR TOWNSHIP

Location

LANCASTER COUNTY, PENNSYLVANIA

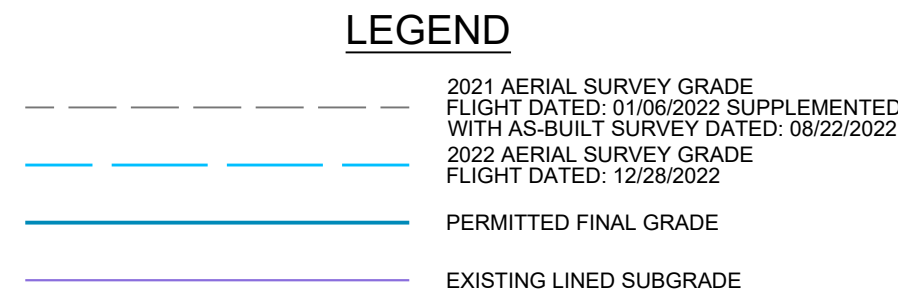


Profile view graph showing elevation in feet versus stationing. The graph includes three data series: 2022 EXISTING GROUND (blue line), 2021 EXISTING GROUND (purple line), and PERMITTED FINAL GRADE (teal line). The 2022 existing ground is generally higher than the 2021 existing ground. The permitted final grade is shown as a smooth curve that follows the general trend of the existing ground but is lower in some sections, particularly between stations 3+00 and 8+00.

Profile view graph showing elevation in feet versus stationing. The graph displays three main data series: 2022 Existing Ground (dashed blue line), 2021 Existing Ground (dashed purple line), and Permitted Final Grade (solid blue line). The 2022 Existing Ground is consistently higher than the 2021 Existing Ground. The Permitted Final Grade is shown as a solid blue line that generally follows the 2022 Existing Ground but is lower in some sections, particularly between stations 4+00 and 6+00. The graph includes callouts for '2022 EXISTING GROUND (SEE LEGEND DESCRIPTION)', 'PERMITTED FINAL GRADE', and '2021 EXISTING GROUND (SEE LEGEND DESCRIPTION)'.



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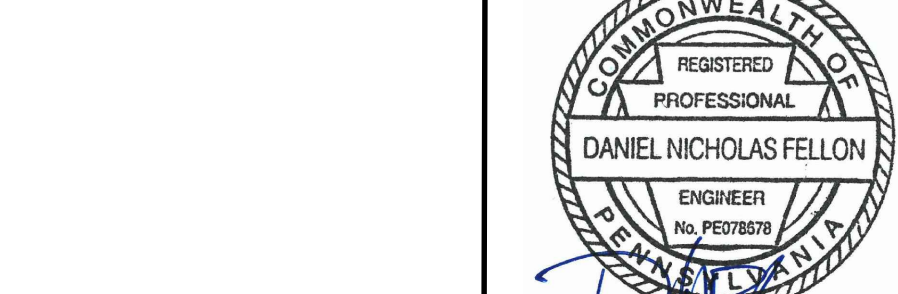


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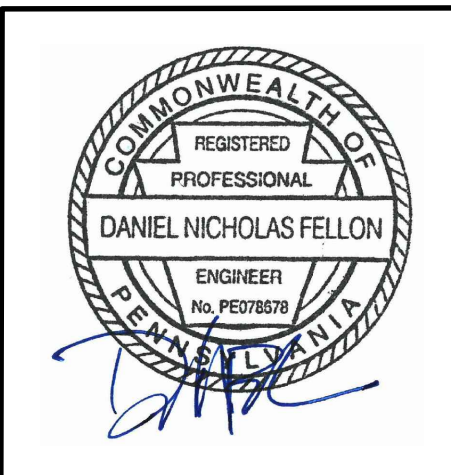
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Cross Section 41
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=100'



Cross Section 42
HORIZONTAL SCALE: 1"=100'
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Attachment 6

Annual MSE Berm Inspection Report

2022 ANNUAL MSE BERM REPORT

FREY FARM LANDFILL

Prepared for:



Lancaster County Solid Waste Management Authority
1299 Harrisburg Pike
Lancaster, PA 17603

Prepared By:



ARM Group LLC
1129 West Governor Road
P.O. Box 797
Hershey, PA 17033-0797

June 2023

ARM Project 230108383



Respectfully submitted:

ARM Group LLC

A handwritten signature in black ink, appearing to read 'Ben S. Allen', written over a horizontal line.

Benjamin S. Allen, P.E.
Senior Engineer

INTRODUCTION

On July 26, 2017 the Pennsylvania Department of Environmental Protection (PADEP) issued an approval of the Lancaster County Solid Waste Management Authority's (LCSWMA's) Major Permit Modification for the Vertical Expansion of the Frey Farm Landfill (i.e., the FFVE). As part of the approved FFVE, a mechanically stabilized earth (MSE) berm is to be constructed around the northern, eastern, and southern perimeter of the existing Frey Farm Landfill (FFLF). Per the PADEP Permit, Permit Condition 5 requires an annual inspection report of the MSE berm to be completed by a Pennsylvania-licensed Professional Engineer and submitted with the Annual Operations Report. This report satisfies Permit Condition 5.

In addition to Permit Condition 5, the FFLF Operation Plan (i.e., Form 14) outlines the inspection and monitoring requirements for the MSE berm. The inspection and monitoring requirements include the following items:

- Annual inspection by a Professional Engineer meeting the minimum experience requirements;
- Completion of the approved MSE Berm Inspection Form;
- Photographic documentation of the annual inspection; and
- Evaluation of survey control point data to determine displacement.

The report included herein satisfies all of the inspection and monitoring requirements outlined within the PADEP Permit and the FFLF Operations Plan.

LCSWMA constructed the FFVE Stage 1 MSE berm in 2017-2018 and FFVE Stage 2 MSE berm in 2022. The FFVE Stage 1 MSE berm consisted of 2,188 linear feet of MSE berm, primarily located along the northern perimeter of the existing FFLF. The FFVE Stage 2 MSE berm consisted of 1,625 linear feet of MSE berm and 200 linear feet access ramp that was part MSE berm on one side, part earthen berm on other side. During the stages of construction, the maximum height of the berm (at the face of the berm) was approximately 73 feet. The information included herein is related to the FFVE Stage 1 & 2 MSE berms.

INSPECTION

On November 2, 2022, Benjamin S. Allen, P.E. of ARM Group LLC (ARM) completed the annual inspection of the FFVE Stage 1 & 2 MSE berms. Mr. Allen is a Professional Engineer licensed in the Commonwealth of Pennsylvania who specializes in geotechnical engineering and the design and construction of MSE berms. Mr. Allen has over 12 years of experience in the field of geotechnical engineering and with MSE berms. Additionally, Mr. Allen was one of the Engineers-of-Record for the FFVE Major Permit Modification that was submitted to and approved by PADEP.



During the inspection, Mr. Allen walked along the top of the MSE berm and along the toe of the MSE berm to evaluate the performance of the berm and determine if maintenance is required. In particular, the inspection assessed/evaluated the following items:

- Stormwater management controls
- Erosion
- Vegetation
- Biaxial geogrid
- MSE Berm penetrations (posts)
- Road surface
- Safety fence and guiderail

In addition to assessing/evaluating the items listed above, the inspection also looked for the presence of the following items, which could require remedial action if discovered:

- Tension cracks
- Toe heaving
- Bulging/sagging
- Animal damage
- Vandalism

While conducting the inspection, the MSE Berm Inspection Form was completed and photographs were taken. The completed form is included in Attachment A. A photo log documenting the condition of the MSE berm at the time of the inspection is included in Attachment B. Overall, the FFVE Stage 1 & 2 MSE berms are in good condition. The vegetation on the face of the berms was dormant during the time of the inspection; however, the vegetation appears to provide adequate shading for the biaxial geogrid. The biaxial geogrid appears to be intact with no damage or degradation. No signs of instability or any items requiring remedial action were observed during the inspection.

MONITORING DATA

Several survey monitoring points have been installed along the FFVE Stage 1 and 2 MSE berms. A series of survey monitoring points are generally installed every 200 feet along the length of the berm. At each location, the control monuments are typically installed at the toe of the MSE berm, the top outside edge of the MSE berm, and at the top of the berm along the stormwater channel. Additionally, at one location where the berm height exceeds 30 feet, a survey monitoring point was installed within the face of the MSE berm, between the top outside edge and toe monitoring points. In total, the FFVE Stage 1 MSE berm has 32 monitoring points and



FFVE Stage 2 MSE berm has 37 monitoring points. A plan view showing the location of the monitoring points is included in Attachment C.

The monitoring points are surveyed on an annual basis. To date, four survey events have been completed by David Miller/Associates, Inc. (DMA) for Stage 1 MSE berm and two survey events have been completed by DMA for Stage 2 MSE berm. Stage 1 initial survey was completed on May 5, 2019 and Stage 2 initial survey was completed on August 16, 2022. The survey has been conducted on an annual basis with the latest survey completed on January 24, 2023. ARM has reviewed the monitoring point surveys and has calculated the change in elevation at each point and the magnitude of total lateral displacement between the surveys.

Stage 1 MSE Berm

In general, the lateral displacement displayed by the monitoring points is generally very minimal. The average lateral displacement observed during the reporting period for Stage 1 MSE berm (i.e., between the January 6, 2022 survey and the January 24, 2023 survey) is 0.19 inches and the average total lateral displacement observed (i.e., between the May 5, 2019 and January 24, 2023 survey) is -0.49 inches. Based on the survey data, the lateral displacement observed at the monitoring points is minimal and is not indicative of any type of instability. The magnitude of total lateral displacement at each monitoring point is provided in Table 1 and the magnitude of lateral displacement between the two most recent surveys (i.e., January 6, 2022 and January 24, 2023) is provided in Table 2, below. Additionally, the plan view included in Attachment C provides vectors showing the direction of lateral displacement for any point that observed more than 0.80 inches of movement during the reporting period (i.e., see Table 2, highlighted green).

***Table 1: FFVE Stage 1 Monitoring Point Displacement Summary Table
TOTAL MOVEMENT***

STA	Location	Original Elevation	Elevation Change (in)	Magnitude of Plan View Movement (in)
06+02	toe	618.16	1.25	1.42
06+68	top, outside	631.70	0.38	1.20
06+68	toe	615.44	-0.08	1.98
06+90	top, inside	630.66	-0.31	1.55
08+00	toe	613.18	-0.16	4.39
08+00	top, outside	627.22	-0.36	0.84
08+00	top, inside	625.94	-1.24	0.25
10+00	toe	607.21	-0.37	1.09



10+00	top, outside	619.75	-0.25	0.77
10+00	top, inside	618.33	-0.91	1.31
12+00	toe	601.54	-0.08	2.04
12+00	top, outside	613.66	0.25	1.07
12+00	top, inside	612.09	-0.88	1.23
14+00	toe	593.01	0.00	2.06
14+00	top, outside	607.05	-0.24	0.52
14+00	top, inside	605.62	-0.44	0.77
16+00	toe	584.09	-0.16	0.18
16+00	top, outside	597.17	1.54	0.16
16+00	top, inside	595.88	-0.08	0.54
18+00	toe	575.21	-0.25	0.74
18+00	top, outside	587.09	-0.05	0.23
18+00	top, inside	585.68	-0.32	1.14
20+00	top, outside	573.18	-0.29	0.73
20+00	toe	563.22	0.46	0.59
20+00	top, inside	571.63	-2.05	1.42
22+00	top, outside	559.07	-0.65	0.59
22+00	toe	546.59	-5.38	0.67
22+00	top, inside	558.19	-3.74	1.15
23+75	top, inside	553.95	-0.83	0.69
24+00	toe	524.11	-0.13	0.19
24+00	top, outside	554.68	0.08	1.10
24+00	MSE face	539.13	-0.44	3.81
26+00	toe	516.78	**	**
26+00	top, outside	539.80	**	**
26+00	top, inside	537.45	**	**
27+50	toe	512.49	**	**
27+50	top, outside	523.68	**	**
27+80	top, outside	511.51	**	**
		Maximum	1.54	4.39
		Minimum	-5.38	0.16
		Average	-0.49	1.14

** = Control Point removed during FFVE Stage 2 construction.



Table 2: FFVE Stage 1 Monitoring Point Displacement Summary Table
MOVEMENT DURING REPORTING PERIOD

STA	Location	Original Elevation	Elevation Change (in)	Magnitude of Plan View Movement (in)
06+02	toe	618.16	1.01	0.92
06+68	top, outside	631.70	0.60	0.41
06+68	toe	615.44	0.04	0.80
06+90	top, inside	630.66	-0.52	0.50
08+00	toe	613.18	-0.12	1.67
08+00	top, outside	627.22	0.16	0.45
08+00	top, inside	625.94	-0.30	0.20
10+00	toe	607.21	-0.42	0.53
10+00	top, outside	619.75	-0.16	0.57
10+00	top, inside	618.33	-0.04	0.39
12+00	toe	601.54	-0.18	1.03
12+00	top, outside	613.66	0.41	0.19
12+00	top, inside	612.09	-0.24	1.22
14+00	toe	593.01	0.14	0.62
14+00	top, outside	607.05	-0.11	0.33
14+00	top, inside	605.62	0.11	1.27
16+00	toe	584.09	0.11	0.52
16+00	top, outside	597.17	1.26	0.23
16+00	top, inside	595.88	-0.18	1.04
18+00	toe	575.21	-0.16	0.65
18+00	top, outside	587.09	0.24	0.26
18+00	top, inside	585.68	-0.37	1.04
20+00	top, outside	573.18	-0.06	0.26
20+00	toe	563.22	6.22	0.31
20+00	top, inside	571.63	0.01	1.14
22+00	top, outside	559.07	0.41	0.22
22+00	toe	546.59	5.81	0.54
22+00	top, inside	558.19	-0.78	0.90
23+75	top, inside	553.95	-0.55	1.13
24+00	toe	524.11	-0.16	0.15
24+00	top, outside	554.68	-5.64	0.26
24+00	MSE face	539.13	-0.40	1.03



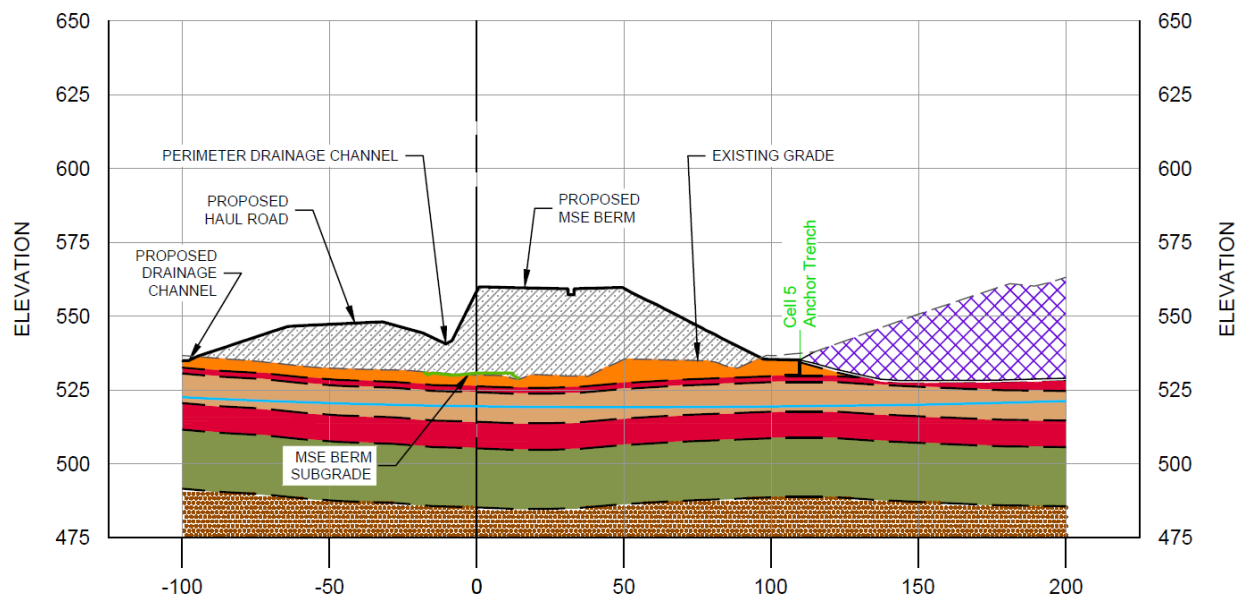
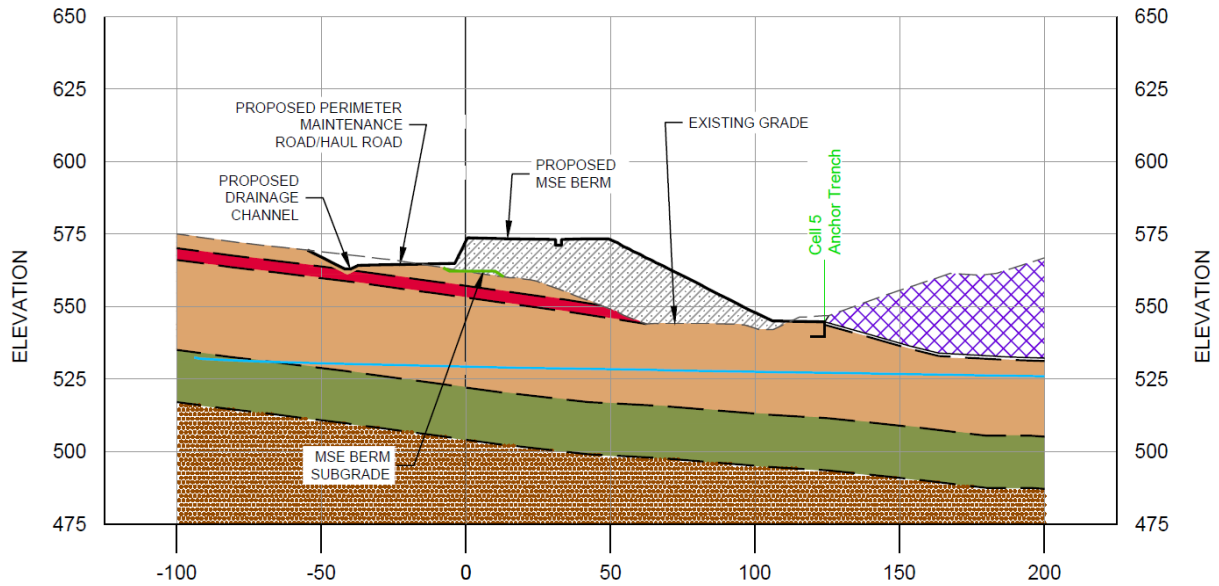
26+00	toe	516.78	**	**
26+00	top, outside	539.80	**	**
26+00	top, inside	537.45	**	**
27+50	toe	512.49	**	**
27+50	top, outside	523.68	**	**
27+80	top, outside	511.51	**	**
		Maximum	6.22	1.67
		Minimum	-5.64	0.15
		Average	0.19	0.65

** = Control Point removed during FFVE Stage 2 construction.

Additionally, the change in elevation observed at each monitoring point is generally minimal. The average change in elevation over the life of the monitoring points was 0.49 inches of settlement. During the reporting period, the average change in elevation was 0.19 inches of settlement. To date, the observed changes in elevation are relatively minor and are not indicative of any type of instability. The total change in elevation at each monitoring point is provided in Table 1 and the elevation change during the reporting period is provided in Table 2.

It should be noted that the changes in elevation at STA 20+00 and 22+00 along the toe of the berm do show more significant settlement than the rest of the monitoring points. The settlement is likely due to the phasing and sequencing of construction. After the MSE berm was constructed, additional structural fill was placed along the face of the MSE berm in this area to construct the new landfill haul road. Therefore, the control monuments were installed within the additional structural fill, which is more prone to settlement than the MSE berm, especially at the interface of the MSE berm and structural fill, where compaction of the subsequently placed structural fill would be more difficult due to the presence of the MSE berm welded wire forms. Below are two cross-sections at STA 20+00 and 22+00 showing the bottom of the MSE berm and the structural fill placed along the outside of the MSE berm.





Additionally, STA 24+00, top of berm shows an increase in elevation of 5.64 inches during the reporting period. Construction activities for the FFVE Stage 2 construction were on-going in this vicinity during the reporting period and may have inadvertently impacted the monitoring point in this area. This area will continue to be monitored, but there is no evidence of instability in this area.



Stage 2 MSE Berm

In general, the lateral displacement displayed by the monitoring points is generally very minimal. The average lateral displacement and observed during the reporting period for Stage 2 MSE berm (i.e., between the August 16, 2022 survey and the January 24, 2023 survey) is 0.83 inches. Based on the survey data, the lateral displacement observed at the monitoring points is minimal and is not indicative of any type of instability. The magnitude of lateral displacement for the reporting period at each monitoring point is provided in Table 3. Additionally, the plan view included in Attachment C provides vectors showing the direction of lateral displacement for any point that observed more than 0.90 inches of movement during the reporting period (i.e., see Table 3, highlighted green).

**Table 3: FFVE Stage 2 Monitoring Point Displacement Summary Table
MOVEMENT DURING REPORTING PERIOD & TOTAL**

STA	Location	Original Elevation	Elevation Change (in)	Magnitude of Plan View Movement (in)
26+00	top, inside	551.30	-0.91	0.92
26+00	MSE face	552.76	-0.43	0.20
26+00	top, outside	535.03	-0.35	0.60
28+00	top, inside	511.04	-0.70	1.04
28+00	toe	524.63	0.12	0.03
28+00	top, outside	539.53	-0.43	0.52
28+00	MSE face	550.30	-0.94	0.36
28+00	MSE face	549.28	-0.77	0.21
30+00	top, inside	504.96	-0.61	0.87
30+00	MSE face	516.74	-0.40	0.84
30+00	MSE face	527.01	-0.40	0.56
30+00	top, outside	548.23	-0.67	0.27
30+00	toe	547.06	-0.36	0.81
32+00	top, inside	487.93	-0.43	1.15
32+00	top, outside	503.36	-1.08	0.65
32+00	toe	519.29	-0.23	0.76
32+00	MSE face	538.88	-1.91	1.10
32+00	MSE face	537.34	-1.34	0.52
34+00	top, inside	486.29	-0.32	0.92
34+00	MSE face	500.62	-0.88	2.44
34+00	top, outside	516.66	-0.55	0.75
34+00	toe	535.83	-0.14	0.38



34+00	MSE face*	534.42	-1.46	55.25
36+00	top, inside	470.98	-0.07	1.17
36+00	top, outside	490.14	-0.77	0.78
36+00	toe	510.70	0.24	0.58
36+00	MSE face*	533.55	0.28	13.74
36+00	MSE face*	532.30	0.36	39.96
37+75	top, outside	528.82	-0.89	0.84
38+00	top, inside	469.20	-0.78	1.19
38+00	toe	488.46	0.04	0.45
38+00	MSE face	509.06	0.14	2.25
38+00	MSE face	524.93	-0.49	1.38
40+00	toe	472.60	-0.18	0.82
40+00	MSE face	487.08	-1.19	0.67
40+00	MSE face*	499.08	-0.98	35.80
40+75	toe	482.70	-0.18	1.27
		Maximum	0.36	2.44
		Minimum	-1.91	0.03
		Average	-0.53	0.83

* = Control Point obstructed by heavy vegetation during survey

Additionally, the change in elevation observed at each monitoring point is generally minimal. During the reporting period, the average change in elevation was 0.53 inches of settlement. To date, the observed changes in elevation are relatively minor and are not indicative of any type of instability. The change in elevation at each monitoring point during the reporting period is provided in Table 3.

It should be noted that monitoring points at STA 34+00, 36+00, and 40+00 located on the MSE face of the berm were obstructed by heavy vegetation during the original survey performed on August 16, 2022, resulting in unreliable survey information. The readings show abnormal lateral movement that is not representative of conditions observed during the MSE berm inspection at these stations. The data from these monitoring points has been excluded from the maximum, minimum, and average calculations in Table 3. These areas will continue to be monitored, but there is no evidence of instability in these areas.

CONCLUSIONS

After completing the annual inspection and reviewing the available monitoring point survey data on the FFVE Stage 1 & 2 MSE berms, ARM has not observed any current data or trends



indicative of instability. The MSE berm appears to be in good condition and does not require any remedial or maintenance actions at this time.



ATTACHMENT A

MSE Berm Inspection Form





ARM Group LLC

Engineers and Scientists

P.O. Box 797, 1129 West Governor Road, Hershey, PA 17033-0797
Phone (717) 533-8600 Fax (717) 533-8605 www.armgroup.net

MSE Berm Inspection Form

Site Location: Frey Farm Landfill Inspector: Benjamin S. Allen, P.E.
Berm Segment: FFVE Stage 1 & 2 Inspection Date: 11/2/2022

Stormwater Management Evaluation

1. Is stormwater overtopping the face of the MSE berm?

☐ YES ☒ NO

If YES, immediately notify the Engineer-of-Record.

2. Are all inlets and/or drains unclogged and functioning properly?

☒ YES ☐ NO

If NO, immediately notify Maintenance for immediate corrective action.

Please note which inlets and/or drains are not functioning properly:

3. Evaluate the condition of stormwater channels on top of the MSE berm.

a) Is there damage to the channel lining?

☐ YES ☒ NO

b) Can water enter into either the reinforced or unreinforced zone of the MSE berm?

☐ YES ☒ NO

c) Is there deposition of material along the length of the channels or changes in the channel profile due to erosion, subsoil migration, and depositional features?

☐ YES ☒ NO

d) Is there evidence of degraded or dysfunctional stormwater channels?

☐ YES ☒ NO

If YES, immediately notify the Engineer-of-Record.

If any questions under Part 3 of this section were answered with YES, please describe the deficiencies and note the location of the deficiencies: Stage 1 and 2 Channel is in good shape overall, Stage 2 channel still requires some repairs from Stage 2 construction.

Erosion Assessment

1. Is there evidence of erosion on the exterior or interim (if applicable) face of the MSE berm?

☐ YES ☒ NO

If YES, immediately notify the Engineer-of-Record.

Please identify the areas where erosion appears to be occurring:

2. Is there excessive erosion at pipe or utility penetrations?

☐ YES ☒ NO

If YES, notify the Engineer-of-Record.

Please identify the areas where erosion appears to be occurring:

3. Is there evidence of soil migration and/or deposition at the toe or on the horizontal shelves of the MSE berm?

☐ YES ☒ NO

If YES, notify the Engineer-of-Record.

Please identify the areas of soil migration and/or deposition:

Vegetation Inspection

1. Is vegetation on the face of the MSE berm lacking after two (2) growing seasons?

☐ YES ☒ NO

If YES, notify the Engineer-of-Record.

Locations/ Vegetation along Stage 1 and Stage 2 berm looks good. Evidence of rodents going up and down the berm face as well as rodent holes discovered near the MSE berm ramp at stage 1.

2. Has any of the vegetation grown to a size that poses a threat to collapse under wind, ice, or snow loading or does any vegetation exhibit woody bark or complex root systems?

☒ YES ☐ NO

If YES, notify Maintenance for removal.

One piece of tall/barky vegetation near start of stage 1

3. On portions of the MSE berm facing comprised of aggregate (if applicable):

Is the biaxial geogrid facing wrap intact and retaining the aggregate?

a) ☐ YES ☐ NO

If NO, please note the locations: Not applicable.

- b) Are the geogrid apertures distorted or otherwise incompatible with the size of the retained aggregate?

☐ YES ☐ NO

If YES, please note the locations: Not applicable.

- c) Are there sizeable void spaces behind the geogrid or signs of aggregate loss?

☐ YES ☐ NO

If YES, please note the locations: Not applicable.

If NO to question 3a or YES to questions 3b or 3c under Part 3 of this section, notify the Engineer-of-Record.

Tension Crack Evaluation

1. Is there any evidence of tension cracks along the top of the berm?

☐ YES ☒ NO

If YES, immediately notify the Engineer-of-Record.

2. Are there tension cracks within the paved access road on top of the MSE berm?

☐ YES ☒ NO

If YES, immediately notify the Engineer-of-Record.

Please note the location of any evidence of tension cracks:

Not applicable.

Toe Heaving Inspection

1. Is there any evidence of toe heaving?

☐ YES ☒ NO

If YES, immediately notify the Engineer-of-Record.

Please note the location of any evidence of toe heaving:

Not applicable.

Geogrid Assessment

1. To the extent possible, evaluate the condition of the biaxial geogrid at the face of the MSE berm.

The biaxial geogrid is intact and in good condition. Vegetation is providing adequate shading to prevent UV degradation of the biaxial geogrid.

2. Note the location of any severe degradation or extensive damage to the biaxial geogrid.

None.

Bulging/Sagging Evaluation

1. Is there evidence of excessive bulging or sagging (i.e., greater than 2 inches) at any point along the outer face of the MSE berm?

☐ YES ☒ NO

If YES, immediately notify the Engineer-of-Record.

Please note the location of any excessive bulging or sagging:

Not applicable.

Top Surface Penetration Inspection

1. Is there evidence of gaps opening around penetrations (e.g., guiderail posts, fence posts, etc.) or tilting or settlement of such features?

☐ YES ☒ NO

If YES, notify the Engineer-of-Record.

Please note the locations:

Road Surface Inspection

1. Is there any deterioration of the road surface at the top of the MSE berm (i.e., cracking, erosion, settlement, undulations, exposure of geogrid, etc.)?

☐ YES ☒ NO

If YES, notify the Engineer-of-Record.

Please note the locations:

Minor pavement cracking between the roadway and concrete channel noticed along stage 1 curve. One inclinometer concrete casing has a slight lip above level of pavement.

Staff should be cognizant when plowing roads.

Guide Rail and Safety Fence Assessment

1. Are the guide rail and safety fence intact, undamaged, fully functional, and continuous throughout the originally installed length?

☒ YES ☐ NO

If NO, notify Maintenance for repair.

Please note the locations:

Note: Any obvious changes to the profile of the horizontal components of the fencing or guide railing shall be reported to the Engineer-of-Record.

Animal Damage and Vandalism

1. Is there evidence of animal damage such as burrowing or other forms of animal damage (e.g. rodent) holes within the MSE berm backfill or at the toe of the berm)?

☐ YES ☒ NO

2. Is there any form of damage due to vandalism?

☐ YES ☒ NO

Any damage should be reported to Maintenance and the Engineer-of-Record.

Additional Notes/Comments

Overall, the FFVE Stage 1 and 2 MSE berms are in good condition. No evidence of instability has been observed to date. The vegetation at the face of the berm is adequate and the biaxial geogrid is intact and properly shaded.

ARM noticed minor pavement cracking between roadway and concrete channel along Stage 1 curve. One inclinometer's concrete casing was observed to be slightly higher than the paved road grade. Staff to be aware of the concrete lip when plowing roads.

ATTACHMENT B

Photo Log





PHOTO 1



PHOTO 2





PHOTO 3



PHOTO 4





PHOTO 5



PHOTO 6





PHOTO 7



PHOTO 8





PHOTO 9



PHOTO 10





PHOTO 11



PHOTO 12





PHOTO 13



PHOTO 14





PHOTO 15



PHOTO 16





PHOTO 17



PHOTO 18



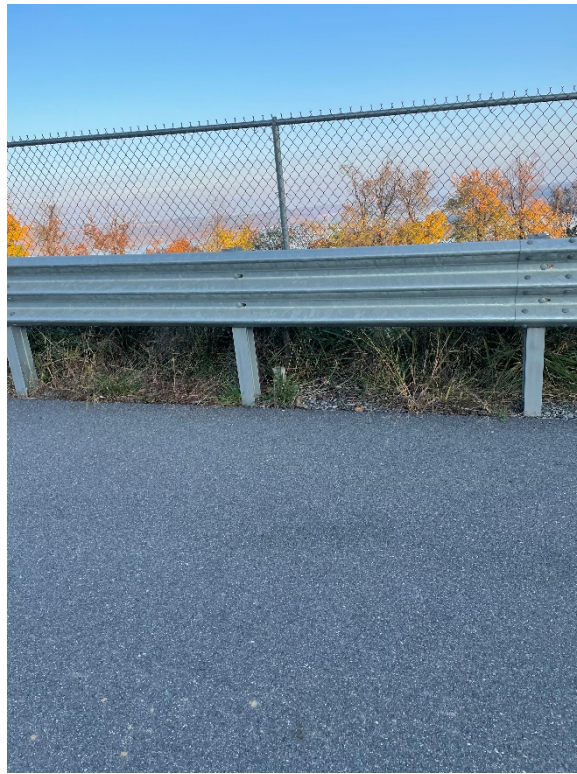


PHOTO 19



PHOTO 20



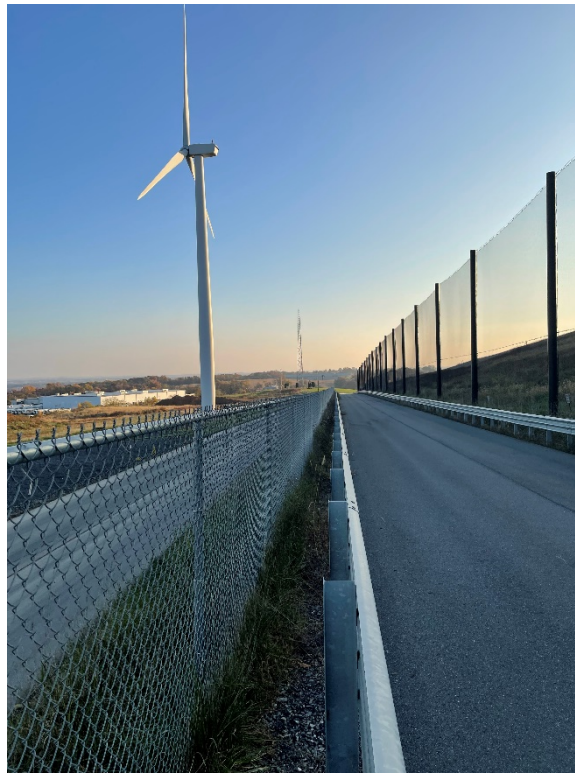


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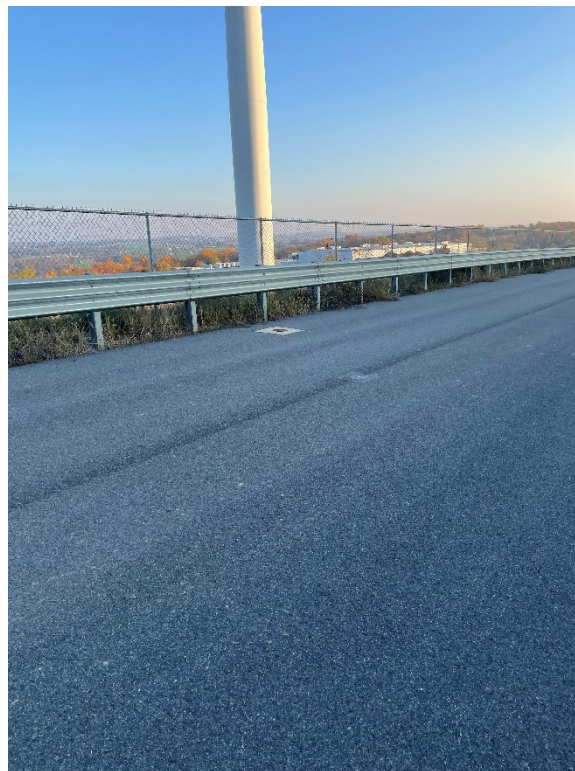


PHOTO 22





PHOTO 23



PHOTO 24





PHOTO 25



PHOTO 26





PHOTO 27



PHOTO 28



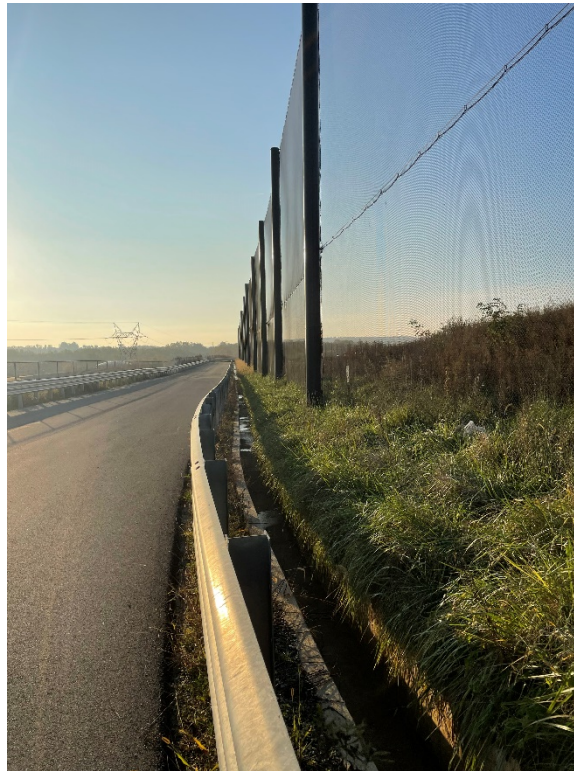


PHOTO 29



PHOTO 30





PHOTO 31



PHOTO 32





PHOTO 33



PHOTO 34





PHOTO 35



PHOTO 36





PHOTO 37



PHOTO 38





PHOTO 39



PHOTO 40





PHOTO 41



PHOTO 42





PHOTO 43



PHOTO 44





PHOTO 45



PHOTO 46





PHOTO 47



PHOTO 48





PHOTO 49



PHOTO 50





PHOTO 51



PHOTO 52





PHOTO 53



PHOTO 54





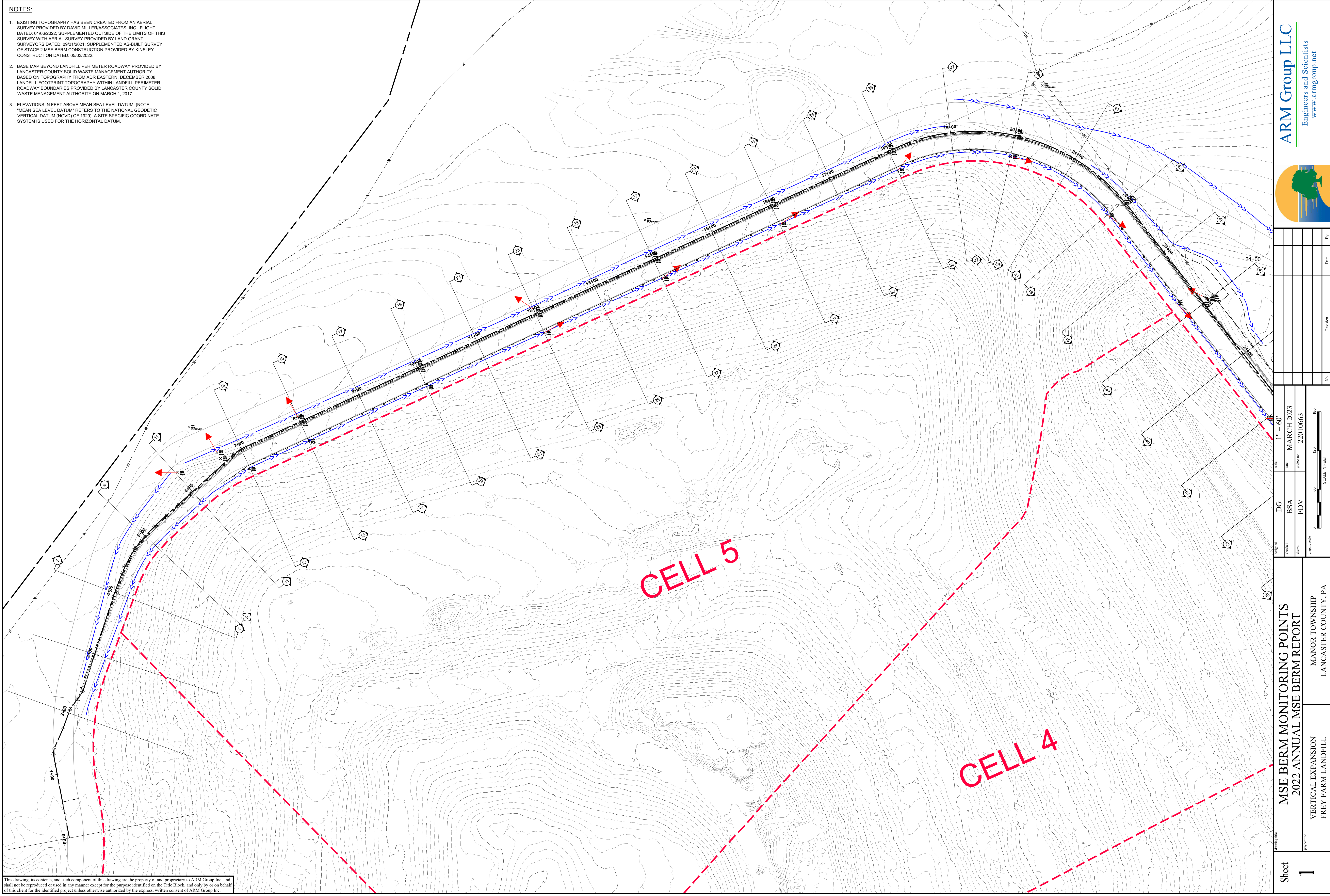
PHOTO 55



ATTACHMENT C

MSE Berm Control Points





NOTES:

- EXISTING TOPOGRAPHY HAS BEEN CREATED FROM AN AERIAL SURVEY PROVIDED BY DAVID MILLER/ASSOCIATES, INC., FLIGHT DATED: 01/06/2022; SUPPLEMENTED OUTSIDE OF THE LIMITS OF THIS SURVEY WITH AERIAL SURVEY PROVIDED BY LAND GRANT SURVEYORS DATED: 09/21/2021; SUPPLEMENTED AS-BUILT SURVEY OF STAGE 2 MSE BERM CONSTRUCTION PROVIDED BY KINSLEY CONSTRUCTION DATED: 05/03/2022.
- BASE MAP BEYOND LANDFILL PERIMETER ROADWAY PROVIDED BY LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY BASED ON TOPOGRAPHY FROM ADR EASTERN, DECEMBER 2008. LANDFILL FOOTPRINT TOPOGRAPHY WITHIN LANDFILL PERIMETER ROADWAY BOUNDARIES PROVIDED BY LANCASTER COUNTY SOLID WASTE MANAGEMENT AUTHORITY ON MARCH 1, 2017.
- ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL DATUM. (NOTE: "MEAN SEA LEVEL DATUM" REFERS TO THE NATIONAL GEODETIC VERTICAL DATUM (NGVD) OF 1929). A SITE SPECIFIC COORDINATE SYSTEM IS USED FOR THE HORIZONTAL DATUM.

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Sheet
1

DESIGNED BY
DG

CHECKED BY
BSA

DRAWN BY
FDV

GRAPHIC SCALE
0 60 120 180
SCALE IN FEET

DATE
MARCH 2023

PROJECT NO.
22010663

PROJECT TITLE
MSE BERM MONITORING POINTS
2022 ANNUAL MSE BERM REPORT

PROJECT LOCATION
VERTICAL EXPANSION
FREY FARM LANDFILL

MANOR TOWNSHIP
LANCASTER COUNTY, PA

SCALE
1" = 60'

DATE
MARCH 2023

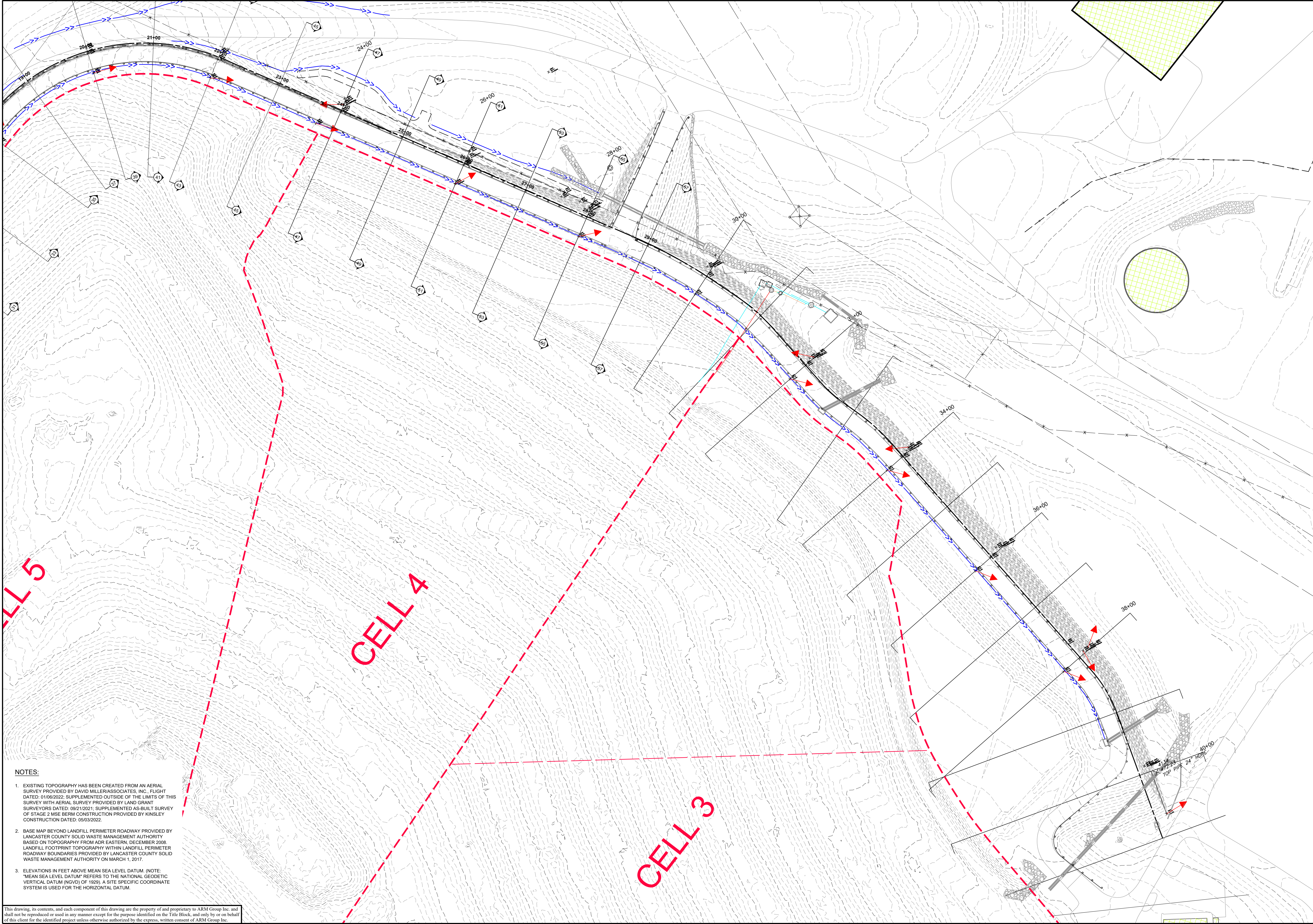
PROJECT NO.
22010663

NO.

DATE

REVISION

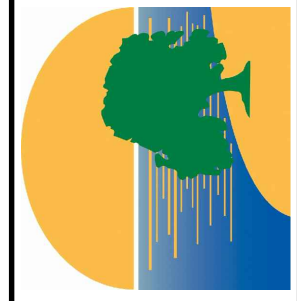
ARM Group LLC
Engineers and Scientists
www.armgroup.net



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- ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL DATUM. (NOTE: "MEAN SEA LEVEL DATUM" REFERS TO THE NATIONAL GEODETIC VERTICAL DATUM (NGVD) OF 1929; A SITE SPECIFIC COORDINATE SYSTEM IS USED FOR THE HORIZONTAL DATUM.

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Sheet 2	Drawing Title MSE BERM MONITORING POINTS 2022 ANNUAL MSE BERM REPORT	Drawing Date MANOR TOWNSHIP LANCASTER COUNTY, PA	Project Title VERTICAL EXPANSION FREY FARM LANDFILL	Scale 1" = 60'	Date MARCH 2023	Project No. 22010663	Revision No. Date By
 ARM Group LLC Engineers and Scientists www.armgroup.net							

Attachment 7

Visual Landscape Synthesis Plan Annual Report

May 19, 2022

Frey Farm Landfill

Stage 1 and 2 Visual Landscape Synthesis Plan

Annual Status Update

Manor Township Lancaster County, Pennsylvania

Introduction

The Frey Farm Landfill (FFLF) is a Municipal Solid Waste (MSW) disposal facility operated by Lancaster County Solid Waste Management Authority (LCSWMA), located along River Road in Manor Township, Lancaster County, Pennsylvania.

Construction of the Frey Farm Landfill (FFLF) Visual Landscape Synthesis Plan (VLSP) Stage 1 began in 2019 and consisted of planting a combination of 158 native-species trees and shrubs, and natural succession seed mix over approximately 30.2 acres of final cap. Stage 1 was the only stage completed in 2019. Since that time an additional planting area has nearly been completed. Approximately 94% of the planned Stage 2 area has been completed through the end of 2022.

Map exhibits have been included for reference.

The VLSP is designed to achieve the following core objectives:

1. Achieve an enhanced and more natural appearance that blends into the surrounding landscape, over time, of the Frey Farm Landfill (FFLF) from neighboring viewpoints by mitigating potential visual impacts associated with the FFVE and improving the long-term appearance of the FFLF when compared to the mowed vegetative cover that is traditionally used post-closure at landfills;
2. Achieve a sustainable vegetative ecosystem for the long-term success that also reduces the need for traditional maintenance activities to support vegetation (fertilization, lime application, mowing, etc.); and
3. Minimize interference from landscaping with ongoing landfilling operations, and promote the continued safe operation of the FFLF in compliance with PADEP regulations.

Summary of 2022 Implementation Activities

Initial implementation efforts began in the fall of 2019 and continued through 2020 - 2022. During the Fall of 2021 384 pieces of plant material were planted in "Stage 2" planting zone (an area covering approximately 11.8 acres) 94% of

"Stage 2" planting area remains completed at the end of 2022. There is a small portion of the landfill, approximately 0.53 acres (within Stage 2) that was not complete with final slopes. This zone will be planted in the future as landfill sequencing is completed and this 0.53 acres is available and prepped for planting. An additional 26 pieces of plant material will be planted within this 0.53 acre zone when possible.

2022 Maintenance

2022 efforts were once again mainly related to weed suppression around maturing plant material and the installation of more robust deer guard protection. Deer damage and browse continues to be a challenge. In a few instances, once again, support stakes were set or re-set to protect immature plant material from wind stress. No fertilizers or irrigation efforts were used in 2022. In addition LCSWMA contracted with Davis Landscape to replace (36) tree or shrubs that had been damaged mainly by deer. The list below is a summary of the plant material added to the project area in the fall of 2022.



DAVIS LANDSCAPE LTD

Since 1934

Customer: LCSWMA

Job Name: Landfill Planting

Date: 9/21/2022

LANDSCAPE ENHANCEMENT SERVICE

Proposal Description:

Davis Landscape LTD proposes of the following plant material at the landfill in locations to be determined at time of planting. Davis Landscape LTD will furnish all plant material and labor necessary to install. Plant material will be mulched at time of planting with mulch on site.

- (1) Fothergilla mt. airy 18"-24"
- (1) Alnus Serrulata 18"-24"
- (7) Acer rubrum 5'-6'
- (1) Juniperis virginiana 18"-24"
- (1) Myrica pennsylvanica 18"-24"
- (1) Populus grandidentata 5'-6'
- (2) Robinia pseudoacacia 5'-6'
- (1) Betula nigra 5'-6'
- (4) Liriodendron tulipifera 5'-6'
- (2) Viburnum prunifolium 18"-24"
- (2) Viburnum dentatum 18"-24"
- (1) Nyssa sylvatica 5'-6'
- (1) Liquidambar styraciflua 5'-6'
- (2) Linder benzoin 18"-24"
- (2) Alnus incana #3
- (3) Acer saccharinum 5'-6'
- (1) Betula populifolia 5'-6'
- (2) Samucus canadensis 18"-24"
- (1) Ostrya virginiana 4'-5'

Monitoring

LCSWMA is continuing a bi-weekly monitoring of Stage 1 and Stage 2 (see attached monitoring reports). LCSWMA will continue its practice to conduct inspections of the plantings after significant weather events such as large storms where wind gusts above 50 mph may have occurred. Action items will be taken on an as needed basis following the discovery or observation of a potential issue. LCSWMA will continue onsite observations of the soil and plants along with past photographic records will continue to be used to monitor this aspect of the study.

There were a few trees that did receive insect damage, during 2022, likely from spider mites and the spotted lanternfly. The honey locust population once again seemed to be the most susceptible to this condition. We will once again monitor repeat occurrences / susceptibility during the course of the 2023 growing season.

The population of plant material did not sustain the deer damage we had observed in the past. The addition of more robust deer guards around the base of select plant material has thwarted the “buck rub” damage previously observed. While, we still observed deer damage, we believe we are on a better path with the more robust guards but continued vigilance has been required by on-site staff.

Weed growth has become more of a maintenance item as the mulch continues to break down into a soil blanket. This condition is normal and was expected to occur. Weed growth will be monitored and where needed cut back or “weed whacked” to thwart excessive competition with the tree and shrub population.

Proposed Modifications or Revisions to the Plan

Currently there are no plans to modify any portion of the plan. Overall the first stage is meeting performance expectations. Some plant material in Stage 1 was replaced in the Fall of 2021. Mainly this was plant material that had sustained mortal deer damage back in 2019 and had not thrived. This damage had mainly occurred before the more robust deer guards were used.

Approximately 94% of Stage 2 was planted in the Fall of 2021. There are no plans to modify or revise any section Stage 2.

The natural succession area continues to perform well and continues to “soften” the engineered appearance of the landfill (benching). The visual softening and textural diversity observed in 2020, 2021 and 2022 seems to be increasing over time. The result is a more natural appearance to the landfill slopes that blends into the surrounding landscape. No additional modifications or revisions are planned for this zone. Lastly, the transition between the succession area and Stage 1 and Stage 2 has been visually softened and no perceived line or abrupt visual interruption is now evident. The planted grasses within Stage 1 and Stage 2 have matured to the point where visual blending between zones has occurred.

Planned 2023 Activities

Monitoring will be performed bi-weekly or as needed by (FFLF) staff and seasonally by Kaufman Engineering, Inc.

2023 will likely not have any large scale tree or shrub planting. Additional portions of the landfill will need completed before additional tree and shrub implementation can occur. The 0.53 acre zone referenced earlier in the report will likely be planned in late 2023 or the spring of 2024.

Other Meetings / Notes:

A Spring Inspection and walk through was completed on 5/5/2022 by Kaufman Engineering, Inc.

Attendees:

Michelle Marsh, LCSWMA

Jeff Musser, LCSWMA

Ashley Gichuki, LCSWMA

Mary Glazier

Brian Kaufman of Kaufman Engineering, Inc.

A Fall inspection and walk through was completed on 10/26/2022 by Kaufman Engineering, Inc.

Attendees:

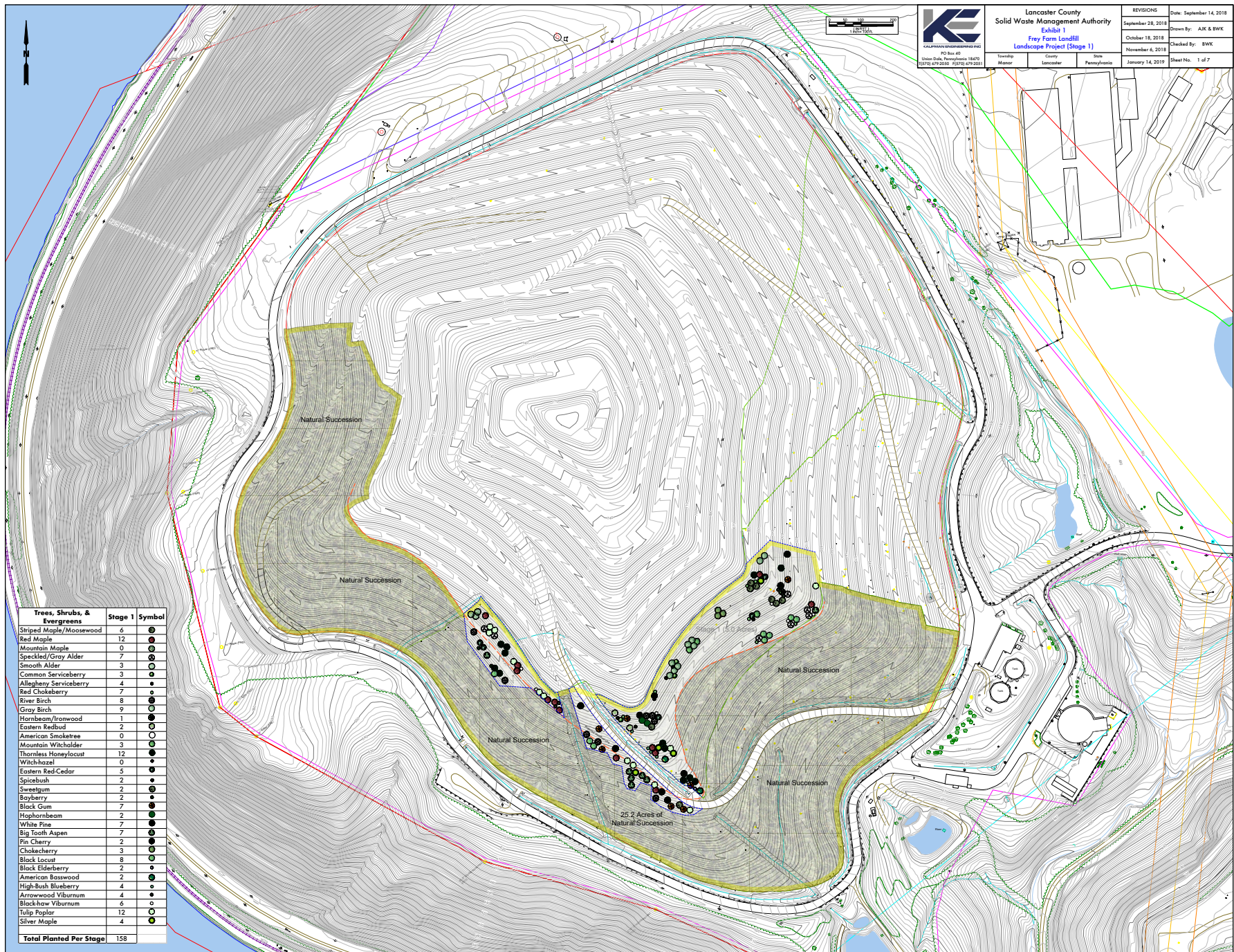
Michelle Marsh, LCSWMA

Jeff Musser, LCSWMA

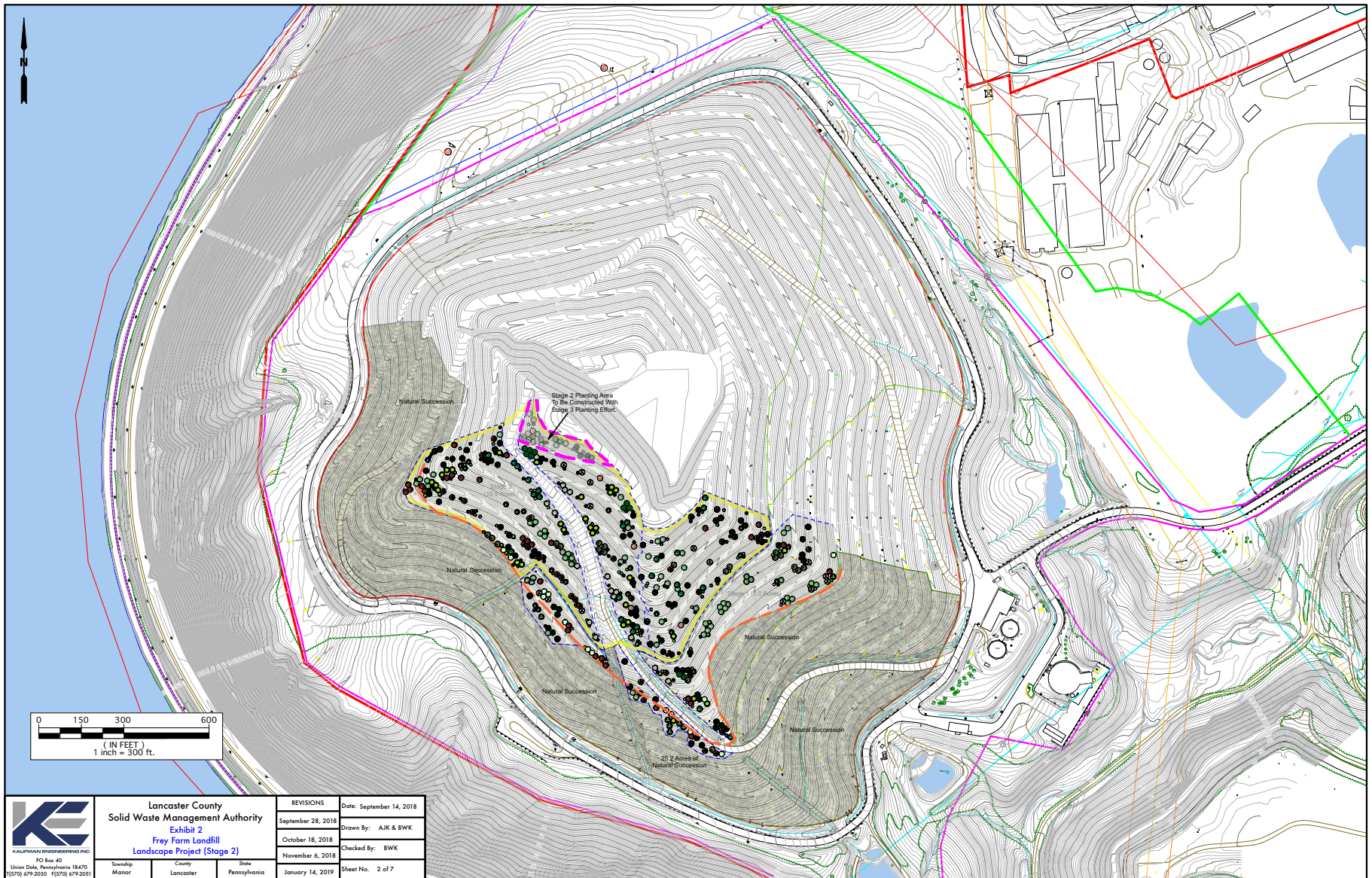
Ashley Gichuki, LCSWMA

Tom Ortenzio

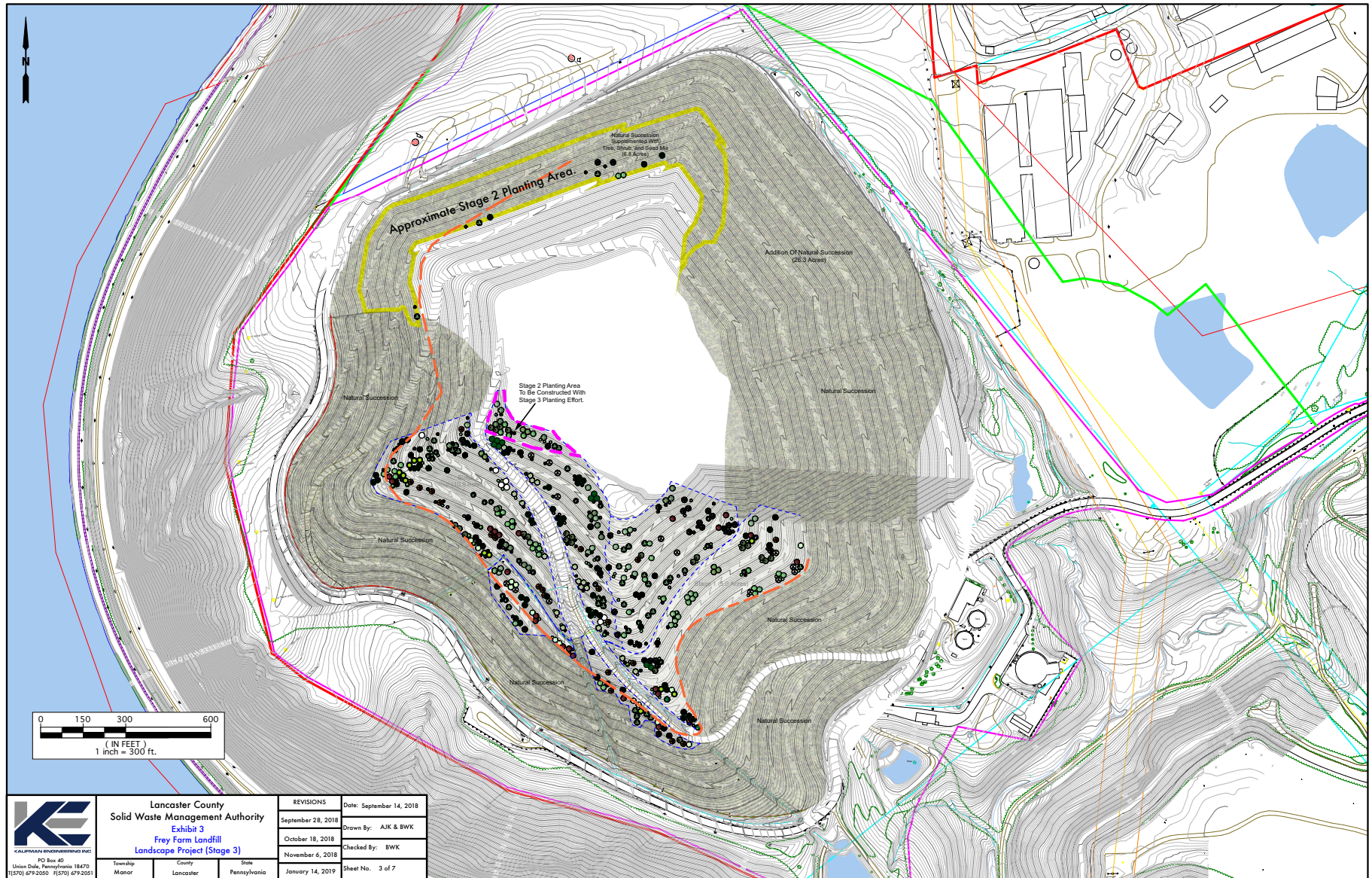
Brian Kaufman of Kaufman Engineering, Inc.



Stage One Overview Map



Overview Map of Stage Two Planting Completed in 2021 (Inside Yellow). Remaining Stage Two Planting is Highlighted (In Pink)



Stage Three (Planned) Overview Map - For Future Reference

Inspection Reports

May 5, 2022

(By: Kaufman Engineering, Inc.)

October 26, 2022

(By: Kaufman Engineering, Inc.)

Multiple Inspection Reports

(By: Site Management)

Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report Stage 1 and Stage 2

Date:5/5/22

Name of Inspector:Brian W. Kaufman - Kaufman Engineering, Inc.

Weather Conditions: Sunny, light breeze 63°

Water

- 1Are there any test plots with areas of saturation or pockets of water.
- 2Are there any test plots with erosion damage (including toe of test plots).
- 3Do benches have sedimentation or unusual conditions?
- 4Is there water flowing onto bench that is unusual or a potential issue?
- 5Does there appear to be any slumping of the test plots?
- 6Are there any areas that are overly dry and in need of water?
- 7Other - Explain

Yes	No	Comments
	*	Slopes moisture appeared even and uniform
	*	
	*	
	*	
	*	
	*	
	*	

Animals

- 1Is there damage to plant material from animals (deer, birds, etc.)?
- 2Is there damage to mulch beds from animals?
- 3Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5Other - Explain

Yes	No	Comments
*		Deer (buck rubs mainly from 2020 rut only on Stage 1). New 4' guards worked great on Stage 2 planting. Observed only one plant with buck rub damage! Great news for Stage 2 plants. Several deer guards were removed and placed at base of tree for reimplementation/ attachment in the fall of 2022.
	*	
	*	Cool spring and not many insects observed as of this date.
	*	
*		Jeff Musser of LCSWMA continues to add bird boxes to the landfill slopes and track wildlife.

Vegetation

- 1Is there damage to plant material?
- 2Is there insect damage to plant material?
- 3Is there animal damage to plant material?
- 4Is there storm damage to plant material?
- 5Is there wind blow to plant material?
- 6Is there noticeable fatigue to any plant material?
- 7Is there damage to plant material from landscape crew?
- 8Is there damage to plant material from other workers (LF staff or Contractors)?
- 9Any plant material missing "identification stakes"?
- 10Other - Explain

Yes	No	Comments
*		Deer browse and buck rubs noted from 2020 rut remain (some are healing)on Stage1, very minor impacts to Stage 2 plantings that were installed in October 2021.
	*	
	*	Prior years buck rub damage once again observed. Also deer have damaged plants in natural sucesion in Stage 1. Once again observed deer damage to American Pokeweed bushes that have started to grow within portions of the site. No action needed as these have grown on their own and are quite resilient.
	*	
	*	Root balls are all secure and properly placed. Some plants leaning within Stage 1 (curved) due to prevailing wind pressures - continue monitor for potential staking.
*		Honey Locust population remains weak within Stage 1.
	*	
	*	
	*	Stakes are holding up. Once again a few were reset during this inspection. Recommended painting tops for easier visability on future inspections and marking numbers that have faded in sun. Tempoary Stage 2 markers are present. Longer term markers are still in progress and scheduled to go in this season.
	*	Weed growth is minimal as spring is just starting /weeds and seasonal grasses. Recommend weed controll around base of plants withing Stage 1 and 2 where appropriate. This will help plants to thrive. Care should be given to not damage bark around base of any plant material during weeding.

Photos

- 1Did you take photos today?

Yes	No	Comments
*		Select photos attached - Additional photos taken exist in computer files.

Additional Notes or Comments:

Fifth inspection and walk through was completed with Jeff Musser, Michelle Marsh and Ashley Gichuki of LCSWMA. In addition, Mary Glazier joined this inspection. We continue to see most plant material doing well and we continue to believe that most plants continue to spend energy establishing to the site. Subsurface root development and establishment to the windy site are likely nearing completion. Last fall started to see additional vertical growth in Stage 1 plantings - this trend should continue this growing season. This report was completed in early spring and plant material is just starting to leaf out. Additional remarks on vertical growth are better judged at the end of the growing season in the fall.
In the fall of 2021 384 pieces of plant material were planted in "Stage 2" planting zone (an area covering approximatlely 11.8 arces) 94% of "Stage 2" planting area has been completed. There is a small portion of the landfill, approximately 0.53 acres (within Stage 2) that was not complete with final slopes. This zone will be planted in the future as landfill sequencing is completed. An additional 26 pieces of plant materail will be planted within this .53 acre zone. Future reports will note this progress. The plant material that was planted last fall seems to have wintered well. One key observation was the more robust deer guards that were placed on the "Stage 2" plants have provided a very high level of protection from buck rubs / fall rut activity. We plan to continue with the more robust deer guards in the future as they have better protected the investment vs. "Stage 1" plantings.
Natural succession zone ranges 18" - 36" in height (spring growth has begun). Slopes appear full with grasses thriving. Visual softening of benching and greater visual appeal continue to be extremely successful when contrasted with traditional mowed slope aesthetic. Some natural succession of locust, cherry and multiflora rose, american pokeweed was observed in natural secession area. I believe we will continue to see the "natural sucesion" area do well.
Continued, seasonal, visual interest and texture, matching surrounding "buffer" landscapes will continue.
Other notes: Several birds were once again observed in the trees and grasses.
No recommend replacing plants within Stage 1 planting (Note concurrent with Stage 2 planting 26 plants were replaced within Stage 1 - These were additional plants that were not scheduled to be planted within Stage 2. The decision was made (during Stage 2 planting in October 2021) to place them within the Stage 1 planting area where needed (thus enhancing Stage 1 plantings).
Replacement plant material that was replanted in the fall of 2020 appears to be doing well with a few exceptions (Mainly deer damage / scarring).

Stage One and Two

Photos Taken During
May 2022 Inspection

Frey Farm Landfill
Visual Landscape Synthesis Plan



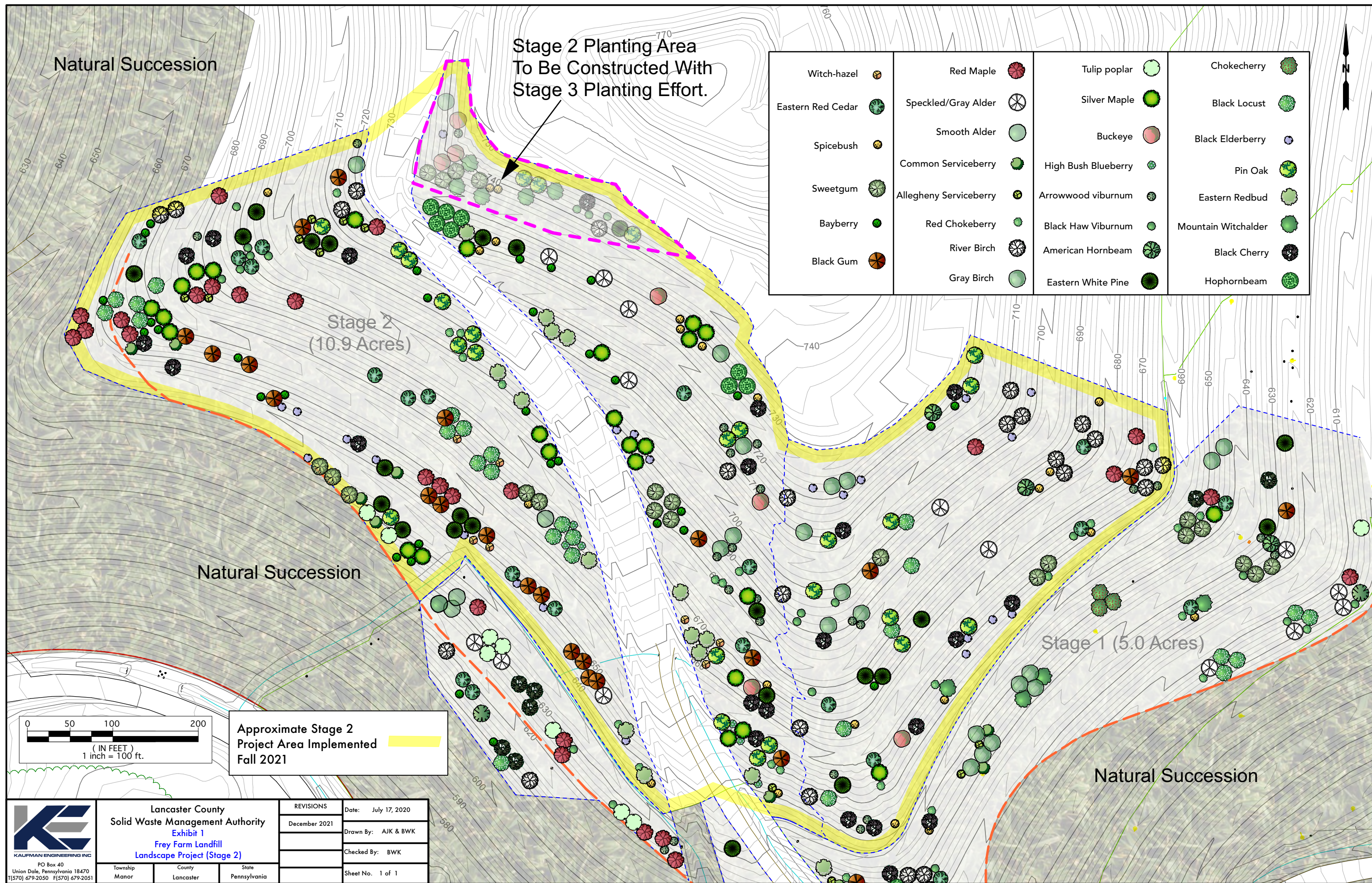
Spring 2022

Frey Farm Landfill
Visual Landscape Synthesis Plan



Spring 2022





Natural Succession

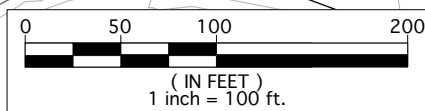
Stage 2 Planting Area
To Be Constructed With
Stage 3 Planting Effort.

Stage 2
(10.9 Acres)

Natural Succession


Stage 1 (5.0 Acres)

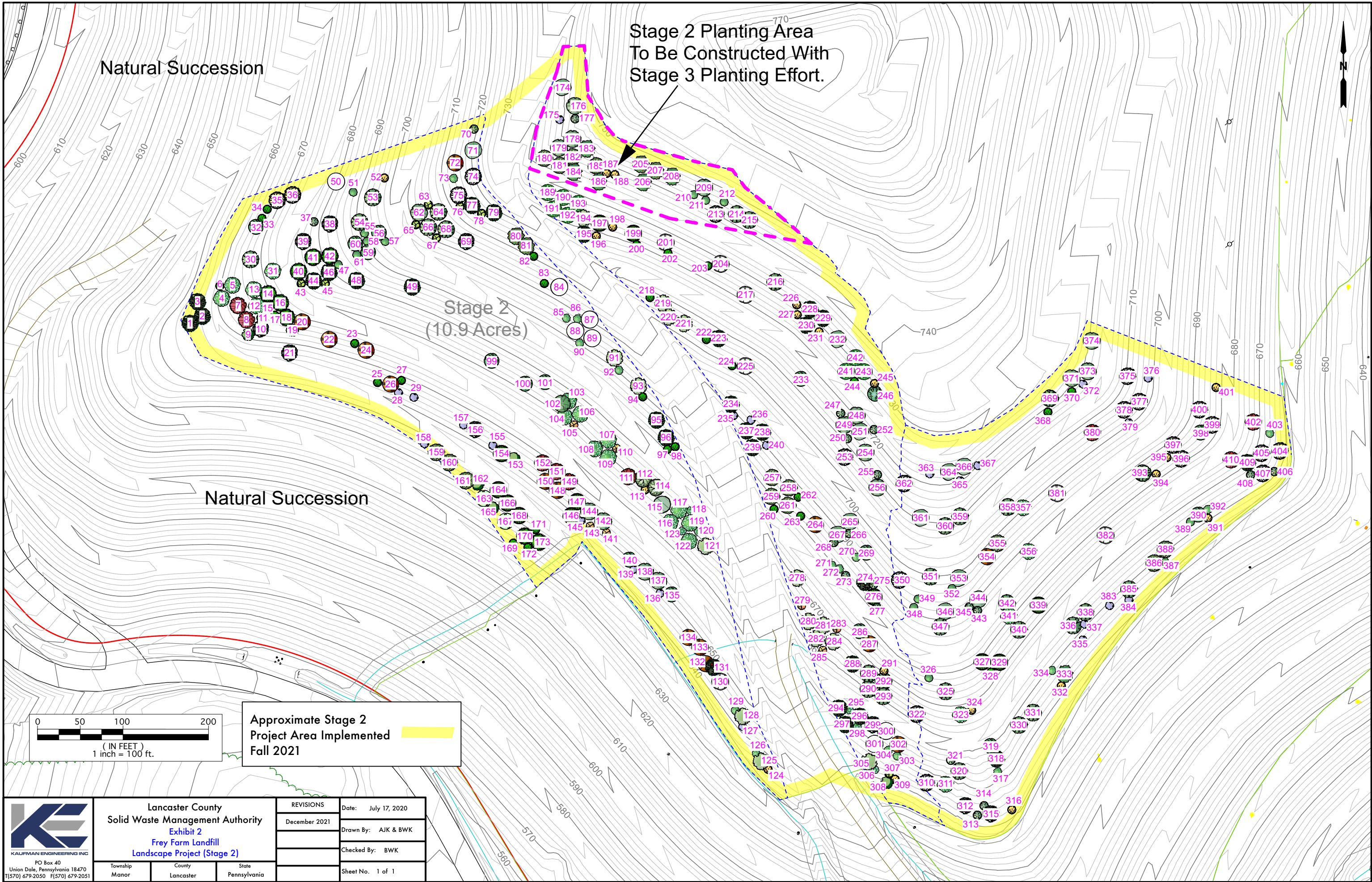
Natural Succession




Approximate Stage 2
Project Area Implemented
Fall 2021

Witch-hazel	Red Maple	Tulip poplar	Chokecherry
Eastern Red Cedar	Speckled/Gray Alder	Silver Maple	Black Locust
Spicebush	Smooth Alder	Buckeye	Black Elderberry
Sweetgum	Common Serviceberry	High Bush Blueberry	Pin Oak
Bayberry	Allegheny Serviceberry	Arrowwood viburnum	Eastern Redbud
Black Gum	Red Chokeberry	Black Haw Viburnum	Mountain Witchalder
	River Birch	American Hornbeam	Black Cherry
	Gray Birch	Eastern White Pine	Hophornbeam

 KAUFMAN ENGINEERING INC. PO Box 40 Union Dale, Pennsylvania 18470 T(570) 679-2050 F(570) 679-2051	Lancaster County Solid Waste Management Authority Exhibit 1 Frey Farm Landfill Landscape Project (Stage 2)		REVISIONS	Date: July 17, 2020
			December 2021	Drawn By: AJK & BWK
				Checked By: BWK
				Sheet No. 1 of 1
Township Manor	County Lancaster	State Pennsylvania		



 <small>KAUFFMAN ENGINEERING INC. PO Box 40 Union Dale, Pennsylvania 18470 T(570) 679-2050 F(570) 679-2051</small>	Lancaster County Solid Waste Management Authority Exhibit 2 Frey Farm Landfill Landscape Project (Stage 2)			REVISIONS	Date: July 17, 2020
				December 2021	Drawn By: AJK & BWK
					Checked By: BWK
					Sheet No. 1 of 1
	Township Manor	County Lancaster	State Pennsylvania		

Stage 2 Plantings Fall 2021

Number	Plants	Size	Northing	Easting
1	Red Maple	.75 - 6'	229273.0	2330843.0
2	Pin Oak		229281.3	2330857.3
3	Red Maple	.75 - 6'	229298.2	2330851.8
4	Black Locust		229301.9	2330880.4
5	Black Locust		229317.2	2330892.8
6	Bayberry		229316.2	2330877.8
7	Red Maple	.75 - 6'	229293.5	2330899.2
8	Red Maple	1.5 - 10'	229276.9	2330909.0
9	Common Serviceberry		229259.9	2330911.0
10	Black Cherry		229266.2	2330925.5
11	Bayberry		229279.0	2330925.6
12	Black Locust		229293.2	2330921.0
13	Black Locust		229312.2	2330917.8
14	Silver Maple		229307.0	2330934.0
15	Bayberry		229290.6	2330933.6
16	Silver Maple		229296.6	2330948.2
17	Bayberry		229282.2	2330942.0
18	Silver Maple		229279.3	2330955.5
19	Common Serviceberry		229264.9	2330962.5
20	Black Gum	6'	229274.5	2330973.8
21	Black Cherry		229238.2	2330959.1
22	Black Gum	6'	229254.0	2331005.3
23	Bayberry		229249.2	2331035.0
24	Black Gum	6'	229241.5	2331048.3
25	Bayberry		229203.8	2331061.6
26	Black Gum	6'	229202.0	2331076.8
27	Bayberry		229206.2	2331089.4
28	American Black Elderberry		229192.0	2331086.1
29	American Black Elderberry		229186.5	2331104.1
30	Eastern White Pine	4'	229347.3	2330913.8
31	Black Locust		229333.7	2330940.0
32	Eastern Red Cedar		229384.4	2330920.2
33	Bayberry		229395.0	2330926.9
34	Bayberry		229405.5	2330933.0
35	River Birch	6'	229415.9	2330944.6
36	River Birch	6'	229422.2	2330962.6
37	Arrowwood Viburnum		229391.0	2330987.5
38	Black Cherry		229388.4	2331006.1
39	Black Cherry		229368.0	2330975.0
40	Silver Maple		229333.0	2330969.5
41	Silver Maple		229349.6	2330986.5
42	Silver Maple		229351.0	2331005.9
43	Allegheny Serviceberry		229318.9	2330973.1
44	Red Maple	.75 - 6'	229322.5	2330987.1
45	Allegheny Serviceberry		229318.9	2331001.1
46	Red Maple	.75 - 6'	229332.3	2331005.0
47	Black-haw Viburnum		229341.1	2331016.0
48	Red Maple	1.5 - 10'	229322.8	2331037.0
49	Red Maple	1.5 - 10'	229315.3	2331101.9
50	Pin Oak		229438.0	2331013.2
51	Black-haw Viburnum		229425.5	2331033.3
52	Spicebush		229442.0	2331069.5
53	Eastern White Pine	4'	229419.4	2331056.2
54	Eastern White Pine	4'	229390.7	2331040.8
55	Black-haw Viburnum		229377.6	2331046.5
56	Eastern Red Cedar		229377.5	2331063.6
57	Black-haw Viburnum		229368.1	2331070.5
58	Black-haw Viburnum		229368.3	2331049.4
59	Eastern Red Cedar		229354.8	2331051.0
60	Eastern Red Cedar		229364.8	2331036.0
61	Black-haw Viburnum		229352.6	2331037.5
62	Black Gum	6'	229401.8	2331110.0
63	Allegheny Serviceberry		229410.5	2331121.1
64	Pin Oak		229402.5	2331132.8
65	Allegheny Serviceberry		229387.5	2331106.6
66	Eastern White Pine	4'	229384.8	2331120.8
67	Allegheny Serviceberry		229372.0	2331130.6
68	Eastern White Pine	4'	229382.4	2331141.5
69	Black Cherry		229368.0	2331165.0

Stage 2 Plantings Fall 2021

Number	Plants	Size	Northing	Easting
70	Arrowwood Viburnum		229499.0	2331174.0
71	Gray Birch		229474.0	2331173.0
72	Black Gum	10'	229459.5	2331152.1
73	Red Chokeberry		229441.7	2331150.1
74	River Birch	10'	229443.6	2331173.1
75	River Birch	10'	229421.9	2331155.9
76	Allegheny Serviceberry		229408.5	2331158.1
77	Silver Maple		229410.3	2331171.5
78	Allegheny Serviceberry		229400.5	2331183.1
79	Red Maple	1.5 - 10'	229401.8	2331197.0
80	Pin Oak		229374.5	2331222.7
81	Pin Oak		229363.2	2331234.6
82	Bayberry		229350.7	2331243.4
83	Bayberry		229319.1	2331255.8
84	Pin Oak		229315.0	2331273.2
85	Red Chokeberry		229279.0	2331281.4
86	Red Chokeberry		229278.2	2331294.4
87	Pin Oak		229277.0	2331308.7
88	Pin Oak		229264.0	2331291.9
89	Pin Oak		229255.5	2331311.7
90	Red Chokeberry		229250.0	2331297.0
91	Eastern Redbud		229232.5	2331337.5
92	Red Chokeberry		229218.4	2331342.8
93	Eastern Redbud		229199.7	2331365.4
94	Bayberry		229187.1	2331370.4
95	Silver Maple		229160.3	2331386.5
96	Silver Maple		229139.8	2331397.6
97	Bayberry		229126.0	2331399.4
98	Bayberry		229129.0	2331408.2
99	Eastern Red Cedar		229228.3	2331194.8
100	Eastern Red Cedar		229201.7	2331233.7
101	Eastern Red Cedar		229203.5	2331257.0
102	Black Gum	10'	229179.2	2331276.2
103	Black Locust		229182.5	2331284.5
104	Black Locust		229163.9	2331279.8
105	Witch Hazel		229154.6	2331290.4
106	Black Locust		229167.2	2331298.4
107	Black Locust		229136.7	2331330.9
108	Black Locust		229126.7	2331314.9
109	Black Locust		229116.7	2331330.9
110	Witch Hazel		229127.2	2331340.0
111	Red Maple	.75 - 6'	229094.1	2331354.0
112	Sweetgum		229091.6	2331371.2
113	Spicebush		229078.8	2331373.4
114	Sweetgum		229081.6	2331386.2
115	Smooth Alder		229061.4	2331393.1
116	Black Locust		229041.2	2331402.9
117	Black Locust		229055.2	2331413.4
118	High-Bush Blueberry		229054.4	2331426.0
119	Black Locust		229040.2	2331425.9
120	High-Bush Blueberry		229030.2	2331435.3
121	Eastern Redbud		229013.3	2331443.7
122	Black Locust		229019.2	2331424.9
123	High-Bush Blueberry		229031.2	2331416.5
124	Spicebush		228753.3	2331516.5
125	Eastern Redbud		228762.7	2331508.4
126	Red Chokeberry		228772.0	2331502.8
127	American Black Elderberry		228803.1	2331487.1
128	Eastern Redbud		228815.2	2331486.9
129	Red Chokeberry		228822.2	2331478.3
130	Speckled/Gray Alder		228855.7	2331461.0
131	Black Gum	10'	228872.4	2331452.8
132	Black Gum	10'	228876.4	2331443.9
133	Black Gum	10'	228895.5	2331437.3
134	Black Gum	10'	228907.0	2331423.8
135	Eastern Red Cedar		228956.3	2331404.5
136	American Black Elderberry		228958.3	2331390.9
137	Black Gum	10'	228973.0	2331388.5
138	Black Gum	10'	228983.5	2331373.0

Stage 2 Plantings Fall 2021

Number	Plants	Size	Northing	Easting
139	American Black Elderberry		228986.4	2331360.2
140	Eastern Red Cedar		228996.8	2331355.0
141	Witch Hazel		229028.7	2331328.3
142	Black Gum	10'	229042.3	2331324.5
143	Witch Hazel		229036.7	2331309.3
144	Eastern Red Cedar		229053.8	2331308.0
145	American Black Elderberry		229042.8	2331298.6
146	Eastern White Pine	4'	229048.8	2331287.2
147	Eastern White Pine	6'	229065.2	2331294.0
148	Black Gum	10'	229078.2	2331271.3
149	Red Maple	.75 - 6'	229088.1	2331285.0
150	Black Gum	6'	229088.7	2331257.3
151	Red Maple	.75 - 6'	229100.1	2331270.5
152	Red Maple	.75 - 6'	229110.1	2331254.0
153	Common Serviceberry		229115.4	2331220.5
154	Eastern White Pine	4'	229121.2	2331206.0
155	American Black Elderberry		229130.5	2331196.0
156	Black Cherry		229149.0	2331175.5
157	American Black Elderberry		229154.5	2331162.0
158	American Black Elderberry		229132.5	2331116.5
159	Sweetgum		229122.6	2331130.3
160	Sweetgum		229110.6	2331145.2
161	Sweetgum		229089.6	2331164.7
162	Common Serviceberry		229085.4	2331178.5
163	Tulip Poplar	6 - 7'	229068.8	2331185.4
164	Eastern White Pine	4'	229079.0	2331202.3
165	Common Serviceberry		229057.9	2331196.0
166	Pin Oak		229063.6	2331213.0
167	Tulip Poplar	8 - 9'	229042.2	2331210.8
168	Eastern White Pine	4'	229049.0	2331226.4
169	Bayberry		229016.8	2331219.8
170	Silver Maple		229024.8	2331233.2
171	Bayberry		229032.3	2331245.8
172	Bayberry		229011.8	2331236.8
173	Silver Maple		229017.9	2331249.7
174	Gray Birch		229547.4	2331277.2
175	American Black Elderberry		229510.0	2331274.0
176	Buckeye		229526.0	2331291.5
177	Arrowwood Viburnum		229510.9	2331291.8
178	Buckeye		229487.4	2331288.6
179	Buckeye		229477.1	2331272.9
180	Red Maple	1.5 - 10'	229464.8	2331256.0
181	Red Maple	1.5 - 10'	229456.5	2331273.8
182	Red Maple	1.5 - 10'	229466.5	2331288.8
183	Mountain Witchalder		229476.3	2331304.8
184	Mountain Witchalder		229449.1	2331289.6
185	Red Maple	1.5 - 10'	229456.0	2331316.3
186	Mountain Witchalder		229437.9	2331318.6
187	Spicebush		229447.3	2331328.5
188	Spicebush		229445.8	2331338.0
189	Hophornbeam		229425.2	2331259.5
190	Hophornbeam		229419.5	2331277.4
191	Hophornbeam		229406.2	2331266.5
192	Hophornbeam		229398.7	2331283.0
193	Hophornbeam		229412.4	2331295.2
194	Eastern Redbud		229395.2	2331301.4
195	Silver Maple		229376.8	2331302.0
196	Spicebush		229374.3	2331316.5
197	Eastern White Pine	6'	229389.4	2331320.2
198	Spicebush		229384.8	2331335.5
199	Eastern White Pine	6'	229377.7	2331359.5
200	Bayberry		229364.3	2331363.5
201	Speckled/Gray Alder		229367.0	2331397.5
202	Bayberry		229354.3	2331400.0
203	Bayberry		229339.6	2331446.5
204	Speckled/Gray Alder		229342.0	2331461.5
205	Pin Oak		229458.3	2331368.0
206	Mountain Witchalder		229437.2	2331370.3
207	Pin Oak		229450.8	2331385.0

Will Be Planted In Stage 3

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Stage 2 Plantings Fall 2021

Number	Plants	Size	Northing	Easting
208	Mountain Witchalder		229443.9	2331404.1
209	Black Cherry		229430.8	2331442.0
210	Black-haw Viburnum		229422.6	2331430.0
211	Black-haw Viburnum		229416.1	2331444.0
212	Black-haw Viburnum		229414.1	2331465.5
213	River Birch	6'	229399.9	2331455.9
214	Eastern White Pine	4'	229400.0	2331480.0
215	Pin Oak		229393.2	2331494.8
216	Buckeye		229321.0	2331525.0
217	Speckled/Gray Alder		229306.0	2331490.5
218	Bayberry		229302.8	2331379.0
219	Eastern Redbud		229296.2	2331394.0
220	Eastern Redbud		229280.2	2331400.5
221	Eastern Redbud		229272.7	2331418.6
222	Bayberry		229253.8	2331444.6
223	Silver Maple		229255.3	2331459.0
224	Bayberry		229223.3	2331474.6
225	Speckled/Gray Alder		229223.0	2331490.5
226	Spicebush		229294.3	2331550.0
227	Spicebush		229282.8	2331550.5
228	Silver Maple		229289.3	2331565.5
229	Silver Maple		229278.8	2331580.5
230	Silver Maple		229270.8	2331561.0
231	Spicebush		229262.8	2331576.0
232	Gray Birch		229254.0	2331597.5
233	Eastern Red Cedar		229207.3	2331555.0
234	Silver Maple		229178.8	2331473.5
235	American Black Elderberry		229165.3	2331476.5
236	American Black Elderberry		229160.3	2331496.9
237	Silver Maple		229147.8	2331491.5
238	Silver Maple		229146.3	2331510.0
239	Silver Maple		229128.3	2331498.5
240	American Black Elderberry		229130.7	2331514.9
241	Hophornbeam		229216.8	2331607.3
242	Hophornbeam		229232.8	2331618.4
243	Hophornbeam		229216.6	2331628.0
244	Bayberry		229205.0	2331617.1
245	Spicebush		229202.6	2331640.5
246	Black Cherry		229190.1	2331641.4
247	Arrowwood Viburnum		229167.9	2331601.2
248	Pin Oak		229165.4	2331619.7
249	Pin Oak		229154.5	2331605.5
250	Arrowwood Viburnum		229138.4	2331609.0
251	Gray Birch		229146.6	2331623.8
252	Arrowwood Viburnum		229149.0	2331640.0
253	River Birch	6'	229116.9	2331605.9
254	Black Cherry		229122.3	2331630.0
255	Arrowwood Viburnum		229096.5	2331644.0
256	Buckeye		229081.5	2331644.0
257	Red Maple	1.5 - 10'	229093.0	2331521.3
258	Red Maple	1.5 - 10'	229081.0	2331540.8
259	Red Maple	1.5 - 10'	229071.0	2331520.3
260	Bayberry		229056.3	2331523.5
261	Red Maple	1.5 - 10'	229060.6	2331539.4
262	Bayberry		229070.3	2331551.5
263	Bayberry		229048.3	2331554.5
264	Black Gum	10'	229038.4	2331571.9
265	Gray Birch		229041.5	2331612.0
266	Arrowwood Viburnum		229028.0	2331611.0
267	Gray Birch		229026.5	2331597.3
268	Arrowwood Viburnum		229017.5	2331593.3
269	Eastern Red Cedar		229004.9	2331631.3
270	Red Chokeberry		229000.5	2331619.0
271	Red Chokeberry		228990.9	2331591.0
272	Red Chokeberry		228987.1	2331599.6
273	Arrowwood Viburnum		228979.0	2331607.0
274	Silver Maple		228971.5	2331629.0
275	Arrowwood Viburnum		228968.5	2331639.5
276	Eastern White Pine	6'	228954.3	2331639.6

Will Be Planted In Stage 3

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Stage 2 Plantings Fall 2021

Number	Plants	Size	Northing	Easting
277	Arrowwood Viburnum		228942.2	2331643.1
278	Eastern Redbud		228976.2	2331550.4
279	Witch Hazel		228944.0	2331555.8
280	Eastern Redbud		228925.7	2331563.4
281	Eastern Redbud		228921.2	2331580.9
282	Eastern Redbud		228905.7	2331572.4
283	Witch Hazel		228917.0	2331596.8
284	Pin Oak		228902.2	2331592.4
285	Witch Hazel		228892.0	2331580.3
286	Eastern Redbud		228913.5	2331623.5
287	Black Gum	10'	228899.5	2331634.5
288	Silver Maple		228876.3	2331615.0
289	Buckeye		228865.0	2331634.0
290	Black Cherry		228847.0	2331633.5
291	Spicebush		228868.0	2331651.5
292	Eastern White Pine	4'	228856.0	2331651.0
293	Black Cherry		228838.5	2331651.0
294	Pin Oak		228824.8	2331599.0
295	High-Bush Blueberry		228822.7	2331611.4
296	Silver Maple		228815.3	2331623.5
297	Silver Maple		228805.8	2331606.5
298	High-Bush Blueberry		228803.2	2331620.4
299	Black Cherry		228805.3	2331638.8
300	Pin Oak		228798.0	2331654.0
301	Pin Oak		228783.0	2331640.5
302	Black Gum	10'	228782.5	2331668.3
303	Red Chokeberry		228769.2	2331666.8
304	Red Chokeberry		228775.9	2331656.6
305	Eastern Redbud		228762.1	2331633.9
306	High-Bush Blueberry		228753.0	2331640.9
307	Allegheny Serviceberry		228748.0	2331658.0
308	Common Serviceberry		228737.9	2331655.0
309	Spicebush		228741.8	2331664.5
310	River Birch	10'	228737.7	2331701.0
311	Black Locust		228736.1	2331723.7
312	Black Cherry		228711.0	2331746.5
313	Arrowwood Viburnum		228699.9	2331760.5
314	Arrowwood Viburnum		228710.9	2331768.3
315	Black Cherry		228701.5	2331776.5
316	Spicebush		228706.3	2331800.5
317	Red Chokeberry		228750.6	2331784.1
318	Silver Maple		228765.8	2331782.5
319	Eastern Red Cedar		228779.8	2331776.0
320	Eastern White Pine	6'	228751.4	2331739.4
321	Arrowwood Viburnum		228763.9	2331729.5
322	River Birch	10'	228817.6	2331689.8
323	Black Locust		228817.2	2331741.3
324	Spicebush		228822.1	2331753.7
325	Eastern Red Cedar		228844.3	2331723.5
326	Black-haw Viburnum		228860.0	2331704.0
327	Eastern White Pine	4'	228878.7	2331766.0
328	Bayberry		228866.8	2331776.5
329	Eastern White Pine	4'	228878.2	2331786.0
330	Buckeye		228805.1	2331808.9
331	Black Cherry		228819.5	2331825.5
332	Spicebush		228850.6	2331858.2
333	Mountain Witchalder		228864.6	2331861.6
334	Red Chokeberry		228868.7	2331847.3
335	American Black Elderberry		228904.1	2331883.6
336	Black Cherry		228921.0	2331872.0
337	American Black Elderberry		228922.4	2331885.4
338	Pin Oak		228936.5	2331886.5
339	Eastern White Pine	4'	228944.7	2331831.5
340	Pin Oak		228915.9	2331809.0
341	Black Locust		228931.9	2331797.5
342	Pin Oak		228946.9	2331795.0
343	Arrowwood Viburnum		228938.3	2331760.6
344	Gray Birch		228951.0	2331761.3
345	Arrowwood Viburnum		228942.5	2331751.0

Stage 2 Plantings Fall 2021

Number	Plants	Size	Northing	Easting
346	Gray Birch		228937.0	2331722.9
347	Black Cherry		228919.5	2331717.5
348	Black-haw Viburnum		228942.0	2331686.5
349	Black-haw Viburnum		228951.8	2331691.4
350	River Birch	10'	228973.7	2331669.8
351	Pin Oak		228977.9	2331706.0
352	Black-haw Viburnum		228964.0	2331731.0
353	Gray Birch		228975.8	2331738.9
354	Black Gum	6'	229001.0	2331771.8
355	Sweetgum		229016.7	2331783.8
356	Black Locust		229007.2	2331820.3
357	Black Locust		229058.1	2331813.9
358	Pin Oak		229058.9	2331796.0
359	Black Cherry		229048.0	2331740.2
360	Pin Oak		229036.9	2331723.0
361	Gray Birch		229046.0	2331694.5
362	River Birch	6'	229086.1	2331675.3
363	American Black Elderberry		229097.5	2331705.1
364	Gray Birch		229099.4	2331727.2
365	American Black Elderberry		229089.5	2331740.6
366	Gray Birch		229105.6	2331745.0
367	American Black Elderberry		229107.0	2331761.1
368	Bayberry		229169.4	2331842.6
369	American Hornbeam		229185.1	2331844.7
370	Bayberry		229193.2	2331870.4
371	Black Cherry		229209.0	2331870.2
372	American Black Elderberry		229202.0	2331883.6
373	Pin Oak		229216.8	2331889.0
374	Pin Oak		229252.3	2331893.5
375	River Birch	6'	229211.1	2331935.4
376	American Black Elderberry		229209.0	2331959.5
377	River Birch	6'	229181.4	2331948.9
378	River Birch	6'	229171.9	2331931.4
379	American Black Elderberry		229157.0	2331937.1
380	Red Maple	1.5 - 10'	229145.4	2331894.5
381	Speckled/Gray Alder		229074.9	2331853.5
382	Black-haw Viburnum		229026.0	2331910.0
383	American Black Elderberry		228944.1	2331914.6
384	American Black Elderberry		228950.6	2331937.1
385	Black Cherry		228963.2	2331937.2
386	Sweetgum		228993.6	2331966.5
387	Red Chokeberry		228995.0	2331979.0
388	Sweetgum		229009.6	2331979.5
389	Black-haw Viburnum		229041.6	2332008.7
390	Eastern Red Cedar		229049.3	2332018.0
391	Spicebush		229045.8	2332029.0
392	Red Chokeberry		229056.2	2332028.7
393	American Hornbeam		229098.0	2331953.0
394	Spicebush		229097.1	2331968.7
395	Spicebush		229116.4	2331981.3
396	River Birch	10'	229114.9	2331997.9
397	River Birch	10'	229130.9	2331988.4
398	Eastern Red Cedar		229144.8	2332020.8
399	River Birch	6'	229154.4	2332033.9
400	River Birch	6'	229172.1	2332019.1
401	Spicebush		229198.0	2332038.5
402	Red Maple	1.5 - 10'	229157.8	2332081.9
403	Red Chokeberry		229145.0	2332101.0
404	River Birch	10'	229124.1	2332112.9
405	River Birch	10'	229121.5	2332091.6
406	Arrowwood Viburnum		229100.1	2332106.4
407	River Birch	10'	229097.9	2332093.0
408	Arrowwood Viburnum		229096.3	2332078.8
409	Black Gum	6'	229110.8	2332075.0
410	Red Maple	1.5 - 10'	229113.8	2332056.2

Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Re Stage 1 and Stage 2

Date:10/26/22

Name of Inspector:Brian W. Kaufman - Kaufman Engineering, Inc.

Weather Conditions:62° - Morning Fog lifting then broken clouds and partly sunny.

Water

- 1Are there any test plots with areas of saturation or pockets of water.
- 2Are there any test plots with erosion damage (including toe of test plots).
- 3Do benches have sedimentation or unusual conditions?
- 4Is there water flowing onto bench that is unusual or a potential issue?
- 5Does there appear to be any slumping of the test plots?
- 6Are there any areas that are overly dry and in need of water?
- 7Other - Explain

Yes	No	Comments
	*	Slopes moisture appeared even and uniform
	*	
	*	
	*	
	*	
	*	
	*	

Animals

- 1Is there damage to plant material from animals (deer, birds, etc.)?
- 2Is there damage to mulch beds from animals?
- 3Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5Other - Explain

Yes	No	Comments
*		Deer (buck rubs mainly from 2020 rut). Guards were re- installed across project area and adjusted where possible by landfill staff (Jeff and Ashley)
	*	
	*	No, however continue to watch for spotted lanternflies.
	*	
		Bird boxes continue to be maintained and Jeff Musser has several documented large deer (buck) onsite.

Vegetation

- 1Is there damage to plant material?
- 2Is there insect damage to plant material?
- 3Is there animal damage to plant material?
- 4Is there storm damage to plant material?
- 5Is there wind blow to plant material?
- 6Is there noticeable fatigue to any plant material?
- 7Is there damage to plant material from landscape crew?
- 8Is there damage to plant material from other workers (LF staff or Contractors)?
- 9Any plant material missing "identification stakes"?
- 10Other - Explain

Yes	No	Comments
*		Deer browse and buck rubs continue to be a challenge at this site. Deer guards are helping. Vigilance is needed until deer population can be thinned and or tree population matures.
	*	
	*	Once again this year Pokeweed bushes had damage noted. These plant materail has started to grow within portions of the site. No action needed as these have grown on their own (natural succession) and are quite resilient.
	*	All root balls appear to be in good position. Ashley indicated that a few trees had to be adjusted since spring inspection
	*	Root balls are all secure and properly placed. Some plants continue to lean due to prevailing wind pressures - continue monitor for potential staking.
*		A portion of tree and shrub population was removed and replaced on October 12th, 2022. (36) replacement plants were planted on Oct. 12th 2022. Damaged plants were from deer damage or dought stress that did occur this summer
	*	Site is clean and looks good.
	*	
	*	Stakes are holding up. Still might be a good idea and would help Ashley to paint topsof stakes for greater visability.
	*	Weed growth continues to be aggressive around the base of many trees and shrubs. Continue to recommend weed contrall around base of plants withing Stage 1 and 2 to allow plants to thrive. Care should be given to not damage bark around base of any plant material during weeding.

Photos

- 1Did you take photos today?

Yes	No	Comments
*		Select photos attached - Additional photos taken exist in computer files.

Additional Notes or Comments:

Sixth inspection and walk through was completed with Jeff Musser, Michelle Marsh and Ashley Gichuki of LCSWMA. In addition, Tom Ortenzio joined this inspection. Most plant material continues to do well. It continues to be my belief that most plants are spending energy establishing to the site (mainly stage 2). Subsurface root development and establishment to the windy site are likely nearing completion. Starting to see additional vertical growth in Stage 1 plantings.

Deer (buck) damage was once again observed on many trees. Larger deer guards were re-installed or adjusted to try and create additional protection to thwart heavy damage. Jeff Musser has documented a large deer (buck) population on a game camera that has been placed onsite. Natural succession zone ranges 18" - 72" in height. Slopes appear full with grasses thriving. Continue to be very pleased with visual softening of benching and greater visual appeal when contrasted with traditional mowed slope aesthetic. Continued, seasonal, visual interest and texture, matching surrounding "buffer" landscapes will now likely continue on seasonal basis. Not recommending replacing plants at this point. As noted above we did replace (36) pieces of plant material accross the expanding population of Stage 1 and Stage 2. I've listed the replacement plant material here for reference.

(1)Fothergilla mt. airy 18"-24", (1)Alnus Serrulata 18"-24", (7) Acer rubrum 5'-6', (1) Juniperis virginiana 18"-24", (1) Myrica pennsylvanica 18"-24", (1) Populus grandidentata 5'-6', (2) Robinia pseudoacacia 5'-6', (1) Betula nigra 5'-6', (4) Liriodendron tulipifera 5'-6', (2) Viburnum prunifolium 18"-24", (2) Viburnum dentatum 18"-24", (1) Nyssa sylvatica 5'-6', (1) Liquidambar styraciflua 5'-6',

(2) Lindera benzoin 18"-24", (2) Alnus incana #3, (3) Acer saccharinum 5'-6', (1) Betula populifolia 5'-6', (2) Samucus canadensis18"-24", (1) Ostrya virginiana 4'-5'

Other notes: Several birds were observed in trees and many hawks were observed overhead.

Stage One

Photos Taken During
October 2022 Inspection

Frey Farm Landfill
Visual Landscape Synthesis Plan



Fall 2022

Stage Two

Photos Taken During
October 2022 Inspection

Frey Farm Landfill
Visual Landscape Synthesis Plan





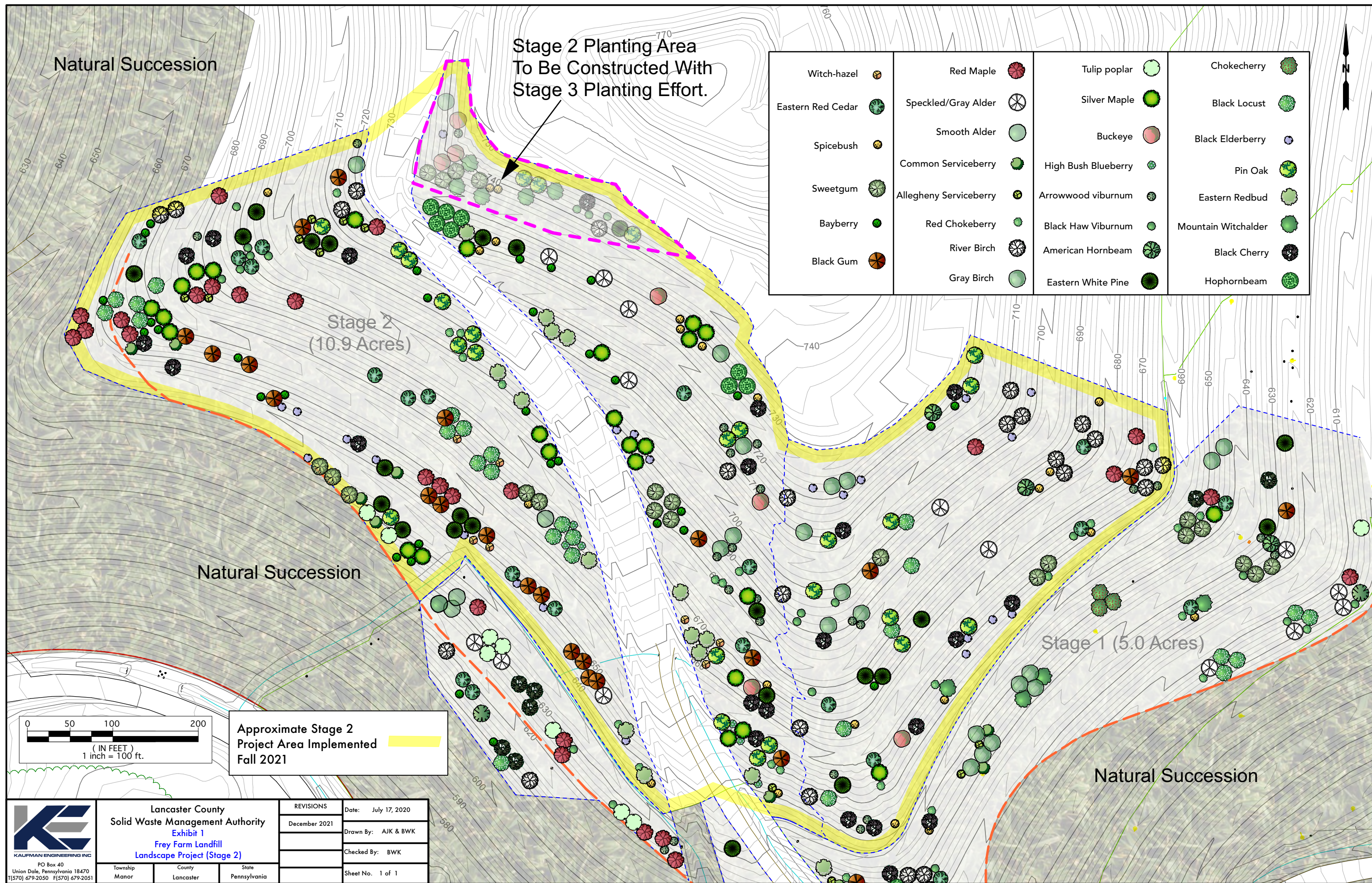
Stage Two -
Planted Fall 2021

Stage Two -
Planted Fall 2021

Stage One - Natural Succession

Stage One - Natural Succession

Stage One - Natural Succession



Natural Succession

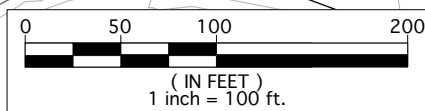
Stage 2 Planting Area
To Be Constructed With
Stage 3 Planting Effort.

Stage 2
(10.9 Acres)

Natural Succession


Stage 1 (5.0 Acres)

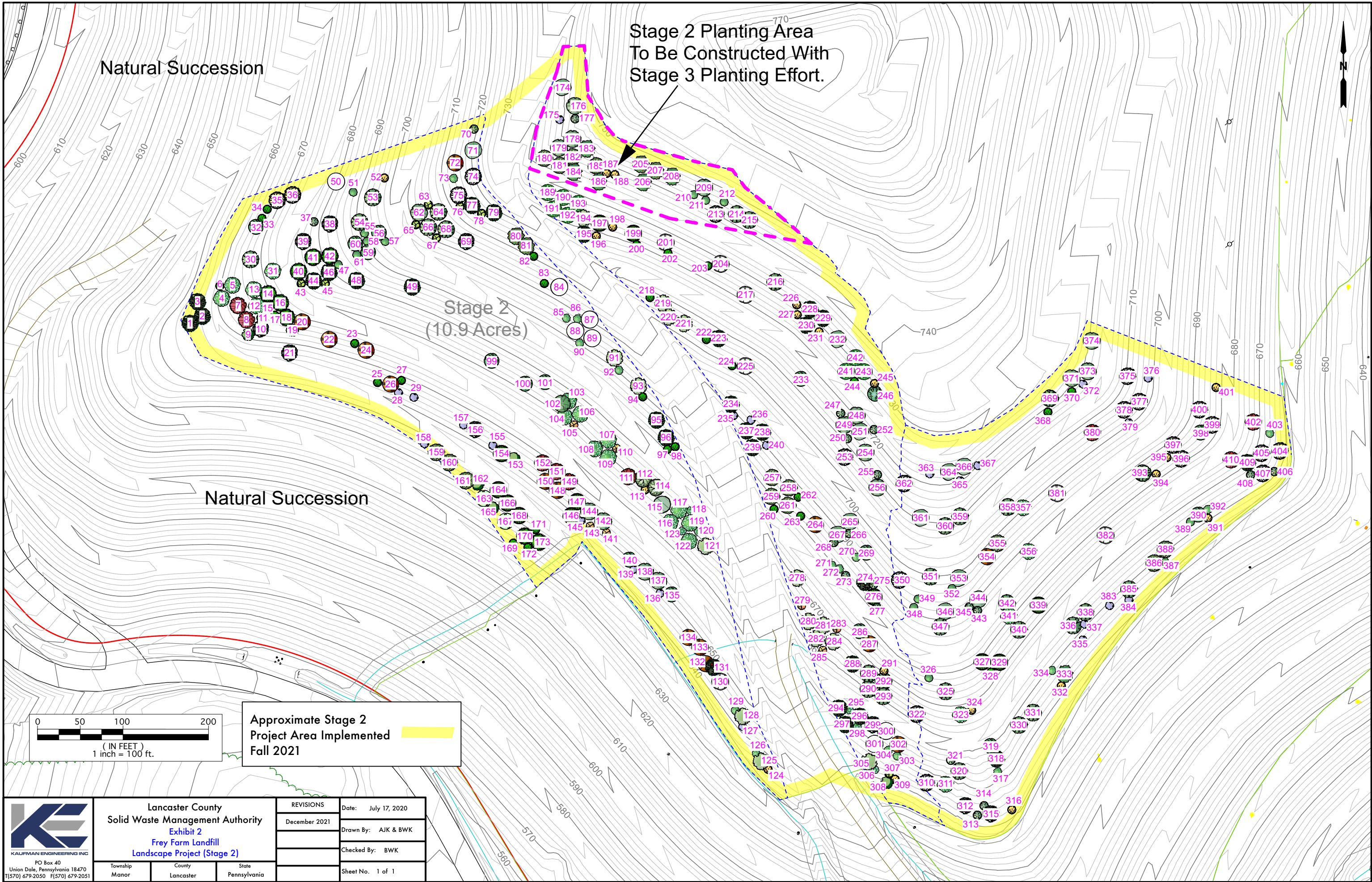
Natural Succession




Approximate Stage 2
Project Area Implemented
Fall 2021

Witch-hazel	Red Maple	Tulip poplar	Chokecherry
Eastern Red Cedar	Speckled/Gray Alder	Silver Maple	Black Locust
Spicebush	Smooth Alder	Buckeye	Black Elderberry
Sweetgum	Common Serviceberry	High Bush Blueberry	Pin Oak
Bayberry	Allegheny Serviceberry	Arrowwood viburnum	Eastern Redbud
Black Gum	Red Chokeberry	Black Haw Viburnum	Mountain Witchalder
	River Birch	American Hornbeam	Black Cherry
	Gray Birch	Eastern White Pine	Hophornbeam

 KAUFMAN ENGINEERING INC. PO Box 40 Union Dale, Pennsylvania 18470 T(570) 679-2050 F(570) 679-2051	Lancaster County Solid Waste Management Authority Exhibit 1 Frey Farm Landfill Landscape Project (Stage 2)		REVISIONS	Date: July 17, 2020
			December 2021	Drawn By: AJK & BWK
				Checked By: BWK
				Sheet No. 1 of 1
Township Manor	County Lancaster	State Pennsylvania		



 <div>KAUFFMAN ENGINEERING INC. PO Box 40 Union Dale, Pennsylvania 18470 T(570) 679-2050 F(570) 679-2051</div>	<div>Lancaster County Solid Waste Management Authority</div> <div>Exhibit 2 Frey Farm Landfill Landscape Project (Stage 2)</div>			REVISIONS	Date: July 17, 2020
				December 2021	Drawn By: AJK & BWK
					Checked By: BWK
					Sheet No. 1 of 1
	Township Manor	County Lancaster	State Pennsylvania		

Stage 2 Plantings Fall 2021

Number	Plants	Size	Northing	Easting
1	Red Maple	.75 - 6'	229273.0	2330843.0
2	Pin Oak		229281.3	2330857.3
3	Red Maple	.75 - 6'	229298.2	2330851.8
4	Black Locust		229301.9	2330880.4
5	Black Locust		229317.2	2330892.8
6	Bayberry		229316.2	2330877.8
7	Red Maple	.75 - 6'	229293.5	2330899.2
8	Red Maple	1.5 - 10'	229276.9	2330909.0
9	Common Serviceberry		229259.9	2330911.0
10	Black Cherry		229266.2	2330925.5
11	Bayberry		229279.0	2330925.6
12	Black Locust		229293.2	2330921.0
13	Black Locust		229312.2	2330917.8
14	Silver Maple		229307.0	2330934.0
15	Bayberry		229290.6	2330933.6
16	Silver Maple		229296.6	2330948.2
17	Bayberry		229282.2	2330942.0
18	Silver Maple		229279.3	2330955.5
19	Common Serviceberry		229264.9	2330962.5
20	Black Gum	6'	229274.5	2330973.8
21	Black Cherry		229238.2	2330959.1
22	Black Gum	6'	229254.0	2331005.3
23	Bayberry		229249.2	2331035.0
24	Black Gum	6'	229241.5	2331048.3
25	Bayberry		229203.8	2331061.6
26	Black Gum	6'	229202.0	2331076.8
27	Bayberry		229206.2	2331089.4
28	American Black Elderberry		229192.0	2331086.1
29	American Black Elderberry		229186.5	2331104.1
30	Eastern White Pine	4'	229347.3	2330913.8
31	Black Locust		229333.7	2330940.0
32	Eastern Red Cedar		229384.4	2330920.2
33	Bayberry		229395.0	2330926.9
34	Bayberry		229405.5	2330933.0
35	River Birch	6'	229415.9	2330944.6
36	River Birch	6'	229422.2	2330962.6
37	Arrowwood Viburnum		229391.0	2330987.5
38	Black Cherry		229388.4	2331006.1
39	Black Cherry		229368.0	2330975.0
40	Silver Maple		229333.0	2330969.5
41	Silver Maple		229349.6	2330986.5
42	Silver Maple		229351.0	2331005.9
43	Allegheny Serviceberry		229318.9	2330973.1
44	Red Maple	.75 - 6'	229322.5	2330987.1
45	Allegheny Serviceberry		229318.9	2331001.1
46	Red Maple	.75 - 6'	229332.3	2331005.0
47	Black-haw Viburnum		229341.1	2331016.0
48	Red Maple	1.5 - 10'	229322.8	2331037.0
49	Red Maple	1.5 - 10'	229315.3	2331101.9
50	Pin Oak		229438.0	2331013.2
51	Black-haw Viburnum		229425.5	2331033.3
52	Spicebush		229442.0	2331069.5
53	Eastern White Pine	4'	229419.4	2331056.2
54	Eastern White Pine	4'	229390.7	2331040.8
55	Black-haw Viburnum		229377.6	2331046.5
56	Eastern Red Cedar		229377.5	2331063.6
57	Black-haw Viburnum		229368.1	2331070.5
58	Black-haw Viburnum		229368.3	2331049.4
59	Eastern Red Cedar		229354.8	2331051.0
60	Eastern Red Cedar		229364.8	2331036.0
61	Black-haw Viburnum		229352.6	2331037.5
62	Black Gum	6'	229401.8	2331110.0
63	Allegheny Serviceberry		229410.5	2331121.1
64	Pin Oak		229402.5	2331132.8
65	Allegheny Serviceberry		229387.5	2331106.6
66	Eastern White Pine	4'	229384.8	2331120.8
67	Allegheny Serviceberry		229372.0	2331130.6
68	Eastern White Pine	4'	229382.4	2331141.5
69	Black Cherry		229368.0	2331165.0

Stage 2 Plantings Fall 2021

Number	Plants	Size	Northing	Easting
70	Arrowwood Viburnum		229499.0	2331174.0
71	Gray Birch		229474.0	2331173.0
72	Black Gum	10'	229459.5	2331152.1
73	Red Chokeberry		229441.7	2331150.1
74	River Birch	10'	229443.6	2331173.1
75	River Birch	10'	229421.9	2331155.9
76	Allegheny Serviceberry		229408.5	2331158.1
77	Silver Maple		229410.3	2331171.5
78	Allegheny Serviceberry		229400.5	2331183.1
79	Red Maple	1.5 - 10'	229401.8	2331197.0
80	Pin Oak		229374.5	2331222.7
81	Pin Oak		229363.2	2331234.6
82	Bayberry		229350.7	2331243.4
83	Bayberry		229319.1	2331255.8
84	Pin Oak		229315.0	2331273.2
85	Red Chokeberry		229279.0	2331281.4
86	Red Chokeberry		229278.2	2331294.4
87	Pin Oak		229277.0	2331308.7
88	Pin Oak		229264.0	2331291.9
89	Pin Oak		229255.5	2331311.7
90	Red Chokeberry		229250.0	2331297.0
91	Eastern Redbud		229232.5	2331337.5
92	Red Chokeberry		229218.4	2331342.8
93	Eastern Redbud		229199.7	2331365.4
94	Bayberry		229187.1	2331370.4
95	Silver Maple		229160.3	2331386.5
96	Silver Maple		229139.8	2331397.6
97	Bayberry		229126.0	2331399.4
98	Bayberry		229129.0	2331408.2
99	Eastern Red Cedar		229228.3	2331194.8
100	Eastern Red Cedar		229201.7	2331233.7
101	Eastern Red Cedar		229203.5	2331257.0
102	Black Gum	10'	229179.2	2331276.2
103	Black Locust		229182.5	2331284.5
104	Black Locust		229163.9	2331279.8
105	Witch Hazel		229154.6	2331290.4
106	Black Locust		229167.2	2331298.4
107	Black Locust		229136.7	2331330.9
108	Black Locust		229126.7	2331314.9
109	Black Locust		229116.7	2331330.9
110	Witch Hazel		229127.2	2331340.0
111	Red Maple	.75 - 6'	229094.1	2331354.0
112	Sweetgum		229091.6	2331371.2
113	Spicebush		229078.8	2331373.4
114	Sweetgum		229081.6	2331386.2
115	Smooth Alder		229061.4	2331393.1
116	Black Locust		229041.2	2331402.9
117	Black Locust		229055.2	2331413.4
118	High-Bush Blueberry		229054.4	2331426.0
119	Black Locust		229040.2	2331425.9
120	High-Bush Blueberry		229030.2	2331435.3
121	Eastern Redbud		229013.3	2331443.7
122	Black Locust		229019.2	2331424.9
123	High-Bush Blueberry		229031.2	2331416.5
124	Spicebush		228753.3	2331516.5
125	Eastern Redbud		228762.7	2331508.4
126	Red Chokeberry		228772.0	2331502.8
127	American Black Elderberry		228803.1	2331487.1
128	Eastern Redbud		228815.2	2331486.9
129	Red Chokeberry		228822.2	2331478.3
130	Speckled/Gray Alder		228855.7	2331461.0
131	Black Gum	10'	228872.4	2331452.8
132	Black Gum	10'	228876.4	2331443.9
133	Black Gum	10'	228895.5	2331437.3
134	Black Gum	10'	228907.0	2331423.8
135	Eastern Red Cedar		228956.3	2331404.5
136	American Black Elderberry		228958.3	2331390.9
137	Black Gum	10'	228973.0	2331388.5
138	Black Gum	10'	228983.5	2331373.0

Stage 2 Plantings Fall 2021

Number	Plants	Size	Northing	Easting
139	American Black Elderberry		228986.4	2331360.2
140	Eastern Red Cedar		228996.8	2331355.0
141	Witch Hazel		229028.7	2331328.3
142	Black Gum	10'	229042.3	2331324.5
143	Witch Hazel		229036.7	2331309.3
144	Eastern Red Cedar		229053.8	2331308.0
145	American Black Elderberry		229042.8	2331298.6
146	Eastern White Pine	4'	229048.8	2331287.2
147	Eastern White Pine	6'	229065.2	2331294.0
148	Black Gum	10'	229078.2	2331271.3
149	Red Maple	.75 - 6'	229088.1	2331285.0
150	Black Gum	6'	229088.7	2331257.3
151	Red Maple	.75 - 6'	229100.1	2331270.5
152	Red Maple	.75 - 6'	229110.1	2331254.0
153	Common Serviceberry		229115.4	2331220.5
154	Eastern White Pine	4'	229121.2	2331206.0
155	American Black Elderberry		229130.5	2331196.0
156	Black Cherry		229149.0	2331175.5
157	American Black Elderberry		229154.5	2331162.0
158	American Black Elderberry		229132.5	2331116.5
159	Sweetgum		229122.6	2331130.3
160	Sweetgum		229110.6	2331145.2
161	Sweetgum		229089.6	2331164.7
162	Common Serviceberry		229085.4	2331178.5
163	Tulip Poplar	6 - 7'	229068.8	2331185.4
164	Eastern White Pine	4'	229079.0	2331202.3
165	Common Serviceberry		229057.9	2331196.0
166	Pin Oak		229063.6	2331213.0
167	Tulip Poplar	8 - 9'	229042.2	2331210.8
168	Eastern White Pine	4'	229049.0	2331226.4
169	Bayberry		229016.8	2331219.8
170	Silver Maple		229024.8	2331233.2
171	Bayberry		229032.3	2331245.8
172	Bayberry		229011.8	2331236.8
173	Silver Maple		229017.9	2331249.7
174	Gray Birch		229547.4	2331277.2
175	American Black Elderberry		229510.0	2331274.0
176	Buckeye		229526.0	2331291.5
177	Arrowwood Viburnum		229510.9	2331291.8
178	Buckeye		229487.4	2331288.6
179	Buckeye		229477.1	2331272.9
180	Red Maple	1.5 - 10'	229464.8	2331256.0
181	Red Maple	1.5 - 10'	229456.5	2331273.8
182	Red Maple	1.5 - 10'	229466.5	2331288.8
183	Mountain Witchalder		229476.3	2331304.8
184	Mountain Witchalder		229449.1	2331289.6
185	Red Maple	1.5 - 10'	229456.0	2331316.3
186	Mountain Witchalder		229437.9	2331318.6
187	Spicebush		229447.3	2331328.5
188	Spicebush		229445.8	2331338.0
189	Hophornbeam		229425.2	2331259.5
190	Hophornbeam		229419.5	2331277.4
191	Hophornbeam		229406.2	2331266.5
192	Hophornbeam		229398.7	2331283.0
193	Hophornbeam		229412.4	2331295.2
194	Eastern Redbud		229395.2	2331301.4
195	Silver Maple		229376.8	2331302.0
196	Spicebush		229374.3	2331316.5
197	Eastern White Pine	6'	229389.4	2331320.2
198	Spicebush		229384.8	2331335.5
199	Eastern White Pine	6'	229377.7	2331359.5
200	Bayberry		229364.3	2331363.5
201	Speckled/Gray Alder		229367.0	2331397.5
202	Bayberry		229354.3	2331400.0
203	Bayberry		229339.6	2331446.5
204	Speckled/Gray Alder		229342.0	2331461.5
205	Pin Oak		229458.3	2331368.0
206	Mountain Witchalder		229437.2	2331370.3
207	Pin Oak		229450.8	2331385.0

Will Be Planted In Stage 3

Will Be Planted In Stage 3

Will Be Planted In Stage 3

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Stage 2 Plantings Fall 2021

Number	Plants	Size	Northing	Easting
208	Mountain Witchalder		229443.9	2331404.1
209	Black Cherry		229430.8	2331442.0
210	Black-haw Viburnum		229422.6	2331430.0
211	Black-haw Viburnum		229416.1	2331444.0
212	Black-haw Viburnum		229414.1	2331465.5
213	River Birch	6'	229399.9	2331455.9
214	Eastern White Pine	4'	229400.0	2331480.0
215	Pin Oak		229393.2	2331494.8
216	Buckeye		229321.0	2331525.0
217	Speckled/Gray Alder		229306.0	2331490.5
218	Bayberry		229302.8	2331379.0
219	Eastern Redbud		229296.2	2331394.0
220	Eastern Redbud		229280.2	2331400.5
221	Eastern Redbud		229272.7	2331418.6
222	Bayberry		229253.8	2331444.6
223	Silver Maple		229255.3	2331459.0
224	Bayberry		229223.3	2331474.6
225	Speckled/Gray Alder		229223.0	2331490.5
226	Spicebush		229294.3	2331550.0
227	Spicebush		229282.8	2331550.5
228	Silver Maple		229289.3	2331565.5
229	Silver Maple		229278.8	2331580.5
230	Silver Maple		229270.8	2331561.0
231	Spicebush		229262.8	2331576.0
232	Gray Birch		229254.0	2331597.5
233	Eastern Red Cedar		229207.3	2331555.0
234	Silver Maple		229178.8	2331473.5
235	American Black Elderberry		229165.3	2331476.5
236	American Black Elderberry		229160.3	2331496.9
237	Silver Maple		229147.8	2331491.5
238	Silver Maple		229146.3	2331510.0
239	Silver Maple		229128.3	2331498.5
240	American Black Elderberry		229130.7	2331514.9
241	Hophornbeam		229216.8	2331607.3
242	Hophornbeam		229232.8	2331618.4
243	Hophornbeam		229216.6	2331628.0
244	Bayberry		229205.0	2331617.1
245	Spicebush		229202.6	2331640.5
246	Black Cherry		229190.1	2331641.4
247	Arrowwood Viburnum		229167.9	2331601.2
248	Pin Oak		229165.4	2331619.7
249	Pin Oak		229154.5	2331605.5
250	Arrowwood Viburnum		229138.4	2331609.0
251	Gray Birch		229146.6	2331623.8
252	Arrowwood Viburnum		229149.0	2331640.0
253	River Birch	6'	229116.9	2331605.9
254	Black Cherry		229122.3	2331630.0
255	Arrowwood Viburnum		229096.5	2331644.0
256	Buckeye		229081.5	2331644.0
257	Red Maple	1.5 - 10'	229093.0	2331521.3
258	Red Maple	1.5 - 10'	229081.0	2331540.8
259	Red Maple	1.5 - 10'	229071.0	2331520.3
260	Bayberry		229056.3	2331523.5
261	Red Maple	1.5 - 10'	229060.6	2331539.4
262	Bayberry		229070.3	2331551.5
263	Bayberry		229048.3	2331554.5
264	Black Gum	10'	229038.4	2331571.9
265	Gray Birch		229041.5	2331612.0
266	Arrowwood Viburnum		229028.0	2331611.0
267	Gray Birch		229026.5	2331597.3
268	Arrowwood Viburnum		229017.5	2331593.3
269	Eastern Red Cedar		229004.9	2331631.3
270	Red Chokeberry		229000.5	2331619.0
271	Red Chokeberry		228990.9	2331591.0
272	Red Chokeberry		228987.1	2331599.6
273	Arrowwood Viburnum		228979.0	2331607.0
274	Silver Maple		228971.5	2331629.0
275	Arrowwood Viburnum		228968.5	2331639.5
276	Eastern White Pine	6'	228954.3	2331639.6

Will Be Planted In Stage 3

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Stage 2 Plantings Fall 2021

Number	Plants	Size	Northing	Easting
277	Arrowwood Viburnum		228942.2	2331643.1
278	Eastern Redbud		228976.2	2331550.4
279	Witch Hazel		228944.0	2331555.8
280	Eastern Redbud		228925.7	2331563.4
281	Eastern Redbud		228921.2	2331580.9
282	Eastern Redbud		228905.7	2331572.4
283	Witch Hazel		228917.0	2331596.8
284	Pin Oak		228902.2	2331592.4
285	Witch Hazel		228892.0	2331580.3
286	Eastern Redbud		228913.5	2331623.5
287	Black Gum	10'	228899.5	2331634.5
288	Silver Maple		228876.3	2331615.0
289	Buckeye		228865.0	2331634.0
290	Black Cherry		228847.0	2331633.5
291	Spicebush		228868.0	2331651.5
292	Eastern White Pine	4'	228856.0	2331651.0
293	Black Cherry		228838.5	2331651.0
294	Pin Oak		228824.8	2331599.0
295	High-Bush Blueberry		228822.7	2331611.4
296	Silver Maple		228815.3	2331623.5
297	Silver Maple		228805.8	2331606.5
298	High-Bush Blueberry		228803.2	2331620.4
299	Black Cherry		228805.3	2331638.8
300	Pin Oak		228798.0	2331654.0
301	Pin Oak		228783.0	2331640.5
302	Black Gum	10'	228782.5	2331668.3
303	Red Chokeberry		228769.2	2331666.8
304	Red Chokeberry		228775.9	2331656.6
305	Eastern Redbud		228762.1	2331633.9
306	High-Bush Blueberry		228753.0	2331640.9
307	Allegheny Serviceberry		228748.0	2331658.0
308	Common Serviceberry		228737.9	2331655.0
309	Spicebush		228741.8	2331664.5
310	River Birch	10'	228737.7	2331701.0
311	Black Locust		228736.1	2331723.7
312	Black Cherry		228711.0	2331746.5
313	Arrowwood Viburnum		228699.9	2331760.5
314	Arrowwood Viburnum		228710.9	2331768.3
315	Black Cherry		228701.5	2331776.5
316	Spicebush		228706.3	2331800.5
317	Red Chokeberry		228750.6	2331784.1
318	Silver Maple		228765.8	2331782.5
319	Eastern Red Cedar		228779.8	2331776.0
320	Eastern White Pine	6'	228751.4	2331739.4
321	Arrowwood Viburnum		228763.9	2331729.5
322	River Birch	10'	228817.6	2331689.8
323	Black Locust		228817.2	2331741.3
324	Spicebush		228822.1	2331753.7
325	Eastern Red Cedar		228844.3	2331723.5
326	Black-haw Viburnum		228860.0	2331704.0
327	Eastern White Pine	4'	228878.7	2331766.0
328	Bayberry		228866.8	2331776.5
329	Eastern White Pine	4'	228878.2	2331786.0
330	Buckeye		228805.1	2331808.9
331	Black Cherry		228819.5	2331825.5
332	Spicebush		228850.6	2331858.2
333	Mountain Witchalder		228864.6	2331861.6
334	Red Chokeberry		228868.7	2331847.3
335	American Black Elderberry		228904.1	2331883.6
336	Black Cherry		228921.0	2331872.0
337	American Black Elderberry		228922.4	2331885.4
338	Pin Oak		228936.5	2331886.5
339	Eastern White Pine	4'	228944.7	2331831.5
340	Pin Oak		228915.9	2331809.0
341	Black Locust		228931.9	2331797.5
342	Pin Oak		228946.9	2331795.0
343	Arrowwood Viburnum		228938.3	2331760.6
344	Gray Birch		228951.0	2331761.3
345	Arrowwood Viburnum		228942.5	2331751.0

Stage 2 Plantings Fall 2021

Number	Plants	Size	Northing	Easting
346	Gray Birch		228937.0	2331722.9
347	Black Cherry		228919.5	2331717.5
348	Black-haw Viburnum		228942.0	2331686.5
349	Black-haw Viburnum		228951.8	2331691.4
350	River Birch	10'	228973.7	2331669.8
351	Pin Oak		228977.9	2331706.0
352	Black-haw Viburnum		228964.0	2331731.0
353	Gray Birch		228975.8	2331738.9
354	Black Gum	6'	229001.0	2331771.8
355	Sweetgum		229016.7	2331783.8
356	Black Locust		229007.2	2331820.3
357	Black Locust		229058.1	2331813.9
358	Pin Oak		229058.9	2331796.0
359	Black Cherry		229048.0	2331740.2
360	Pin Oak		229036.9	2331723.0
361	Gray Birch		229046.0	2331694.5
362	River Birch	6'	229086.1	2331675.3
363	American Black Elderberry		229097.5	2331705.1
364	Gray Birch		229099.4	2331727.2
365	American Black Elderberry		229089.5	2331740.6
366	Gray Birch		229105.6	2331745.0
367	American Black Elderberry		229107.0	2331761.1
368	Bayberry		229169.4	2331842.6
369	American Hornbeam		229185.1	2331844.7
370	Bayberry		229193.2	2331870.4
371	Black Cherry		229209.0	2331870.2
372	American Black Elderberry		229202.0	2331883.6
373	Pin Oak		229216.8	2331889.0
374	Pin Oak		229252.3	2331893.5
375	River Birch	6'	229211.1	2331935.4
376	American Black Elderberry		229209.0	2331959.5
377	River Birch	6'	229181.4	2331948.9
378	River Birch	6'	229171.9	2331931.4
379	American Black Elderberry		229157.0	2331937.1
380	Red Maple	1.5 - 10'	229145.4	2331894.5
381	Speckled/Gray Alder		229074.9	2331853.5
382	Black-haw Viburnum		229026.0	2331910.0
383	American Black Elderberry		228944.1	2331914.6
384	American Black Elderberry		228950.6	2331937.1
385	Black Cherry		228963.2	2331937.2
386	Sweetgum		228993.6	2331966.5
387	Red Chokeberry		228995.0	2331979.0
388	Sweetgum		229009.6	2331979.5
389	Black-haw Viburnum		229041.6	2332008.7
390	Eastern Red Cedar		229049.3	2332018.0
391	Spicebush		229045.8	2332029.0
392	Red Chokeberry		229056.2	2332028.7
393	American Hornbeam		229098.0	2331953.0
394	Spicebush		229097.1	2331968.7
395	Spicebush		229116.4	2331981.3
396	River Birch	10'	229114.9	2331997.9
397	River Birch	10'	229130.9	2331988.4
398	Eastern Red Cedar		229144.8	2332020.8
399	River Birch	6'	229154.4	2332033.9
400	River Birch	6'	229172.1	2332019.1
401	Spicebush		229198.0	2332038.5
402	Red Maple	1.5 - 10'	229157.8	2332081.9
403	Red Chokeberry		229145.0	2332101.0
404	River Birch	10'	229124.1	2332112.9
405	River Birch	10'	229121.5	2332091.6
406	Arrowwood Viburnum		229100.1	2332106.4
407	River Birch	10'	229097.9	2332093.0
408	Arrowwood Viburnum		229096.3	2332078.8
409	Black Gum	6'	229110.8	2332075.0
410	Red Maple	1.5 - 10'	229113.8	2332056.2

Date: 1/7/22

Name of Inspector: Ashley Gichuki

Weather Conditions: 28 degrees, windy

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

No new areas of concern since the last inspection.

Date: 1/17/22

Name of Inspector: Ashley Gichuki

Weather Conditions: cloudy 33°

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

No new areas of concern since the last inspection.

Date: 1/31/22

Name of Inspector: Ashley Gichuki

Weather Conditions: 34 degrees, partially cloudy

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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*		55 mph wind gusts occurred over weekend
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

This inspection fell directly after a weekend involving 55 mph wind gusts. Two trees were observed leaning over from both the past wind gusts and the heavier deer guards that are still on. These were tree #s 71 and 232 of the 2nd phase. The tree guards were removed and the trees are now a little more upright. Both of the areas where these trees are located have high impact from the wind.

Date: 2/14/22

Name of Inspector: Ashley Gichuki

Weather Conditions: 27 degrees, partly cloudy

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

No new areas of concern since the last inspection.

Date: 2/18/22

Name of Inspector: Ashley Gichuki

Weather Conditions: 39 degrees, windy, cloudy

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

This inspection was completed today due to wind gusts exceeding 50 mph. During my inspection, I noticed several trees that were leaning over most likely due to the wind gusts this morning. These are tree #s 82, 344, 353 all in Phase 2.

Date: 3/4/22

Weather Conditions: sunny, 41 degrees F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Photos

- 1 Did you take photos today?

Additional Notes or Comments:

During the inspection, it was observed that tree #s 232 and 242 (Phase 2) are snapped off. In Phase 1, tree #s 38 and 41 look dead.

Phase 1

Name of Inspector: Ashley Gichuki

Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
	*	

Date: 3/18/22

Name of Inspector: Ashley Gichuki

Weather Conditions: Cloudy, 68 degrees F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

During today's inspection, I observed that an animal had been digging a rather large hole into the mulch bed of tree #223. I filled this hole back in with dirt and redressed the mulch.

Date: 4/1/22

Name of Inspector: Ashley Gichuki

Weather Conditions: Partly sunny, 46 degrees F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

No new areas of concern since the last inspection.

Date: 4/8/22

Name of Inspector: Ashley Gichuki

Weather Conditions: Sunny, Temperature of 64 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

This was an inspection due to having wind gusts over 50 mph. I took notice to one tree that is close to the gravel road that had been blown over. After getting the tree back upright, I added dirt and reinforced with stakes.

It seems as though this tree was not very far into the ground when initially planted.

Date: 4/22/22

Name of Inspector: Ashley Gichuki

Weather Conditions: Sunny, Temperature of 64 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

During the inspection, I observed two trees in Phase 2 that are believed to be dead. These are tree #s 201 and 231.

Date: 5/6/22

Weather Conditions: Sunny, Temperature of 61 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Photos

- 1 Did you take photos today?

Additional Notes or Comments:

During the inspection, I noticed that tree #217 looks dead. There has been an animal digging, which was fixed with extra dirt and mulch.

Phase 1

Name of Inspector: Ashley Gichuki

Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Date: 5/20/22

Weather Conditions: Sunny, 81 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Photos

- 1 Did you take photos today?

Additional Notes or Comments:

The trees are looking great overall, many of which have blooms and lots of green on the hillside.

Name of Inspector: Ashley Gichuki

Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Date: 6/3/22

Weather Conditions: Sunny, 77 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Photos

- 1 Did you take photos today?

Additional Notes or Comments:

Now that everything is blooming, it is much easier to see which trees have died over the winter (i.e. no leaves, no buds)

In Phase 1, tree #s 43, 44, 45, 90, and 99 are all dead.

Phase 1

Name of Inspector: Ashley Gichuki

Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Date: 6/17/22

Weather Conditions: Sunny, 88 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Photos

- 1 Did you take photos today?

Additional Notes or Comments:

No new areas of concern since last inspection.

Phase 1

Name of Inspector: Ashley Gichuki

Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Date: 7/1/22

Weather Conditions: Thunder showers, broken clouds, 79 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Photos

- 1 Did you take photos today?

Additional Notes or Comments:

During today's inspection, I observed a tree in Phase 2 that looks dead. This is tree #236.

Name of Inspector: Ashley Gichuki

Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Date: 7/15/22

Weather Conditions: Scattered clouds, 84 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Photos

- 1 Did you take photos today?

Additional Notes or Comments:

In Phase 1, tree #s 53 and 56 look dead.

Phase 1

Name of Inspector: Ashley Gichuki

Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Date: 7/29/22

Weather Conditions: Partly sunny, 72 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Photos

- 1 Did you take photos today?

Additional Notes or Comments:

Upon the inspection, I observed that due to some extremely dry conditions, tree #11 in Phase 1 has almost no green needles left. This will more than likely need replaced.

Name of Inspector: Ashley Gichuki

Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Date: 8/12/22

Weather Conditions: Passing clouds, 81 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Photos

- 1 Did you take photos today?

Additional Notes or Comments:

During today's inspection, (and with the dry conditions), there were a few trees with leaves that have wilted and dried out.. The hope is that the trees have gone dormant, I will keep an eye on these through the spring of next year.

These tree #s are 237 and 238 in Phase 2.

Phase 1

Name of Inspector: Ashley Gichuki

Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Date: 8/26/22

Name of Inspector: Ashley Gichuki

Weather Conditions: Scattered clouds, 90 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

No new areas of concern since last inspection.

Date: 9/9/22

Name of Inspector: Ashley Gichuki

Weather Conditions: Passing clouds, 81 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

During the inspection, I observed a very large groundhog hole in the mulch bed of tree #190 in Phase 2. The hole was dug underneath the root ball causing the tree to lean over. The tree was still in great shape so I filled in the hole and straightened the tree up as well as adding stakes as a support for now. Mulch was also added to the top.

Date: 9/23/22

Name of Inspector: Ashley Gichuki

Weather Conditions: Sunny, 63 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

There are no new areas of concern since the last inspection.

Date: 10/7/22

Name of Inspector: Ashley Gichuki

Weather Conditions: Sunny, 70 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

During today's inspection, I noticed there is a tree in Phase #2 that might be dead unless it has gone dormant. It did have leaves but now they are completely dried out. This is tree #196.

Date: 10/21/22

Name of Inspector: Ashley Gichuki

Weather Conditions: Sunny, 61 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

During today's inspection, I noticed there are several trees that have buck rub. All of the larger trees have the more robust deer guards on them, but it seems as if the deer are quite aggressive this year. They are using their horns to push the guards up, resulting in the guard getting stuck on branches and giving them a chance to scrape the base of the tree. These tree #'s are 79,191, 192, all in Phase 2.

Date: 11/4/22

Name of Inspector: Ashley Gichuki

Weather Conditions: Sunny, 66 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

No new areas of concern since the last inspection.

Date: 11/18/22

Name of Inspector: Ashley Gichuki

Weather Conditions: Mostly cloudy, 39 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Yes	No	Comments
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Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Yes	No	Comments
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Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Yes	No	Comments
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Photos

- 1 Did you take photos today?

Yes	No	Comments
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Additional Notes or Comments:

No new areas of concern since the last inspection.

Frey Farm Landfill -Visual Landscape Synthesis Plan Bi-Weekly/Post Weather Event Inspection Report

Date: 12/2/22

Weather Conditions: Sunny, Temperature of 37 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Photos

- 1 Did you take photos today?

Additional Notes or Comments:

No new areas of concern since the last inspection.

Phase 1

Name of Inspector: Ashley Gichuki

Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Date: 12/16/22

Weather Conditions: Cloudy, Temperature of 43 deg F

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Animals

- 1 Is there damage to plant material from animals (deer, birds, etc.)?
- 2 Is there damage to mulch beds from animals?
- 3 Are there nests of bees or other insects which could be harmful to humans / other animals?
- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Vegetation

- 1 Is there damage to plant material?
- 2 Is there insect damage to plant material?
- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Photos

- 1 Did you take photos today?

Additional Notes or Comments:

No new areas of concern since the last inspection.

Phase 1

Name of Inspector: Ashley Gichuki

Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Date: 12/30/22

Weather Conditions: Temperature 61 deg, passing clouds

Water

- 1 Are there any test plots with areas of saturation or pockets of water.
- 2 Are there any test plots with erosion damage (including toe of test plots).
- 3 Do benches have sedimentation or unusual conditions?
- 4 Is there water flowing onto bench that is unusual or a potential issue?
- 5 Does there appear to be any slumping of the test plots?
- 6 Are there any areas that are overly dry and in need of water?
- 7 Other - Explain

Animals

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- 4 Are there any holes or burrows in mulch beds and soil from burrowing animals?
- 5 Other - Explain

Vegetation

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- 3 Is there animal damage to plant material?
- 4 Is there storm damage to plant material?
- 5 Is there wind blow to plant material?
- 6 Is there noticeable fatigue to any plant material?
- 7 Is there damage to plant material from landscape crew?
- 8 Is there damage to plant material from other workers (LF staff or Contractors)?
- 9 Any plant material missing "dog tag"?
- 10 Other - Explain

Photos

- 1 Did you take photos today?

Additional Notes or Comments:

No new areas of concern

Name of Inspector: Ashley Gichuki

Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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Yes	No	Comments
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