249 Dunham Drive, Dunmore, PA 18512

Commonwealth
Environmental Systems L.P.

November 5, 2025

Mr. Roger Bellas
Program Manager
Pennsylvania Department of
Environmental Protection
Waste Management Program
2 Public Square
Wilkes Barre, PA 18711-0790

Re: Commonwealth Environmental Systems, L.P.
I.D. # 101615
Second Environmental Assessment Review

Dear Mr. Bellas:

Please accept this correspondence in response to the Department's Second Environmental Assessment of Commonwealth Environmental Systems (CES) Major Permit Modification Application No. 1136269 for the Southwest Expansion. For ease of reference, please see listed the Department's comments and CES' narrative response and attachments.

If you have any questions, please contact me.

Sincerely,

Dominick L. DeNaples, Jr.

cc: Mr. M. Piepoli, CES

Phone
(570) 343-5782

Fax
(570) 348-3135

November 4, 2025

Dominick L. DeNaples Jr., Site Manager
Commonwealth Environmental Systems
249 Dunham Drive
Dunmore, Pa. 18512

RE: **Second Environmental Assessment Review – Response to Comments**
Commonwealth Environmental Systems Landfill
Major Permit Modification Application – Southwest Expansion
Foster, Reilly, and Frailey Townships, Schuylkill County
No.101615-A242

Dear Mr. DeNaples,

Below is a response to the Second Environmental Assessment Review Comment Letter dated September 10, 2025, from the Department of Environmental Protection (DEP):

1. Section A Geologic: The site is currently in a groundwater assessment/abatement process for elevated levels of nitrate in the original southern expansion area. The initial report indicated the source was likely stormwater contaminated with leachate from an active cell. The operational modifications proposed by CES's consultant, Highland Geosciences, to prevent future occurrences, are all related to stormwater from cell construction. However, CES' response to the First Environmental Assessment review letter for this comment noted that "it is unlikely that the stormwater discharge from previous cell construction is the cause of the groundwater degradation observed in monitoring wells MW-23 and MW-24." CES should provide an update regarding the investigation of the source of the groundwater degradation. If other potential sources have been identified, CES should explain what additional operational changes are being taken to prevent future occurrences.

   Response: Although downgradient installation and subsequent sampling of the IW and CW abatement wells determined that the stormwater discharge location outside of the disposal area, as observed on the September 22, 2020, Google Earth imagery, was not the infiltration source area of leachate-impacted stormwater to the environment, this does not rule out leachate-impacted stormwater as a cause of the increases in leachate indicator parameters observed at the monitoring wells. Leachate-impacted stormwater may have infiltrated the secondary detection liner system and the surrounding environment at a location where, at times, lined and unlined areas meet — such as where the secondary and primary liners were not welded together during construction — resulting in elevated secondary flow, elevated concentrations of leachate indicator parameters in the secondary system, and corresponding increases at the monitoring wells.

   Other potential causes of increases in leachate indicator parameters in both the groundwater and secondary leachate collection systems include leachate backing up to an elevation high enough to allow backflow into anchor trenches at the landfill perimeter. However, this seems unlikely due to the relatively high elevation of the perimeter anchor trenches in the southern portion of the Southern Expansion compared to the sump.

A MW-23D concentration time-series plot is included in Attachment A, showing concentrations of three selected leachate indicator parameters from the second quarter of 2018 through the third quarter of 2025. Although degraded groundwater has been detected in this well, concentrations have varied significantly between sampling events. Over the last calendar year, concentrations in MW-23D decreased significantly: nitrates have declined by 54% since the July 2024 peak, chloride has decreased by 72% over the same period, and potassium—after peaking in October 2024—has decreased by 47%.

A concentration time-series plot for the same parameters at MW-24D is included in Attachment B. While MW-24D concentrations have remained relatively consistent since groundwater degradation was first detected, it is important to note that background nitrate levels at this location typically ranged from 5–8 mg/L before degradation. Delayed decreases in concentrations in this well may be related to the lower groundwater gradient in this portion of the site as compared to the steeper gradient located near MW-23D, as well as the naturally higher background nitrate levels. Steeper gradients should, theoretically, allow for greater dilution and dispersion of contaminants, resulting in more rapid improvement once the contaminant source is abated.

Leachate detection zone SE-2, located in the southern portion of the Southern Expansion Area, has also shown significant variability in leachate indicator concentrations. However, concentrations have decreased over the past three quarters, as shown in the time-series plot included in Attachment C. Flow within the detection zone has also declined by 86% from its first-quarter 2024 recent peak to levels typically observed before groundwater degradation in the area. A time-series plot of SE-2 leachate detection zone flows is included in Attachment D. The high variability in both flow and concentrations suggests that, while leachate impacts are present in the detection zone, they are unlikely to be associated with a compromised primary liner. If the primary liner were compromised, secondary flows and concentrations would likely be more consistently elevated across quarters.

Operational controls in place to prevent leachate-impacted water from entering the environment include:

1. Setbacks of waste placement during new cell construction
2. Use of tarps to reduce stormwater infiltration and potential leachate breakouts
3. Periodic stormwater sampling during cell construction once the Cell 5 liner system and stormwater collection/discharge begin

Based on conversations with CES personnel, these operational controls were implemented in February 2024 and are being utilized as cell progression continues within the Southern Expansion Area. Although longer duration monitoring will be necessary to ensure that flows stay consistently low and elevated leachate indicator parameters continue to decline in the groundwater monitoring system, the implementation of these practices does appear to have helped reduce flow from the SE-2 secondary leachate detection system, and positive groundwater impact as observed by declining concentrations in MW-23D and the downgradient compliance wells.

In addition, and in response to the February 6, 2024, letter to Roger Bellas at the Pennsylvania Department of Environmental Protection (PADEP), included for reference as Attachment E, CES has implemented increased maintenance activity, including routine system cleanouts, equipment replacement, and enhanced attention to leachate and secondary system sensors and pumping equipment in the Southern Expansion Area to minimize excessive pooling within the collection systems.

Although it is not possible to reconstruct site conditions leading up to the groundwater degradation in the Southern Expansion Area, several consecutive quarters of declining concentrations in monitoring well MW-23D and in the SE-2 leachate detection zone, along with the flow reduction in SE-2 leachate detection zone, indicate that CES's operational controls instituted as of February 2024 have had a positive impact on both groundwater quality and leachate detection zone flow and quality over the last year. Ongoing monitoring and evaluation will continue to track changes in groundwater and leachate detection systems in relation to landfill operations. Updated monitoring well results will be reported quarterly in the "Quarterly Groundwater Quality" reports.

While groundwater degradation in the Southern Expansion Area is still present, CES remains in compliance with abatement standards through the third quarter of 2025, as nitrate concentrations in the compliance wells also continue to decrease and have been below regulatory and abatement limits.

2. Section E Fish, Game and Plants: A Chapter 105 application (Application No. E5402225-002) was submitted to the Department's Waterways & Wetlands program. CES indicated they will pursue a stream enclosure as the selected mitigation option for the impacted portion of Gebhard Run. The stream enclosure will be constructed beneath the proposed support facility footprint. Waterways and Wetlands program staff sent a technical deficiency letter for the Chapter 105 application on August 1, 2025. It is not clear whether the Chapter 105 application matches the stream enclosure description in the waste application as the Waterways & Wetlands program described the impact as permanent filling of a section of the stream. CES should clarify the mitigation plans and, if necessary, update the waste application to match the Chapter 105 application plans and description.

   Response: At the time of submission of the Solid Waste Application in 2024, the stream and wetland mitigation projects for the proposed Expansion had not yet been identified. As part of the submission of the Chapter 105 Joint Permit Application (JPA) in March 2025, the design and construction of a vertical flow wetland (VFW) near the headwaters of Swatara Creek, located on CES property, was selected as the stream mitigation project for the proposed Expansion. The VFW project will mitigate the 2,585 linear feet of total stream impacts within the proposed Expansion footprint, including 789 linear feet of Gebhard Run. The VFW will be embedded with limestone, which will introduce alkaline addition to the stream, and will improve water quality downstream of the mitigation project location. Furthermore, CES will purchase in-lieu fee program credits to mitigate the impacts to the existing wetlands within the proposed Expansion footprint, as discussed in CES's August 2025 JPA Technical Deficiency Response Letter to the PADEP. Form D within the Solid Waste Application will be updated to include discussion of the above mitigation methods.

   The enclosure project, as identified in Comment #2 above, will function as a component of the proposed Expansion's stormwater management network, and not as a form of stream mitigation. Matt Miller, a representative of the PADEP, had discussed with ARM and CES personnel during an October 4, 2023 onsite meeting that stream mitigation for the 789 linear feet of Gebhard Run would not be required if it were enclosed within a culvert. CES has chosen to mitigate the 789 linear feet of impacted Gebhard Run in full under the VFW project included in the JPA, and will instead construct a culvert enclosure following the elimination of the impacted portion of Gebhard Run to capture stormwater runoff above and surrounding the proposed support facility footprint.

The culvert enclosure will ensure that the stormwater runoff that currently flows to the impacted portion of Gebhard Run will continue to discharge into the undisturbed downstream portion of Gebhard Run, outside of the proposed Expansion footprint. The enclosure project within the Solid Waste Application should be considered independent from the stream and wetland mitigation projects included in the JPA.

Please find both the Gebhard Run design calculations, stream enclosure profile plan view figure, and plan view figures highlighting the dimensions and elevations of the proposed culvert network, and the August 2025 JPA Technical Deficiency Response Letter herein.

3. Section N Benefits and Harms, Harms, Groundwater Impacts: CES' response to the First Environmental Assessment review letter for this section stated that "CES and its consultants have evaluated stormwater discharges, cover soil amendment infiltration, and reverse osmosis treatment effluent discharge applications to roadways and determined these are not likely to be the cause of the observed groundwater degradation. Based on findings of the Groundwater Assessment Report, subsequent Groundwater Abatement investigation, quarterly groundwater quality results from the compliance wells and monitoring wells, and the timeline of cell construction/filling of the southern expansion area, it appears likely that the groundwater degradation emanates from the southern portions of the Southern Expansion Area, more specifically, Cells 1 or 2, or the SE-2 pumphouse leachate conveyance system." This response is inconsistent with the response to the Form D Geologic section (see number 1 above). In that response, CES noted that based on the relatively low nitrate concentration observed in IW-2, it is unlikely that the stormwater discharge from previous cell construction is the cause of the groundwater degradation observed in monitoring wells MW-23 and MW-24. CES should provide an update regarding the investigation to determine the source of the groundwater degradation. If a different source has been identified, CES should explain what additional operational changes are being taken to prevent future occurrences.

   Response: Consistent with the response to Comment #1, it was determined that the point of discharge for the leachate-impacted stormwater observed on September 22, 2020, Google Earth imagery provided in the Groundwater Abatement Plan, was not the entry point of leachate-impacted water. This was confirmed through the installation and sampling of the abatement wells (IW and CW). However, it remains possible that leachate-impacted stormwater infiltrated into both the secondary leachate collection system and groundwater system during construction at different locations upgradient of the monitoring wells, especially factoring in the decreases in concentration in both the leachate detection zone and monitoring well MW-23D throughout 2025 after operational controls have been in use to control leachate breakouts near the berms of active cells and stormwater handling.

   As noted in the Comment #1 response, other possible sources include pooling of leachate that could back up into unwelded anchor trenches. This scenario is considered unlikely due to the elevation that the primary leachate would have to reach in this area of the site. Another potential source — a compromised primary and secondary liner system — is also considered unlikely, given the variability of impacts observed throughout the duration of the assessment/abatement in both the groundwater system and the SE-2 leachate detection zone. While not entirely ruling out the possibility of compromised leachate conveyance, that scenario does appear less likely given the recent declines in concentrations observed and the reductions in flow reported for the secondary leachate detection zone SE-2 since operational controls were implemented in February 2024.

As further noted in the response to Comment #1 and reiterated herein, significant declines in leachate indicator parameters have continued for three consecutive quarters, and in some cases four, suggesting that operational modifications have positively affected both groundwater quality and leachate detection zone quality in the assessment/abatement area.

While groundwater degradation in the Southern Expansion Area remains present, CES has remained in compliance with abatement standards through the third quarter of 2025, as nitrate concentrations in the compliance wells have continued to decrease and have consistently been below regulatory and abatement limits.

The following supplemental referenced in the above responses is included herein:

Appendix A: Stormwater Enclosure Design Calculation & Profile and Plan View Figures
Appendix B: Southwest Expansion Joint Permit Application – Technical Deficiency Letter Response (Originally Submitted in August 2025)
Attachment A: Monitoring Well MW-23D Concentration Plot
Attachment B: MW-24D Concentration Plot
Attachment C: Detection Zone SE-2 Concentration Plot
Attachment D: Detection Zone SE-2 Flow Plot
Attachment E: February 6, 2024 Letter to PADEP

Should you have any questions regarding the above, or if you require any additional information, please feel free to contact our office at (570)-342-3101.

Respectfully submitted,

Cassidy J. Robinson, PE
Senior Civil Engineer/Regional Leader

b:\global\legacy\scranton\cad\2022 projects\ces sanitary landfill\2230158 - ces expansion\01_agency\ea review 2_comment response\ces ea review #2 comment response final.docx

Appendix A
Stormwater Enclosure Design Calculation & Profile and Plan View Figures

Hydrograph Report

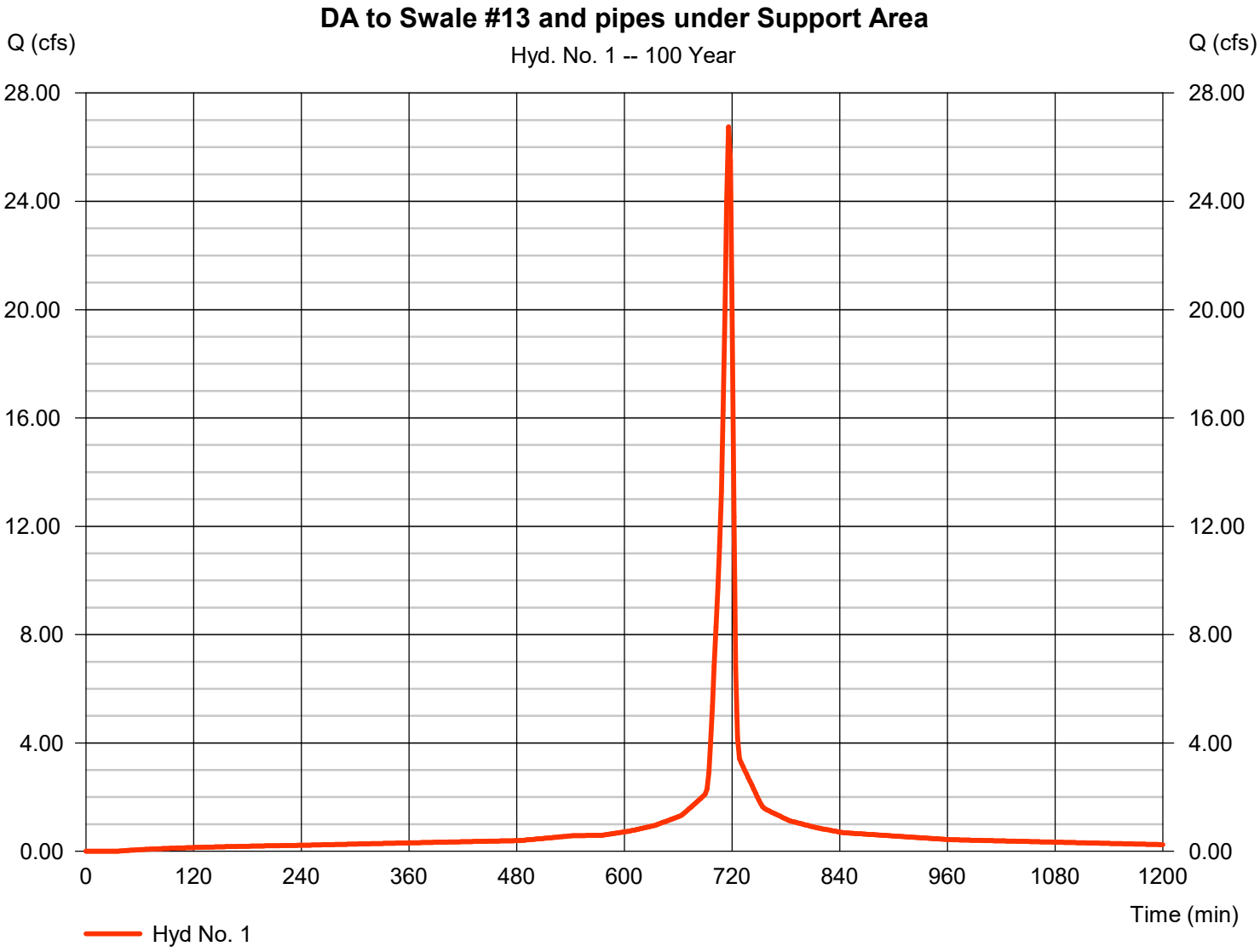
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Friday, 10 / 31 / 2025

Hyd. No. 1

DA to Swale #13 and pipes under Support Area

Hydrograph type	= SCS Runoff	Peak discharge	= 26.74 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 64,735 cuft
Drainage area	= 2.480 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.91 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(16.450 x 98) + (36.960 x 89) + (1.370 x 39) + (2.790 x 80) + (34.590 x 30) + (31.980 x 77)] / 2.480

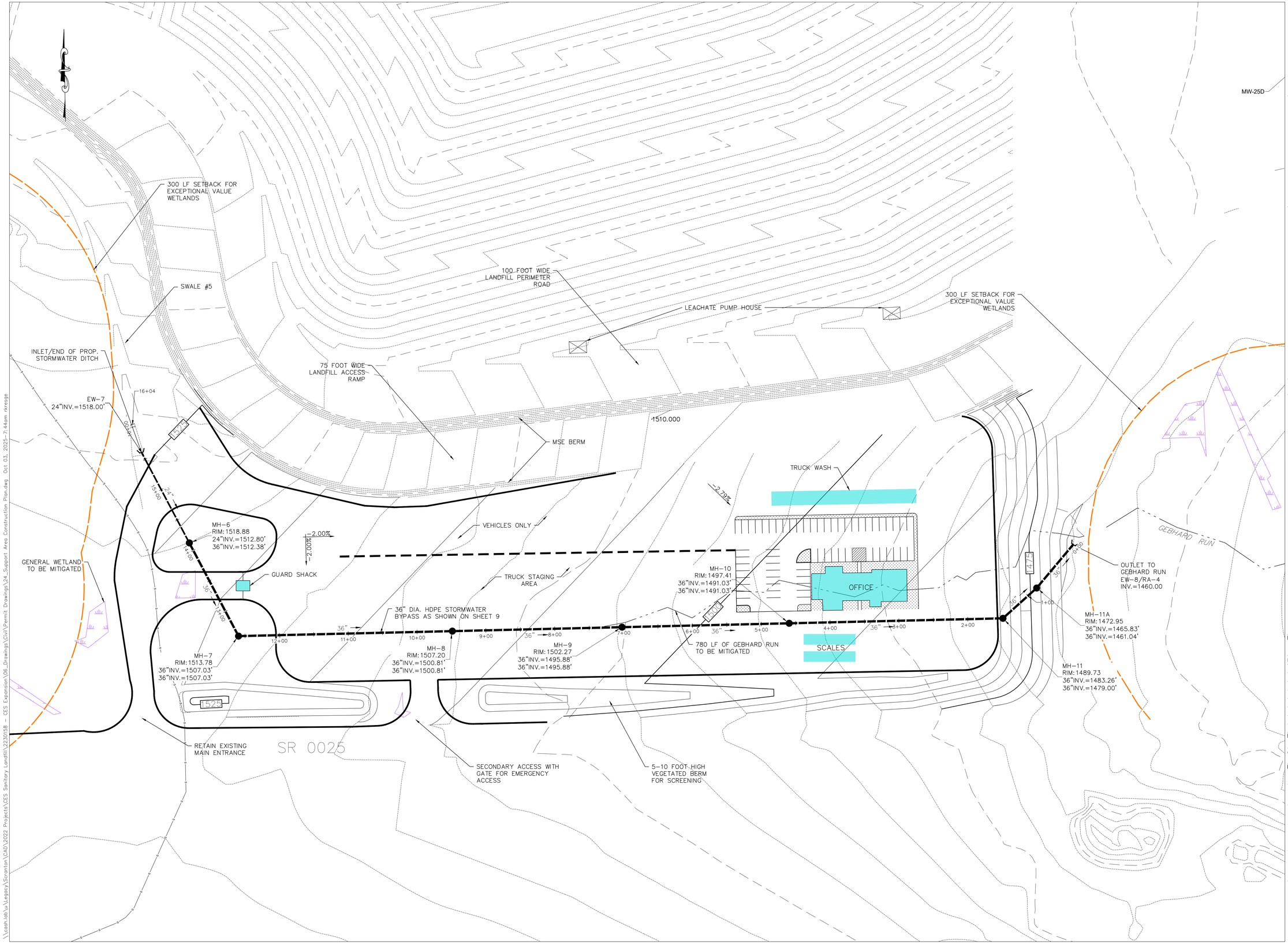


LaBella Associates

Required Q = 25-year peak flow for respective drainage area
Max Q=A{2gH)/(1+Km+KpL)}^1/2 Km = coeff. of minor losses, assume 1.0
g = accel. of gravity, 32.2 ft/sec. Kp = (5087 N^2) / diameter^4/3
H = (max water elev. at inlet - inlet invert) - pipe radius
V = 1.486*R^2/3*S^1/2*1/N R = A/WP A =3.14(dia/24)^2
WP=2*3.14*r

PROPOSED PIPE DESIGN

																	(Pressure Flow)	(Manning's Equation)
		INLET	MAX H20	OUTLET	CONTRIB.	REQUIRED	PIPE	PIPE	PIPE		HEAD		AREA	HYD. RAD.	VELOCITY	MAX	MAX
PIPE NUMBER	PIPE LOCATION	INVERT	ELEV	INVERT	DA	Q	DIA	LENGTH	SLOPE	N	H	Kp	A	R	V	Q	Q
		FT	FT	FT		CFS	INCHES	FT	FT/FT		FT		SF	FT	FPS	CFS	**CFS**
P-11	EW-7 TO	1518.00	1525.00	1512.80	SWALE #13 DA	**26.740**	24	147	0.035	0.012	11.20	0.0106	3.14	0.5000	14.67	**44.723**	**46.060**
	MH-6				100-YEAR STORM USED												
P-12	MH-6 TO	1512.38	1518.88	1507.03	SWALE #13 DA	**26.740**	36	150	0.036	0.012	10.35	0.0062	7.07	0.7500	19.30	**106.662**	**136.379**
	MH-7				100-YEAR STORM USED												
P-13	MH-7 TO	1507.03	1513.78	1500.81	SWALE #13 DA	**26.740**	36	307	0.020	0.012	11.47	0.0062	7.07	0.7500	14.55	**97.332**	**102.788**
	MH-8				100-YEAR STORM USED												
P-14	MH-8 TO	1500.81	1507.20	1495.88	SWALE #13 DA	**26.740**	36	243	0.020	0.012	9.82	0.0062	7.07	0.7500	14.56	**95.002**	**102.857**
	MH-9				100-YEAR STORM USED												
P-15	MH-9 TO	1495.88	1502.27	1491.03	SWALE #13 DA	**26.740**	36	239	0.020	0.012	9.74	0.0062	7.07	0.7500	14.56	**94.950**	**102.870**
	MH-10				100-YEAR STORM USED												
P-16	MH-10 TO	1491.03	1497.41	1483.26	SWALE #13 DA	**26.740**	36	307	0.025	0.012	12.65	0.0062	7.07	0.7500	16.26	**102.216**	**114.883**
	MH-11				100-YEAR STORM USED												
P-17	MH-11 TO	1479.00	1489.73	1465.83	SWALE #13 DA	**26.740**	36	63	0.209	0.012	22.40	0.0062	7.07	0.7500	46.73	**173.636**	**330.170**
	MH-11A				100-YEAR STORM USED												
P-17A	MH-11A TO	1461.04	1472.95	1460.00	SWALE #13 DA	**26.740**	36	81	0.013	0.012	11.45	0.0062	7.07	0.7500	11.58	**121.356**	**81.826**
	EW-8				100-YEAR STORM USED												



\\cosh.lab\u\Legacy\Scranton\CAD\2022 Projects\CES Sanitary Landfill\2230158 - CES Expansion\06_Drawings\Civil\Permit Drawings\24_Support Area Construction Plan.dwg Oct. 03, 2025 - 7:44am rkresge

LaBella
Powered by partnership.

1000 Dunham Drive, Suite B
Dunmore, PA 18512
570-342-3101

labellapc.com

COMMONWEALTH ENVIRONMENTAL SYSTEMS, LP

SOUTHWEST EXPANSION MAJOR PERMIT MODIFICATION

99 COMMONWEALTH DRIVE HEGINS, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
CASSIDY JANE ROBINSON
ENGINEER
No. PE089508

LEGEND:

- EXISTING/SUBGRADE 1025
- EXIST. MSW LIMITS
- PROPERTY LINE
- MUNICIPAL LINE
- RIGHT OF WAY LINE
- 100 FT PROPERTY LINE SETBACK
- SURVEY CONTROL POINT
- EXIST. MONITORING WELL
- EXIST. LEACHATE FORCE MAIN
- EXIST. LANDFILL GAS MAIN
- EXIST. BUILDING
- EV WETLANDS
- 300 FT EV WETLAND SETBACK
- PERENNIAL STREAM
- 100 FT PERENNIAL STREAM SETBACK
- 500 FT COUNTY STREAM SETBACK
- STORMWATER BASIN
- PAVED AREA
- GRAVEL ACCESS ROAD

60 0 30 60 120
GRAPHIC SCALE
1"=60'

PROJECT NO: 2230158

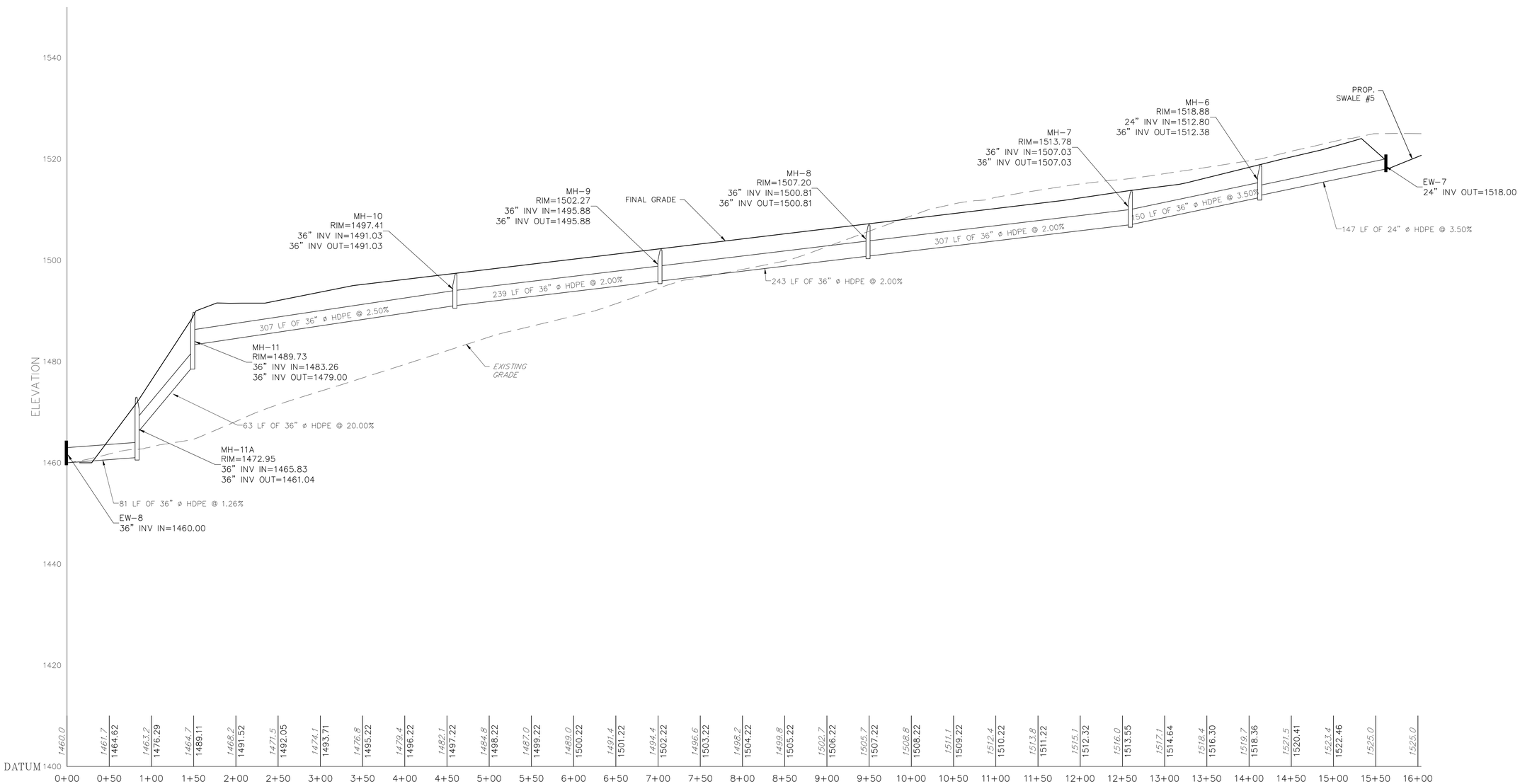
REVISION

NO.	DATE	DESCRIPTION
01	10/02/2025	EA RESPONSE #2

DESIGNED BY: AJM
CHECKED BY: RJF
APPROVED BY: CJR
SCALE: 1"=60'
ISSUED FOR: PERMIT APPLICATION
DATE: JULY 27, 2024

DRAWING NAME:
SUPPORT AREA CONSTRUCTION PLAN

DRAWING NO:
24



GEBHARD RUN CULVERT PROFILE

H: 1"=60', V: 1"=10'

HORIZONTAL 60 0 30 60 120 FEET

VERTICAL 10 0 5 10 20 FEET

LaBella
Powered by partnership.

1000 Dunham Drive, Suite B
Dunmore, PA 18512
570-342-3101

labellapc.com

COMMONWEALTH ENVIRONMENTAL SYSTEMS, LP

SOUTHWEST EXPANSION MAJOR PERMIT MODIFICATION

99 COMMONWEALTH DRIVE HEGINS, PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
CASSIDY JANE ROBINSON
ENGINEER
No. PE089508

PROJECT NO: 2230158

REVISION

NO.	DATE	DESCRIPTION
01	10/02/2025	EA RESPONSE #2

DESIGNED BY: AJM
CHECKED BY: RJF
APPROVED BY: CJR
SCALE: AS NOTED
ISSUED FOR: PERMIT APPLICATION
DATE: JULY 27, 2024

DRAWING NAME: **GEBHARD RUN CULVERT PROFILE**

DRAWING NO: **24A**

\\cosh.lab\vLegacy\Scranton\CAD\2022 Projects\CES Sanitary Landfill\2230158 - CES Expansion\06_Drawings\Civil\Permit Drawings\24_Support Area Construction Plan.dwg Oct 03, 2025 - 7:44am rkresge

Appendix B
Southwest Expansion Joint Permit Application – Technical Deficiency Letter Response (Originally Submitted in August 2025)

ARM Group LLC
Engineers and Scientists

August 22, 2025

Robert J. Jevin III, P.E.
Environmental Group Manager
Waterways and Wetlands Program
Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 18701-1915

Re: Technical Deficiency Letter
Joint Permit Application for Pennsylvania Chapter 105 Water Obstruction and Encroachment Permit and U.S. Army Corps of Engineers Section 404 Permit
Commonwealth Environmental Systems Landfill
DEP Application No. E5402225-002
AUTH ID No. 1519559
Foster, Frailey, and Reily Townships
Schuylkill County

Dear Mr. Jevin:

As requested by Commonwealth Environmental Systems, LP (CES), ARM Group has reviewed the previously received PADEP Technical Deficiency Letter, dated August 1, 2025, as related to the CES Southwest Expansion Joint Permit Application submission. ARM has provided herein the responses to the two technical comments in the PADEP Technical Deficiency Letter.

1) *Regulated Activities – Information and Fees §105.13.*

A) *In Section "A" of the submitted "Chapter 105 Fee Calculation Worksheet," there appears to be an error in the calculation of the "Permanent Disturbance" fees. These fees (in the amount of $5,600) were paid based upon 0.7 acres of total permanent disturbance to Chapter 105-regulated resources, however, the application materials suggests that 0.569 acres of permanent wetland impacts and 5.62 acres of permanent stream/floodway impacts will occur as a result of the project. As per §105.13(c)(2), please revise the "Chapter 105 Fee Calculation Worksheet" to reflect 6.2 acres of permanent disturbance and submit an additional check in the amount of $44,000 ($49,600 - $5,600).*

ARM Response:

Included in the original submission of this JPA were impact drawings that highlighted the PADEP assumed 50-foot floodway

width of the impacted streams within the proposed expansion footprint. ARM typically includes the assumed 50-ft top-of-bank floodway linework and hatching to better highlight the extent of the regulated floodway, as narrower floodway widths can be more difficult to view. ARM has included hydraulic calculations in this response letter that highlight the calculated reduced 100-yr floodway width for the impacted waterways, which should be used to determine the remaining permanent impact acreage for this site. Please see the attached stormwater modeling outputs and memo following this letter.

The additional permanent stream impact acreage as determined by the attached modeling is 0.915 acres (1.046 acres of total stream impact minus the 0.131 acres of stream impacts included in the initial submission). As the initial payment in March 2025 included the already established 0.569 acres of permanent wetland impacts and 0.131 acres of permanent stream bank impacts, the additional JPA Permanent Impact Fee to be submitted for the 0.915 acres of permanent stream floodway impacts shall be $7,320. Please see the revised JPA Fee Calculation Worksheet attached to this letter, highlighting the revised total impact fee of $12,920, and the revised Total Application fee of $14,670. Following receipt of this letter and confirmation of the Department's concurrence of ARM's methodology, CES will mail the remaining application fee owed to the Department's Northeast Region Office.

2) ***Wetland replacement criteria §105.20a.***

A) *The permit application proposes 0.56 acres of permanent impacts to "Other" wetlands associated with this project. As a result, the permittee is required to provide wetland mitigation at a 1:1 ratio for these permanent wetland impacts. After review of the permit application, the Department recognizes the vertical flow wetland system as being proposed mitigation, however, it is unclear if the project is providing adequate acreage of wetland mitigation to satisfy Chapter 105 regulations. Please address this matter by demonstrating that a total of 0.56 acres of new wetland mitigation is being proposed to adequately mitigate for this project's wetland impacts. Please also provide revised plan sets and wetland mitigation plan accordingly.*

ARM Response:

Mitigation for the proposed 0.569 acres of permanent wetland impacts will be provided through a combination of on-site permittee responsible mitigation and payment into the PADEP Pennsylvania Integrated Ecological Services (PIESCES) program, also known as the in-lieu fee (ILF) program. The proposed vertical flow wetland to be constructed onsite as part of the stream mitigation project will result in the creation

of 0.23 acres of wetlands. Therefore, the remaining 0.34 acres of wetlands will be mitigated through the ILF program. The following formula was used to determine required ILF credits:

ILF Credits = (Area of impact x Project Effect Value x Resource Value x Condition Index) x 3 (function groups)

The Project Effect value is 3.0 since the project will result in permanent, direct impacts to the wetlands. The Resource Value is 2.0 for the wetlands. The mean C value for vegetative species is 3.45 in the wetlands, which falls into the > 1.87 and ≤ 3.74 range for Resource Value 2.0 (Quality Resource Waters) wetlands. The Condition Index Score for the wetlands is determined using the PADEP's Aquatic Resource Condition Level 2 Rapid Assessment Protocols. As a result of the assessment, the wetlands have an Overall Condition Index ranging from 0.68 to 0.79, with an average of 0.73. Using the formula referenced above, the project will require 4.47 credits. Multiplying the credits by the credit fee of $11,000 results in a total of $49,170 to be paid into the ILF program.

We hope that the above responses satisfy the requirements and expectations of the department. If you have any further questions or concerns, please do not hesitate to contact the signee at (814) 996-4407 or at bbonner@armgroup.net.

Respectfully submitted,
ARM Group LLC

Brian C. Bonner

Brian C. Bonner, P.E.
Senior Engineer

Attachments:

- Revised JPA Fee Calculation Worksheet
- Revised Encroachment Figure
- HydroCAD Modeling Output and Memo

cc: Commonwealth Environmental Systems, LP (mikep@ceslfco.com)

PA Fish & Boat Commission, Northeast Regional Office (clgood@pa.gov)

Luzerne Conservation District (jstclair@schuylkillcountypa.gov)

Baltimore District, US Army Corps of Engineers (matt.gall@usace.army.mil)

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATERWAYS ENGINEERING AND WETLANDS

CHAPTER 105 FEE(S) CALCULATION WORKSHEET

Additional information can be found at 25 PA Code §105.13 (relating to regulated activities – information and fees), the General Permit Registration (3150-PM-BWEW0500), the Joint Permit Application (3150-PM-BWEW0036) and the Dam Permit Application (3140-PM-BWEW0001)

Federal, State, county or municipal agencies or municipal authorities: ☐ **EXEMPT from fees**

These entities are exempt from these fees. If the applicant falls into one of these categories, please check the box above and provide only the first page of this worksheet with the project application or registration.

ALL OTHERS:

1. Please place an "X" in the box next to all authorizations that apply to the project and complete the fee information below those authorization(s). Projects may require multiple authorizations and fees, further clarification and examples are included below and at the end of this document.
2. Total each authorization, Section, and Part. Part One is for Water Obstructions and Encroachment authorizations, Part Two is for Dam Safety authorizations.
3. Please provide this completed worksheet (page 1 and page 2 and/or page 3, as is appropriate to the project) and a check for the applicable fee(s) with the project application or registration. The check should be made payable to the "**Commonwealth of Pennsylvania Clean Water Fund**" OR "**_____ Conservation District Clean Water Fund**", whichever is the reviewing entity.

NOTES:

Per *25 PA Code §105.13(c)(2)(iii)* Disturbance review fees are calculated by individually adding all of the permanent and temporary impacts to waterways, floodways, floodplains and bodies of water including wetlands to the next highest tenth acre and multiplying the permanent and temporary impacts by the respective fees and then these amounts are added to the other applicable fees.

Entities proposing structures or activities to occupy a Submerged Lands of the Commonwealth must obtain a Submerged Lands License Agreement (SLLA) and pay the appropriate annual charge. The applicant will be contacted if this charge applies to the project.

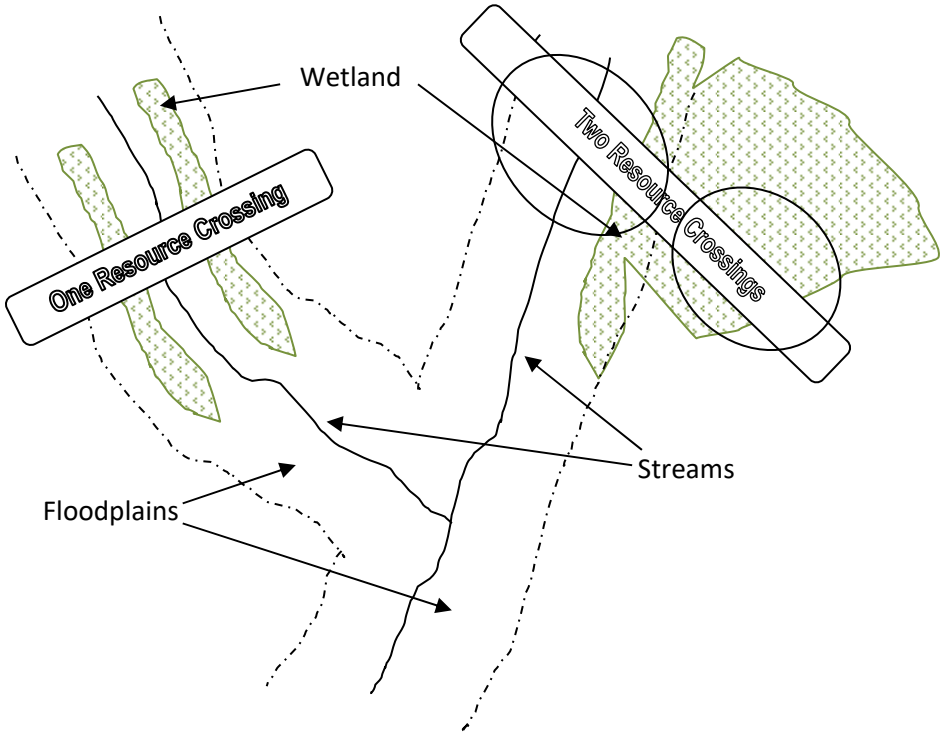
Floodway – The channel of the watercourse and portions of the adjoining floodplains which are reasonably required to carry and discharge the 100-year frequency flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100-year frequency floodway, it is assumed, absent evidence to the contrary, that the floodway extends from the stream to 50 feet from the top of the bank of the stream.

Wetland and Stream Clarification:

[1] In many instances, wetlands are located within the floodplain of a stream. These resources for the purposes of calculating disturbance fees are considered co-located or overlapping and the area of disturbance would only be used once.

[2] In the case of GP-5, GP-7 and GP-8 fees are charged per structure per resource crossing and the following also applies to the disturbance fees:

- A crossing of the stream and the floodplain with wetlands present within the floodplain is considered one resource crossing.
- When the crossing traverses a stream and the floodplain and a wetland that is located outside of the floodplain or a wetland that extends out beyond the floodplain, it is considered two resource crossings.



PART ONE: WATER OBSTRUCTIONS AND ENCROACHMENTS

SECTION A. APPLICATION FEES

☒ **WATER OBSTRUCTION AND ENCROACHMENT PERMIT** (Joint Permit Application)

Some activities or structures within a project may also qualify for an accumulation of General Permit fees, please mark the box above indicating an Individual Water Obstruction and Encroachment Permit AND the corresponding fee(s) in the General Permit section below those. Activities or structures not qualifying for a General Permit fee must include a disturbance fee.

☒ Administrative Filing Fee[1]			$ 1,750	+
☐ Temporary Disturbance ($400/0.1ac)	____ acres x $4,000 =		$ ____	+
☒ Permanent Disturbance ($800/0.1ac)	1.615 acres x $8,000 =		$ 12,920	= $ 14,670
		WO&E FEE subtotal (a)		$ 14,670

☐ **GENERAL PERMIT(S)** (select activity/structure(s) below, see page 4 for "#" explanation)

Some activities or structures within a project requiring an Individual Water Obstruction and Encroachment Permit may qualify for an accumulation of General Permit fees, please mark the corresponding fee(s) below but not the box above indicating a General Permit.

☐ GP-1 Fish Habitat Enhancement Structures			$ 50	= $ ____
☐ GP-2 Small Docks and Boat Launching Ramps	____ (#) x		$ 175	= $ ____
☐ GP-3 Bank Rehabilitation, Bank Protection and Gravel Bar Removal	____ (#) x		$ 250	= $ ____
☐ GP-4 Intake and Outfall Structures	____ (#) x		$ 200	= $ ____
☐ GP-5 Utility Line Stream Crossings[2]	____ (#) x ____ (#) x		$ 250	= $ ____
☐ GP-6 Agricultural Crossings and Ramps	____ (#) x		$ 50	= $ ____
☐ GP-7 Minor Road Crossings[2]	____ (#) x		$ 350	= $ ____
☐ GP-8 Temporary Road Crossings[2]	____ (#) x		$ 175	= $ ____
☐ GP-9 Agricultural Activities			$ 50	= $ ____
☐ GP-10 Abandoned Mine Reclamation			$ 500	= $ ____
☐ GP-11 Maintenance, Testing, Repair, Rehabilitation, or Replacement of Water Obstructions and Encroachments[1]			$ 750	+
☐ Temporary Disturbance ($400/0.1ac)	____ acres x $4,000 =		$ ____	+
☐ Permanent Disturbance ($800/0.1ac)	____ acres x $8,000 =		$ ____	= $ ____
☐ GP-15 Private Residential Construction in Wetlands[1]			$ 750	+
☐ Temporary Disturbance ($400/0.1ac)	____ acres x $4,000 =		$ ____	+
☐ Permanent Disturbance ($800/0.1ac)	____ acres x $8,000 =		$ ____	= $ ____
		GP(s) FEE subtotal (b)		$ ____
		PART ONE: SECTION A. APPLICATION FEE(S) subtotal (a+b=c)		$ 14,670

SECTION B. OTHER FEES

☐ Environmental Assessment for Waived Activities (§105.13(c)(2)(iv))			$ 500	$ ____
☐ Amendment to Water Obstruction and Encroachment Permit				
☐ Major Amendment[1]			$ 500	+
☐ Temporary Disturbance	____ acres x $4,000 =		$ ____	+ $ ____
☐ Permanent Disturbance	____ acres x $8,000 =		$ ____	= $ ____
☐ Minor Amendment			$ 250	$ ____

Transfer of Water Obstruction and Encroachment Permit *does not require submission of this form; see Application for Transfer of Permit / Submerged Lands License Agreement (3150-PM-BWEW-0016)*

		PART ONE: SECTION B. OTHER FEE(S) subtotal (d)	$ ____
		PART ONE: FEE(S) TOTAL (c+d=e)	$ 14,670

DEP USE ONLY			
FEE TOTAL:		Permit / Authorization Number (s):	
Correct Amount:		Check #:	
Check Amount:		Payable to:	

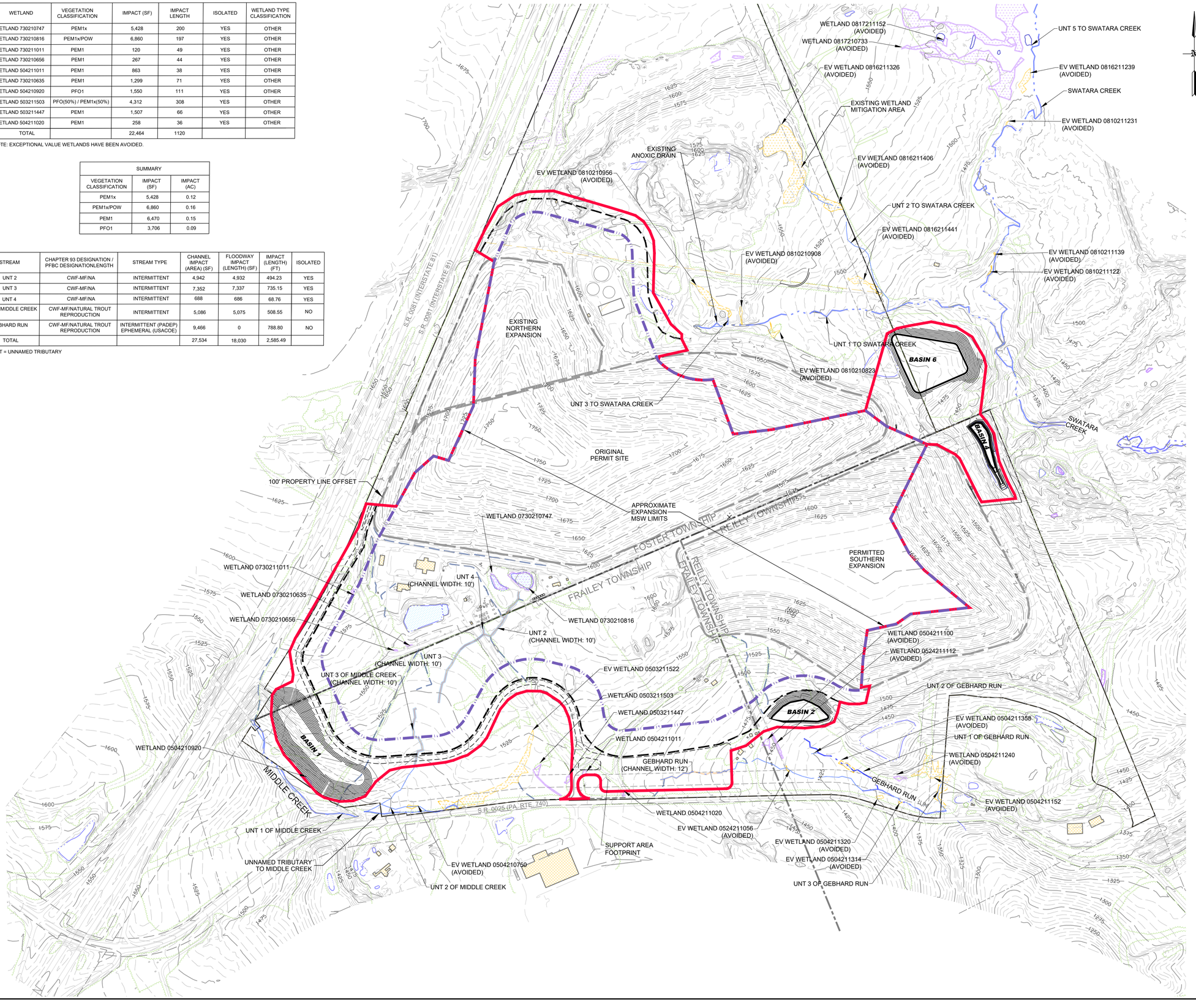
WETLAND	VEGETATION CLASSIFICATION	IMPACT (SF)	IMPACT LENGTH	ISOLATED	WETLAND TYPE CLASSIFICATION
WETLAND 730210747	PEM1x	5,428	200	YES	OTHER
WETLAND 730210816	PEM1x/POW	6,860	197	YES	OTHER
WETLAND 730211011	PEM1	120	49	YES	OTHER
WETLAND 730210656	PEM1	267	44	YES	OTHER
WETLAND 504211011	PEM1	863	38	YES	OTHER
WETLAND 730210635	PEM1	1,299	71	YES	OTHER
WETLAND 504210920	PFO1	1,550	111	YES	OTHER
WETLAND 503211503	PFO(50%) / PEM1x(50%)	4,312	308	YES	OTHER
WETLAND 503211447	PEM1	1,507	66	YES	OTHER
WETLAND 504211020	PEM1	258	36	YES	OTHER
TOTAL		22,464	1120		

NOTE: EXCEPTIONAL VALUE WETLANDS HAVE BEEN AVOIDED.

SUMMARY		
VEGETATION CLASSIFICATION	IMPACT (SF)	IMPACT (AC)
PEM1x	5,428	0.12
PEM1x/POW	6,860	0.16
PEM1	6,470	0.15
PFO1	3,706	0.09

STREAM	CHAPTER 93 DESIGNATION / PFBC DESIGNATIONLENGTH	STREAM TYPE	CHANNEL IMPACT (AREA) (SF)	FLOODWAY IMPACT (LENGTH) (SF)	IMPACT (LENGTH) (FT)	ISOLATED
UNT 2	CWF-MF/NA	INTERMITTENT	4,942	4,932	494.23	YES
UNT 3	CWF-MF/NA	INTERMITTENT	7,352	7,337	735.15	YES
UNT 4	CWF-MF/NA	INTERMITTENT	688	686	68.76	YES
UNT 3 OF MIDDLE CREEK	CWF-MF/NATURAL TROUT REPRODUCTION	INTERMITTENT	5,086	5,075	508.55	NO
GEBHARD RUN	CWF-MF/NATURAL TROUT REPRODUCTION	INTERMITTENT (PADEP) EPHEMERAL (USACOE)	9,466	0	788.80	NO
TOTAL			27,534	18,030	2,585.49	

NOTE: UNT = UNNAMED TRIBUTARY



NOTES:

1. TOPOGRAPHIC INFORMATION TAKEN FROM MAP PREPARED BY KUCERA INTERNATIONAL, INC. FLOWN ON OCTOBER 21, 2022. FINAL PERMIT GRADES FOR SOUTHERN EXPANSION HAVE BEEN ADDED TO EXISTING TOPOGRAPHY.
2. BASE MAP CONTOURS SUPPLEMENTED WITH SOUTHERN EXPANSION PERMITTED FINAL GRADES TO DEPICT CONDITIONS AT TIME OF FUTURE EXPANSION APPROVAL.
3. PERENNIAL STREAM LOCATIONS OBTAINED FROM FIELD INVESTIGATION COMPLETED BY ARM GROUP LLC ON JANUARY 5, 2021 AND PRESENTED IN MEMORANDUM DATED FEBRUARY 3, 2021. STREAM AND WETLAND LOCATIONS AND DESIGNATIONS SHOWN HERE ARE IN ACCORDANCE WITH ONSITE DELINEATION REVIEW MEETING WITH DEP AND ACOE HELD ON 10/18/2021 AND ON 10/04/2023.
4. PROPOSED BASIN CONTOURS DEVELOPED BY LABELLA ASSOCIATES, PROVIDED ON MAY 5, 2023.

LEGEND

- MUNICIPAL BOUNDARY
- PROPERTY BOUNDARY
- EXISTING STRUCTURE
- EXISTING CONTOURS (FT.)
- EXISTING TREE LINE
- EXISTING BASIN EXCLUSIONARY CRITERIA DOES NOT APPLY TO ONSITE STORMWATER BASINS
- EXISTING EDGE OF LINER
- 100' PROPERTY LINE OFFSET
- 200' RIGHT-OF-WAY LINE OFFSET
- LIMIT OF DISTURBANCE BOUNDARY
- PROPOSED LIMIT OF WASTE
- PROPOSED LIMIT OF BERM / EXPANSION
- PROPOSED STORMWATER BASIN CONTOURS
- EV WETLAND
- WETLAND
- PERENNIAL STREAM
- INTERMITTENT / EPHEMERAL STREAM
- DRAINAGE FEATURE
- IMPACTED FLOODWAY (AS MODELED)
- IMPACTED CHANNEL BANKS (AS MODELED)

ARM Group LLC
Engineers and Scientists
www.armgroup.net

No.	Revision	Date	By

scale: 1" = 350'
date: 01/03/2025
project no.: 22010146

designed	ALG
checked	TMD
drawn	TER
graphic scale	0 350 700 1050 SCALE IN FEET

ENCROACHMENT PLAN

HEGINS, PENNSYLVANIA
SCHUYLKILL COUNTY

project title: COMMONWEALTH ENVIRONMENTAL SYSTEMS LANDFILL FACILITY

drawing title: Figure 1

Z:\Projects\22010146 CES Expansion\Maps\Modification\Dwg\Permit\Figure 2\22010146 Encroachment Plan (DEP) Preferred Expansion.dwg Printed: August 22, 2023

PURPOSE

This report documents the hydraulic analyses performed to evaluate the regulated floodway width for Unnamed Tributary (UNT) 2 of Middle Creek, UNT 3 of Middle Creek, UNT 4 of Middle Creek, UNT 3 of Middle Creek and the section of Gebhard Run within the Limits of Disturbance (LOD) of the Commonwealth Environmental Systems, LP (CES) Southwest Expansion.

BACKGROUND

In accordance with the Pennsylvania Department of Environmental Protection (PADEP) Title 25, Chapter 105.1 "*...the channel of the watercourse and portions of the adjoining floodplains which are reasonably required to carry and discharge the 100-year frequency flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100- year frequency floodway, it is assumed, absent evidence to the contrary, that the floodway extends from the stream to 50 feet from the top of the bank of the stream.*" This report calculates the actual floodway width for the 100-year (1% annual chance) frequency flood. The calculated floodway width will be used to determine the required Chapter 105 impact fees.

PROJECT NEED

The assumed PADEP floodway overstates the necessary hydraulic width in the reaches of the impacted unnamed tributaries to Middle Creek and the intermittent portion of Gebhard Run. A detailed calculation was performed to establish an appropriate width based on existing topography and stream channel capacity.

SITE DESCRIPTION

CES operates an existing landfill within Foster, Reilly, and Frailey townships in Schuylkill County, Pennsylvania. The CES Southwest Expansion will encompass portions of the disturbed and undisturbed footprint across the existing landfill property. All streams consist of a primarily forested watershed, with both also receiving runoff from the landfill and the associated supporting facilities.

METHODOLOGY

For these calculations, two points of interest (POI) were considered. POI 1 consists of the streams UNT 2, UNT 3, UNT 4, and UNT 3 of Middle Creek. It is important to note that while UNT 2, UNT 3, and UNT 4 were conservatively modeled as being hydraulically connected to

UNT 3 of Middle Creek, these streams do not connect based on actual field conditions. POI 1 is located where UNT 3 to Middle Creek crosses the LOD of the CES Southwest Expansion.

The modeled section in the HydroCAD report represents the 100-year floodway width at the location of POI 1. However, all stream sections upstream of POI 1 are expected to have a narrower floodway due to a smaller contributing drainage area (DA) for each of these individual sections. Therefore, it is a conservative estimate that all stream sections upstream of POI 1 have the same maximum floodway width and dimensions as calculated from the HydroCAD model. PO2 corresponds to the location where Gebhard Run crosses the expansion's LOD. No assumptions were implied as the DA for Gebhard Run was calculated using standard methodology. The attached table shows all field measurements.

	Latitude	Longitude	Channel Bottom Width (ft)	Channel Top Width (ft)	Channel Depth (ft)
Gebhard Run 1:	40°39'57.24"N	76°22'31.19"W	5.0	10.0	1.5
Gebhard Run 2:	40°39'57.48"N	76°22'28.58"W	5.0	13.0	1.7
UNT 3 :	40°40'7.14"N	76°22'52.94"W	8.0	10.0	2.0

The 100-year peak discharge was obtained from the attached HydroCAD model output. 100-year precipitation data was compiled from the National Oceanic and Atmospheric Administration's (NOAA) Atlas 14 precipitation database. Both the DA and the time of concentration (TOC) flow path were delineated using the existing surfaces from the 2022 LiDAR survey of the site. Land use and soil types to determine curve numbers and TOC's can be found in the attached HydroCAD report.

	Peak 100-year Storm Runoff:	100-year Water surface width (ft)	Stream Channel Width Field Verified (ft)	100-year Floodway Width (ft)
POI 1:	131.96 cubic feet per second (cfs)	19.89	10	9.89
POI 2:	118.85 cfs	10.51	12	0

Cross-sections within HydroCAD were developed from a combination of aerial survey and field-verified measurements.

At POI 1, the total water surface width at the 100-year flow event was measured at 19.89 feet, which includes the 10-foot wide stream channel. This results in a combined floodway width of 9.89 feet extending from the top of the stream channel. The floodway, assumed to be symmetrical, extends approximately 4.95 feet on each side of the UNT 3 to Middle Creek, and all upstream sections. At POI 2, the total water surface width at the 100-year flow event was calculated at 10.51 feet. This result reflects a flood event that is completely contained within the existing banks of the impacted portion of Gebhard Run.

Adoption of this calculated floodway will reduce the extent of the regulated area and required permit fees, while maintaining compliance with PADEP requirements.

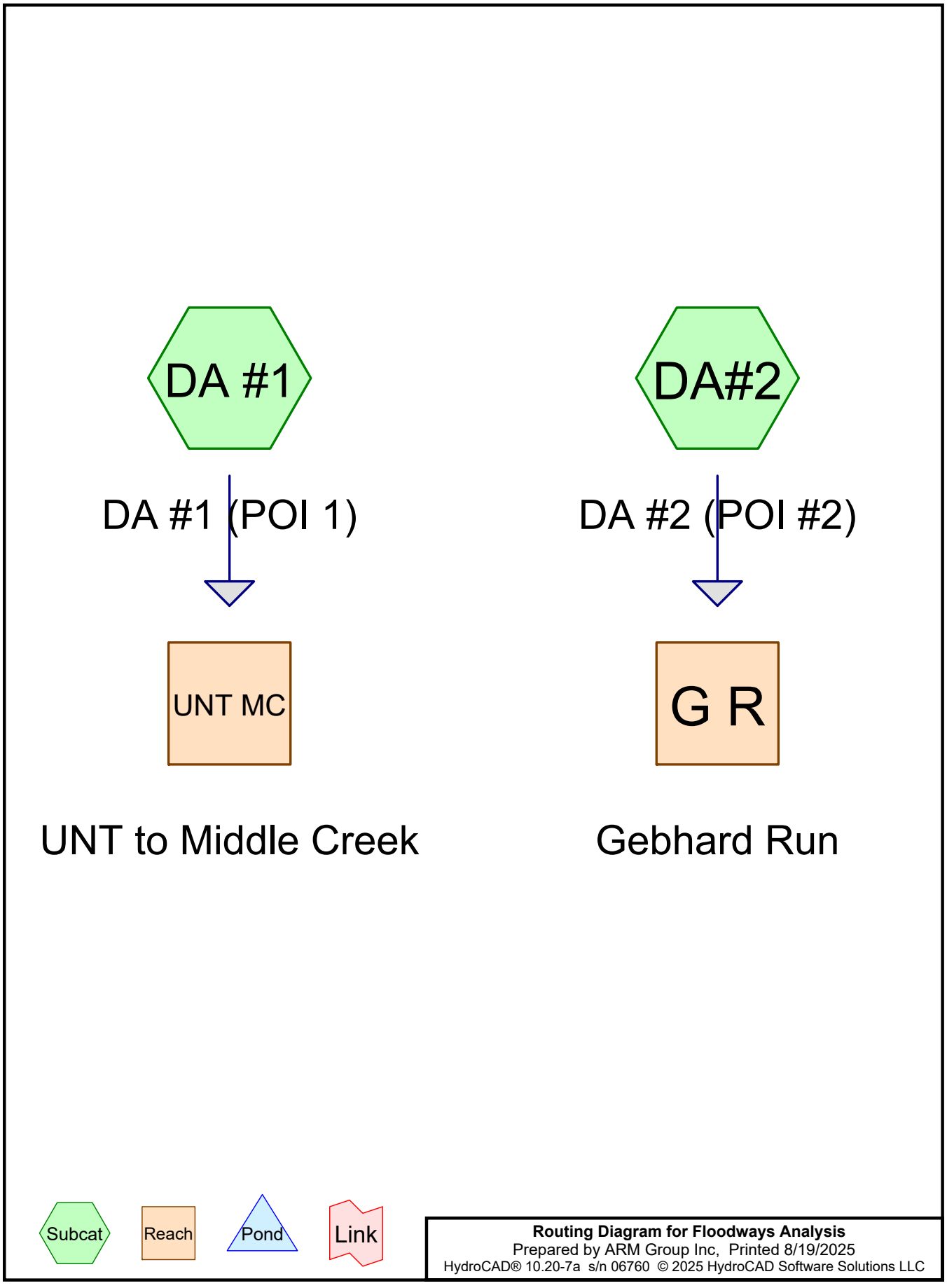
CONCLUSION

The hydraulic analyses conducted for the CES Southwest Expansion demonstrate that the actual floodway widths for the studied tributaries of Middle Creek and Gebhard Run are significantly narrower than the default PADEP assumption of 50 feet from top of bank. At POI 1 (UNT 2, UNT 3, UNT 4, and UNT 3 of Middle Creek), the 100-year floodway width was calculated at 19.89 feet, extending only 4.95 feet beyond the stream channel on either side. At POI 2 (Gebhard Run), the 100-year flow event was entirely contained within the existing channel, with a total floodway width of 10.51 feet.

These refined calculations provide an accurate representation of channel conveyance capacity, ensuring compliance with PADEP Chapter 105 regulations while avoiding unnecessary overstatement of the regulated floodway. Adoption of the modeled floodway limits will reduce both the regulated footprint and the associated impact fees, while continuing to protect the hydraulic function of the streams within the CES Southwest Expansion project area.

REFERENCES

1. Title 25, Chapter 105. Dam Safety and Waterway Management, Pennsylvania Department of Environmental Protection.



Routing Diagram for Floodways Analysis
Prepared by ARM Group Inc, Printed 8/19/2025

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-yr	Type II 24-hr		Default	24.00	1	7.87	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.000	83	Brush, Poor, HSG D (DA#2)
6.500	98	Impervious Gravel (DA #1)
0.750	98	Quarry and roads (DA#2)
48.360	79	Woods, Fair, HSG D (DA #1, DA#2)
56.610	**82**	**TOTAL AREA**

Summary for Subcatchment DA #1: DA #1 (POI 1)

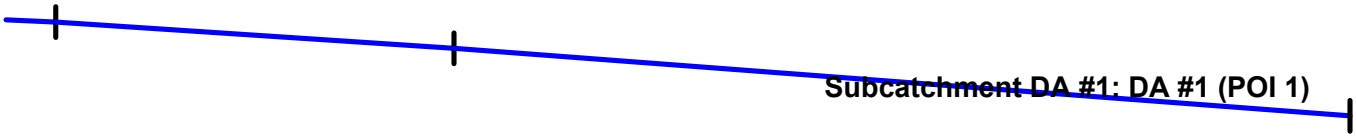
[47] Hint: Peak is 114% of capacity of segment #3

Runoff = 132.63 cfs @ 12.36 hrs, Volume= 15.882 af, Depth= 5.85"
Routed to Reach UNT MC : UNT to Middle Creek

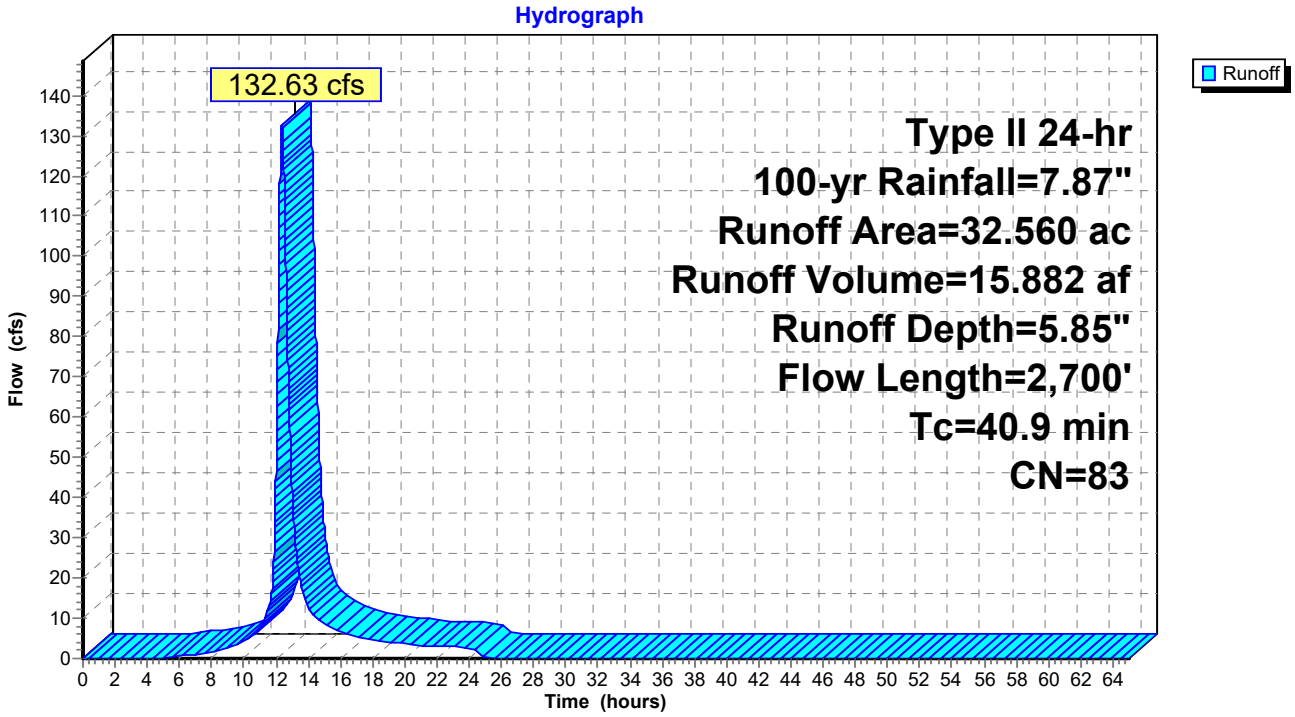
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-65.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.87"

	Area (ac)	CN	Description
*	6.500	98	Impervious Gravel
	26.060	79	Woods, Fair, HSG D
	32.560	83	Weighted Average
	26.060		80.04% Pervious Area
	6.500		19.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.7	100	0.0240	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.48"
14.3	800	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.9	1,800	0.0400	7.73	115.91	**Channel Flow,** Area= 15.0 sf Perim= 5.0' r= 3.00' n= 0.080 Earth, long dense weeds
40.9	2,700	Total			



Subcatchment DA #1: DA #1 (POI 1)



Summary for Subcatchment DA#2: DA #2 (POI #2)

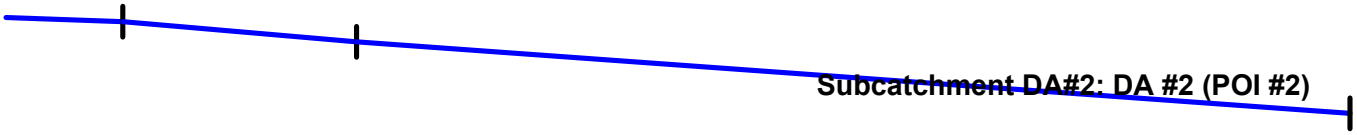
[47] Hint: Peak is 4081% of capacity of segment #3

Runoff = 119.13 cfs @ 12.22 hrs, Volume= 11.029 af, Depth= 5.50"
Routed to Reach G R : Gebhard Run

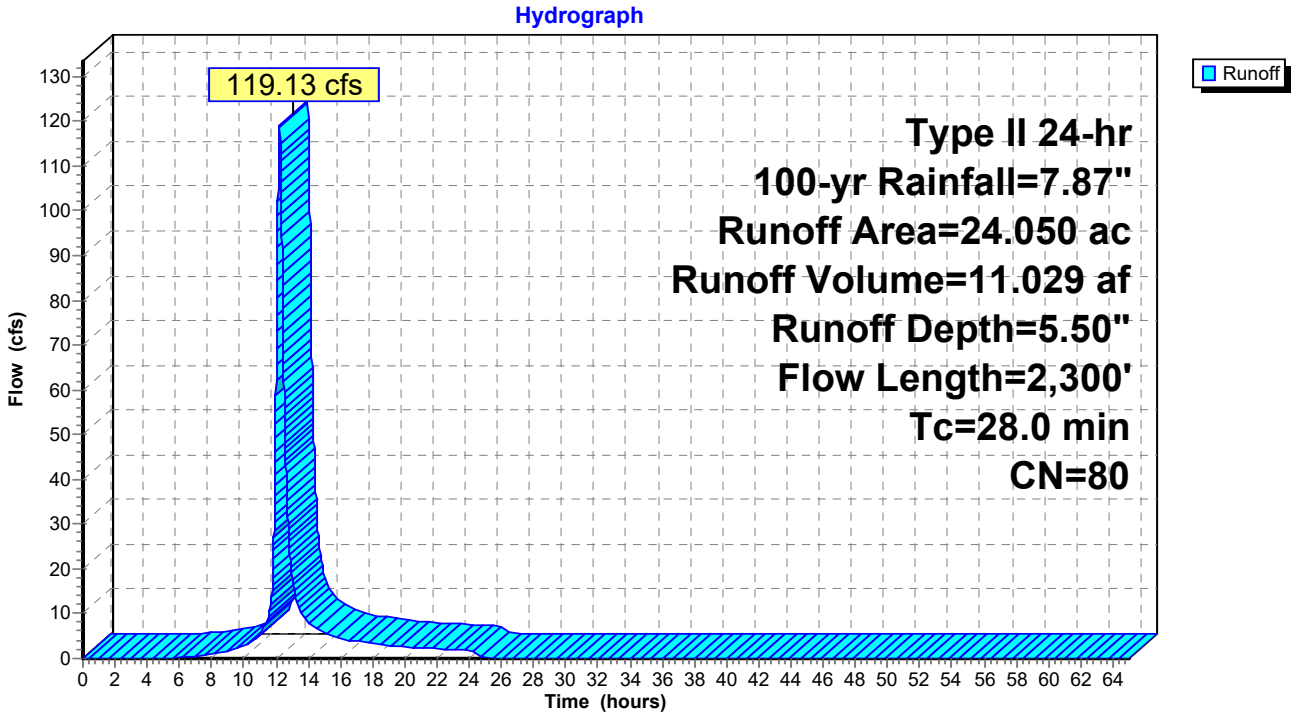
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-65.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.87"

	Area (ac)	CN	Description
*	0.750	98	Quarry and roads
	1.000	83	Brush, Poor, HSG D
	22.300	79	Woods, Fair, HSG D
	24.050	80	Weighted Average
	23.300		96.88% Pervious Area
	0.750		3.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	200	0.0250	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.48"
5.4	400	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.9	1,700	0.0500	5.84	2.92	**Channel Flow,** Area= 0.5 sf Perim= 0.3' r= 1.67' n= 0.080 Earth, long dense weeds
28.0	2,300	Total			



Subcatchment DA#2: DA #2 (POI #2)



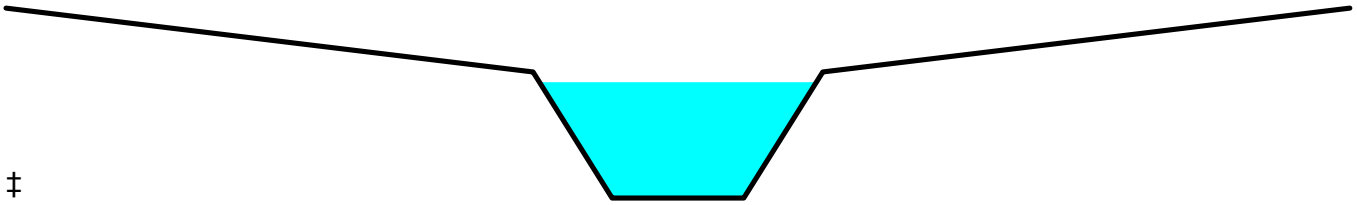
Summary for Reach G R: Gebhard Run

Inflow Area = 24.050 ac, 3.12% Impervious, Inflow Depth = 5.50" for 100-yr event
Inflow = 119.13 cfs @ 12.22 hrs, Volume= 11.029 af
Outflow = 118.85 cfs @ 12.25 hrs, Volume= 11.029 af, Atten= 0%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-65.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.06 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 2.98 fps, Avg. Travel Time= 3.8 min

Peak Storage= 8,037 cf @ 12.23 hrs
Average Depth at Peak Storage= 1.52' , Surface Width= 10.51'
Bank-Full Depth= 2.50' Flow Area= 39.3 sf, Capacity= 318.91 cfs

Custom cross-section, Length= 680.0' Slope= 0.0690 '/' (101 Elevation Intervals)
Constant n= 0.040 Mountain streams
Inlet Invert= 1,400.00', Outlet Invert= 1,353.08'

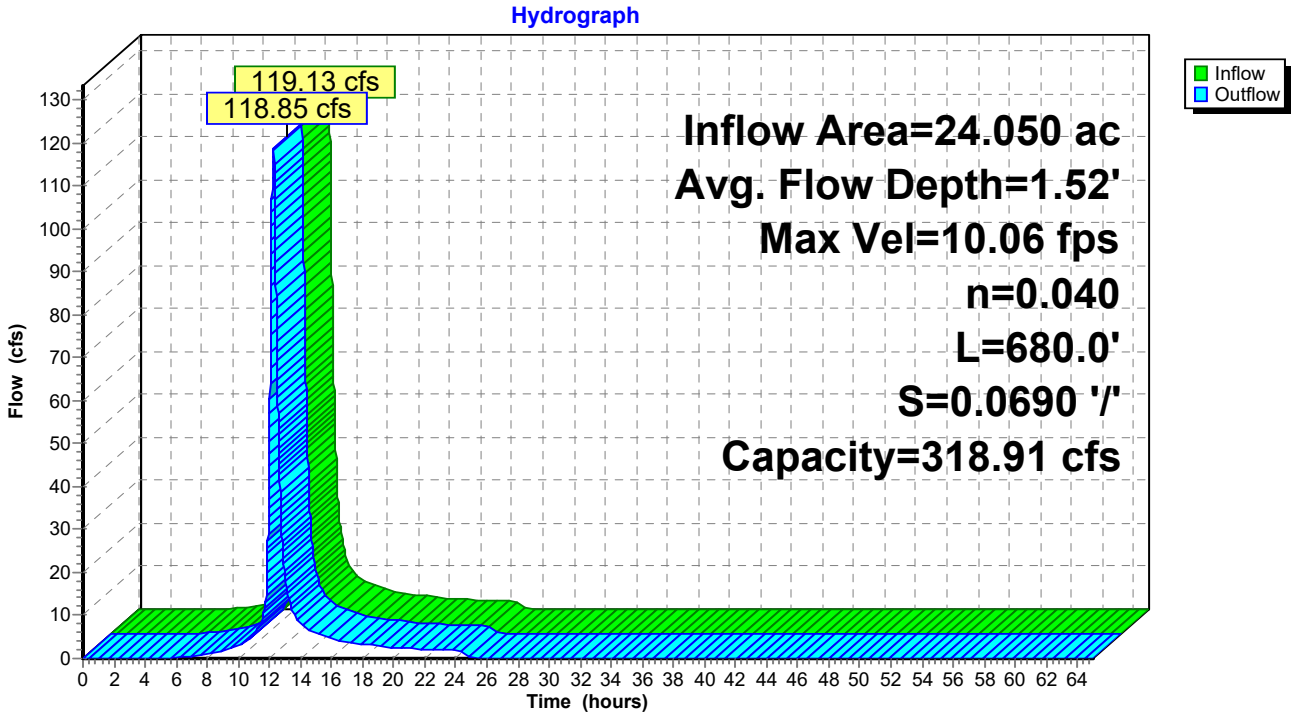


‡

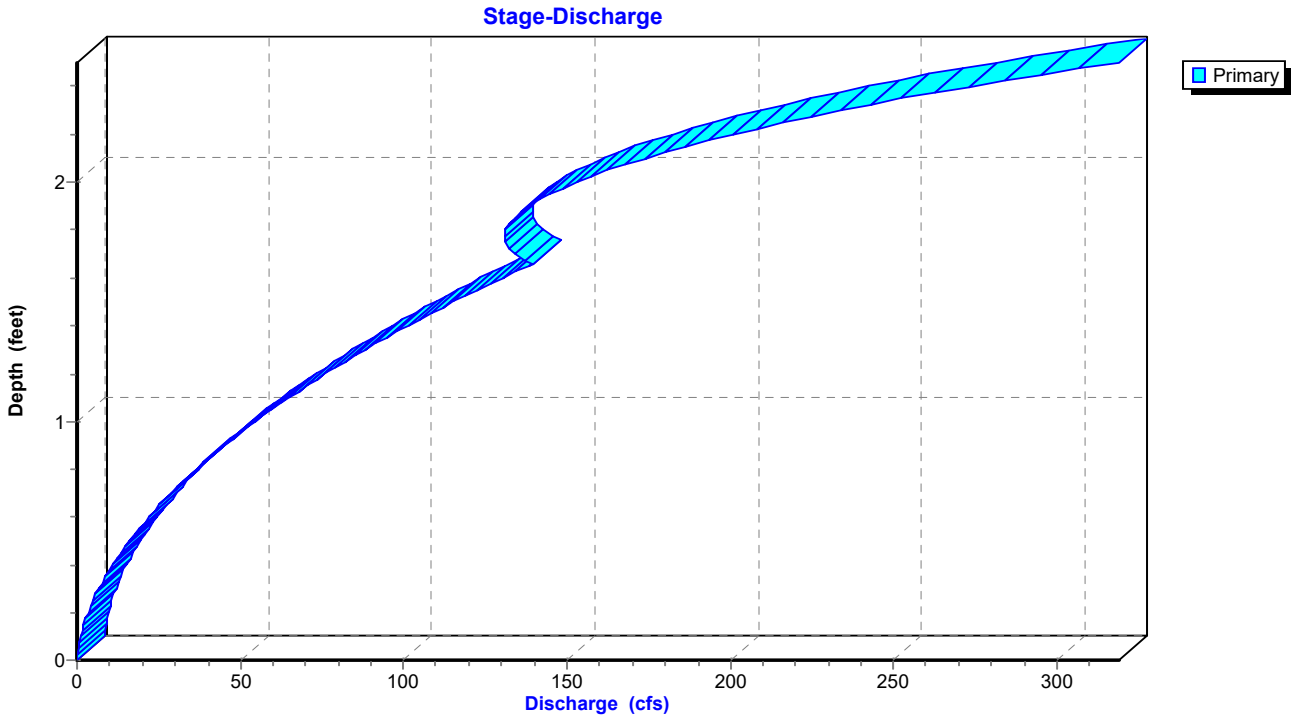
Offset (feet)	Elevation (feet)	Chan.Depth (feet)
0.00	1,402.50	0.00
20.00	1,401.66	0.84
23.00	1,400.00	2.50
28.00	1,400.00	2.50
31.00	1,401.66	0.84
51.00	1,402.50	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Width (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	5.0	0.0	0	0.00
1.66	13.3	11.9	11.0	9,030	139.76
2.50	39.3	51.9	51.0	26,738	318.91

Reach G R: Gebhard Run



Reach G R: Gebhard Run



Summary for Reach UNT MC: UNT to Middle Creek

Inflow Area = 32.560 ac, 19.96% Impervious, Inflow Depth = 5.85" for 100-yr event
Inflow = 132.63 cfs @ 12.36 hrs, Volume= 15.882 af
Outflow = 131.96 cfs @ 12.42 hrs, Volume= 15.882 af, Atten= 1%, Lag= 3.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-65.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.17 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.80 fps, Avg. Travel Time= 4.6 min

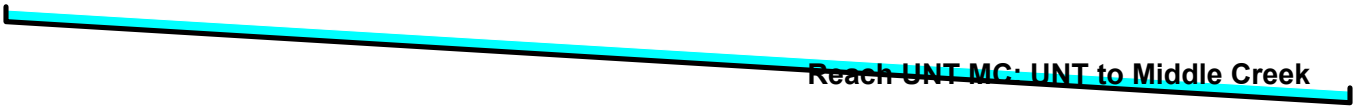
Peak Storage= 13,540 cf @ 12.40 hrs
Average Depth at Peak Storage= 2.74' , Surface Width= 19.89'
Bank-Full Depth= 3.50' Flow Area= 46.0 sf, Capacity= 246.59 cfs

Custom cross-section, Length= 500.0' Slope= 0.0380 '/'
Constant n= 0.069 Riprap, 6-inch
Inlet Invert= 1,488.00', Outlet Invert= 1,469.00'

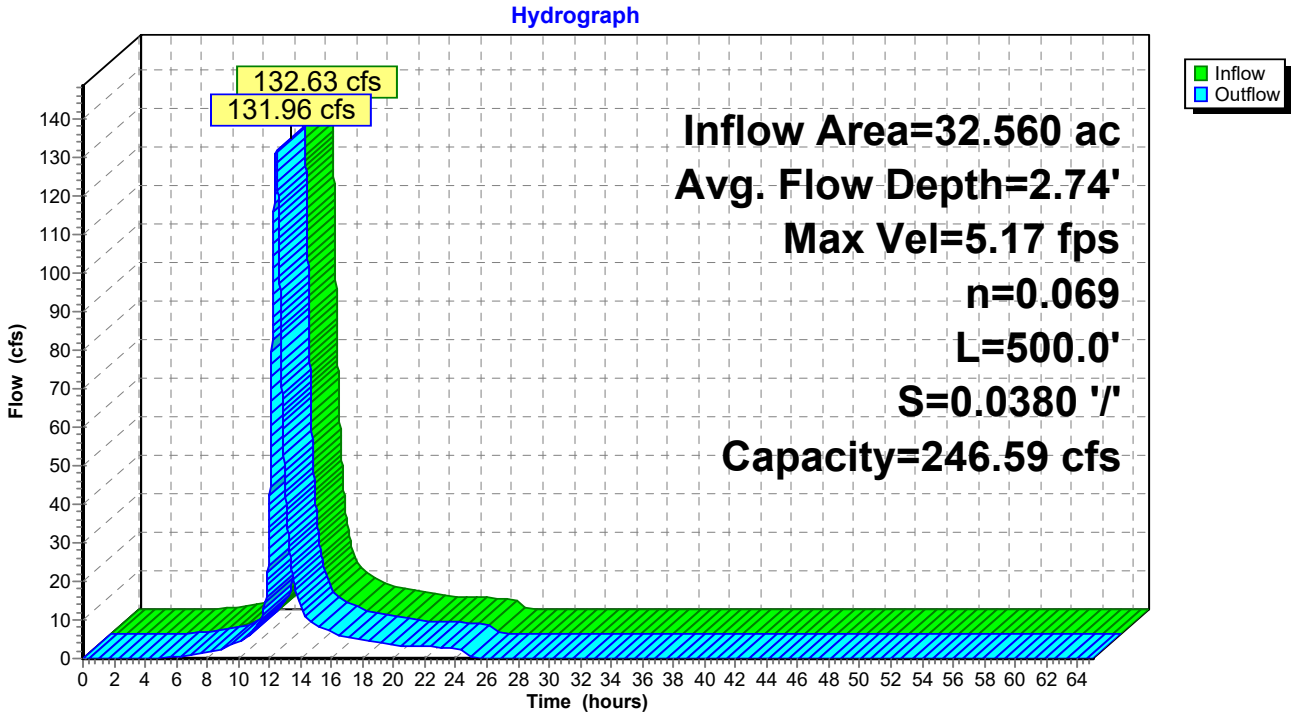
‡

Offset (feet)	Elevation (feet)	Chan.Depth (feet)
10.00	1,533.50	0.00
20.00	1,532.00	1.50
22.00	1,530.00	3.50
28.00	1,530.00	3.50
30.00	1,532.00	1.50
40.00	1,533.50	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Width (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	6.0	0.0	0	0.00
2.00	16.0	11.7	10.0	8,000	82.75
3.50	46.0	31.9	30.0	23,000	246.59



Reach UNT MC: UNT to Middle Creek



Reach UNT MC: UNT to Middle Creek

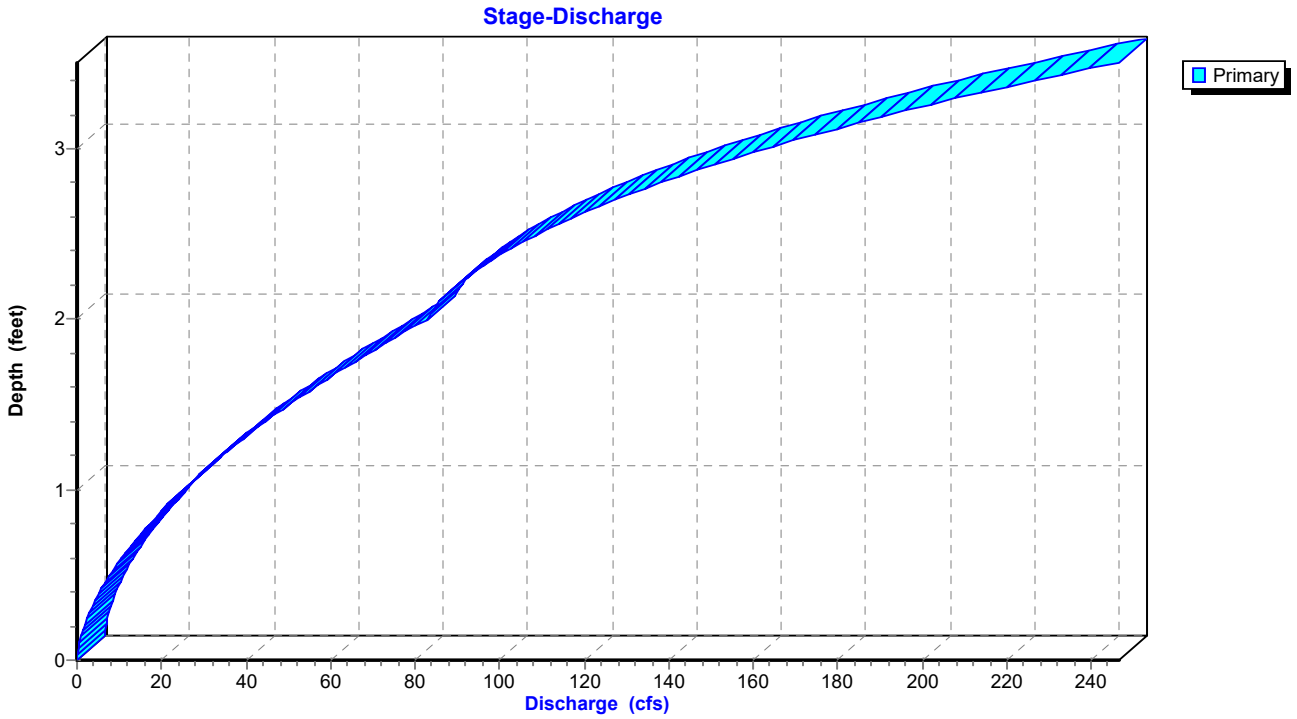
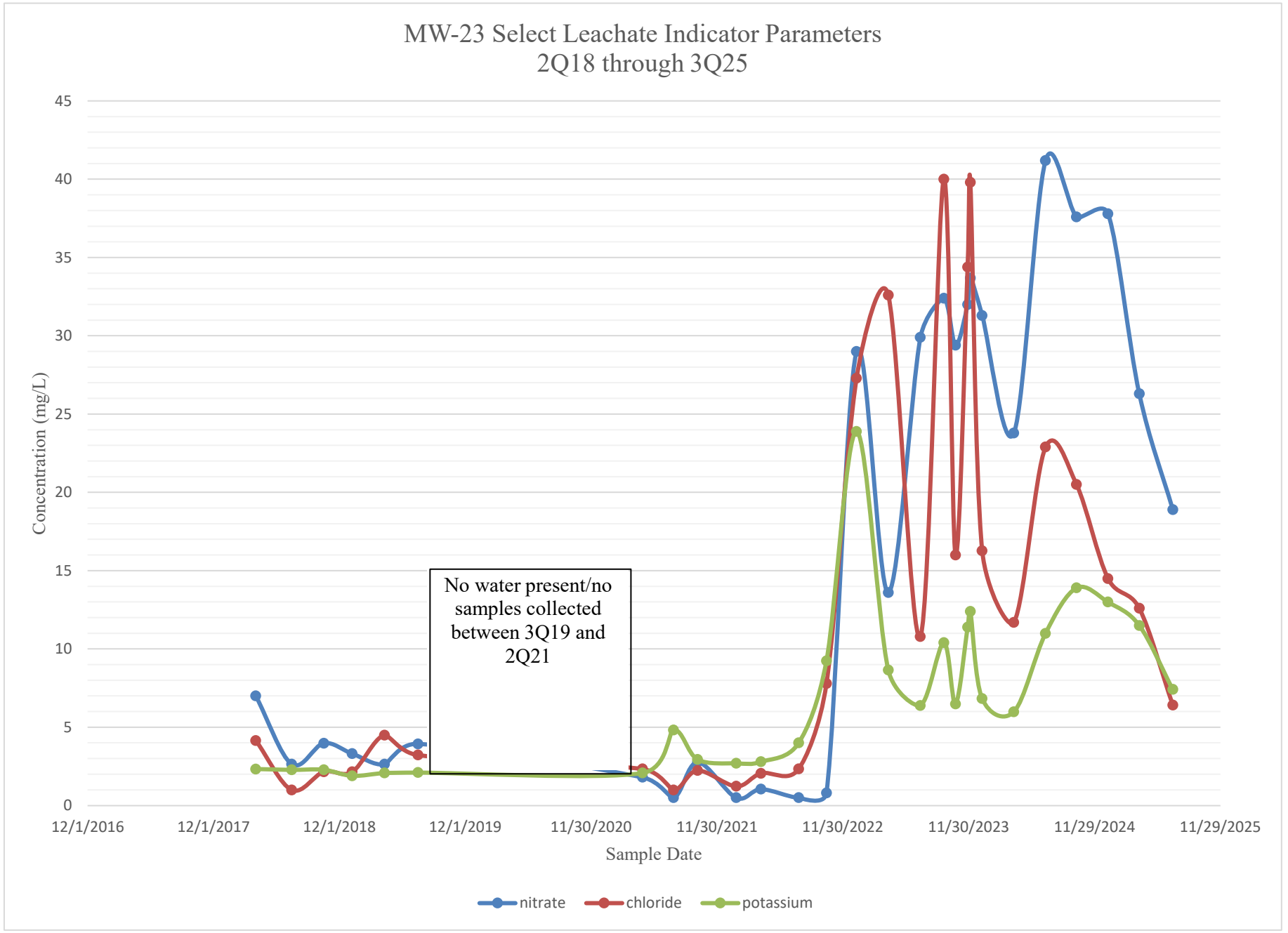


TABLE OF CONTENTS

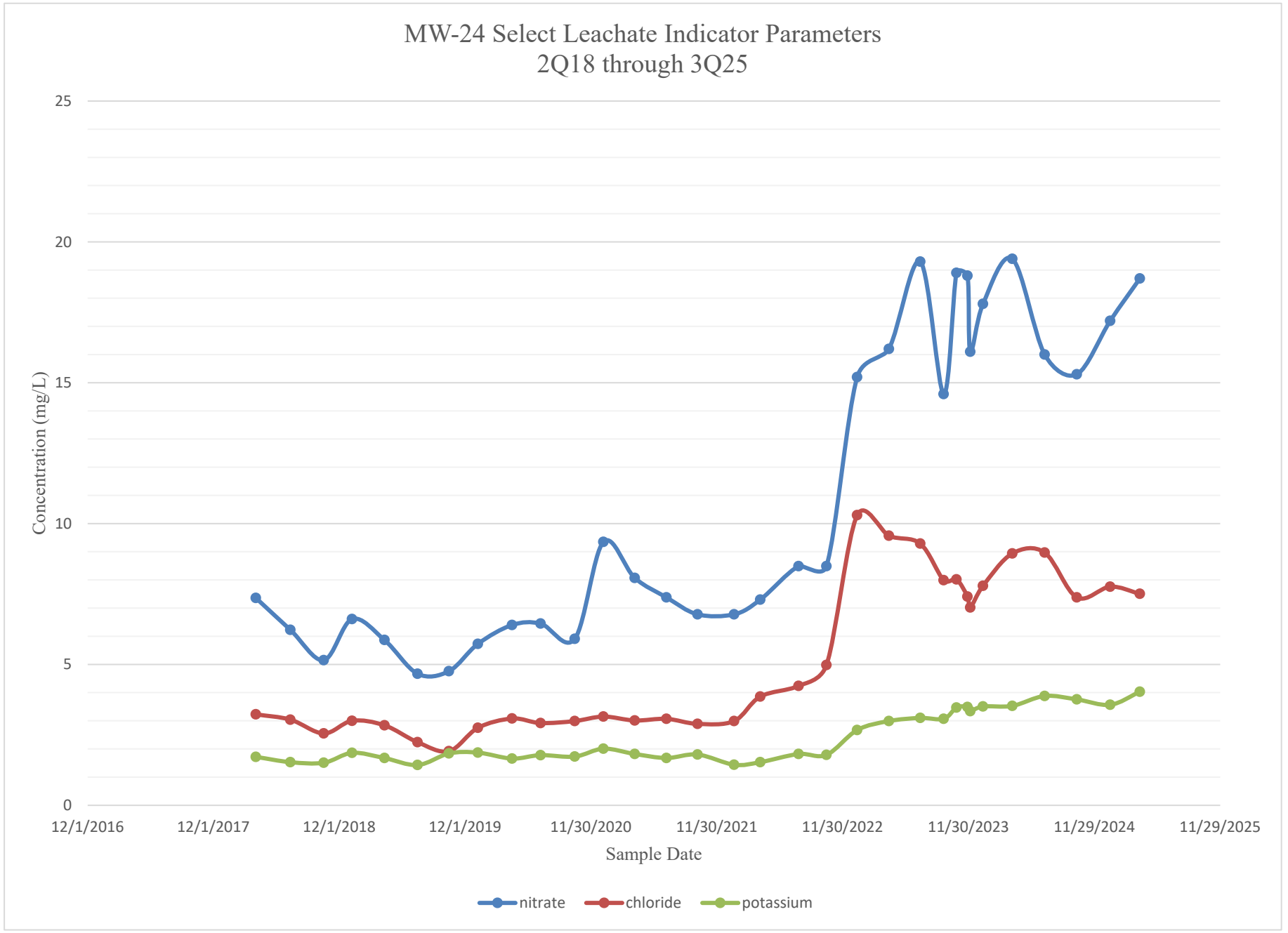
Attachment A

Monitoring Well MW-23D Concentration Plot


MW-23 Select Leachate Indicator Parameters
2Q18 through 3Q25
Concentration (mg/L)
45
40
35
30
25
20
15
10
5
0
12/1/2016
12/1/2017
12/1/2018
12/1/2019
11/30/2020
11/30/2021
11/30/2022
11/30/2023
11/29/2024
11/29/2025
Sample Date
No water present/no samples collected between 3Q19 and 2Q21
nitrate
chloride
potassium

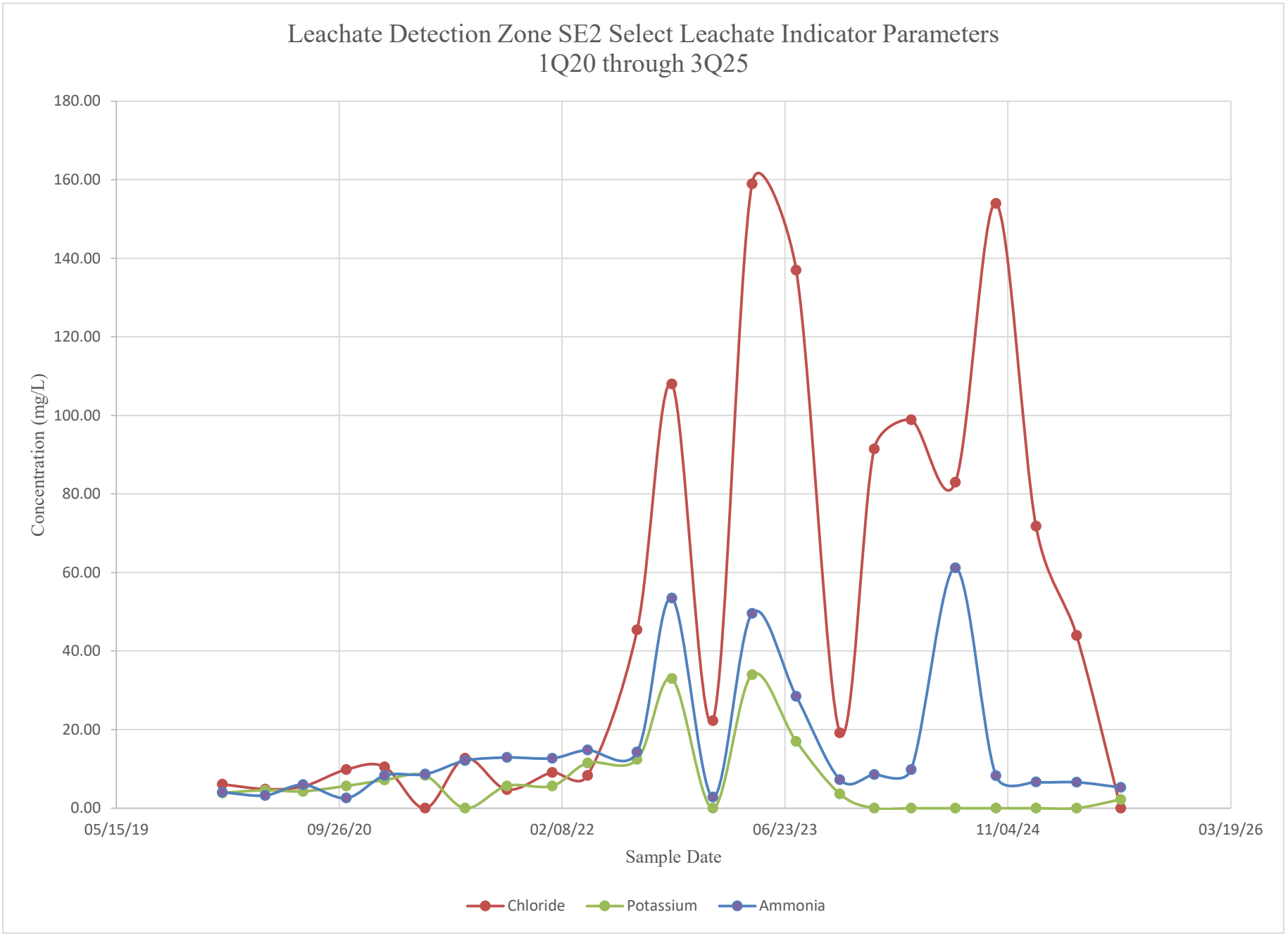
Attachment B

MW-24D Concentration Plot


MW-24 Select Leachate Indicator Parameters
2Q18 through 3Q25
Concentration (mg/L)
25
20
15
10
5
0
12/1/2016
12/1/2017
12/1/2018
12/1/2019
11/30/2020
11/30/2021
11/30/2022
11/30/2023
11/29/2024
11/29/2025
Sample Date
nitrate
chloride
potassium

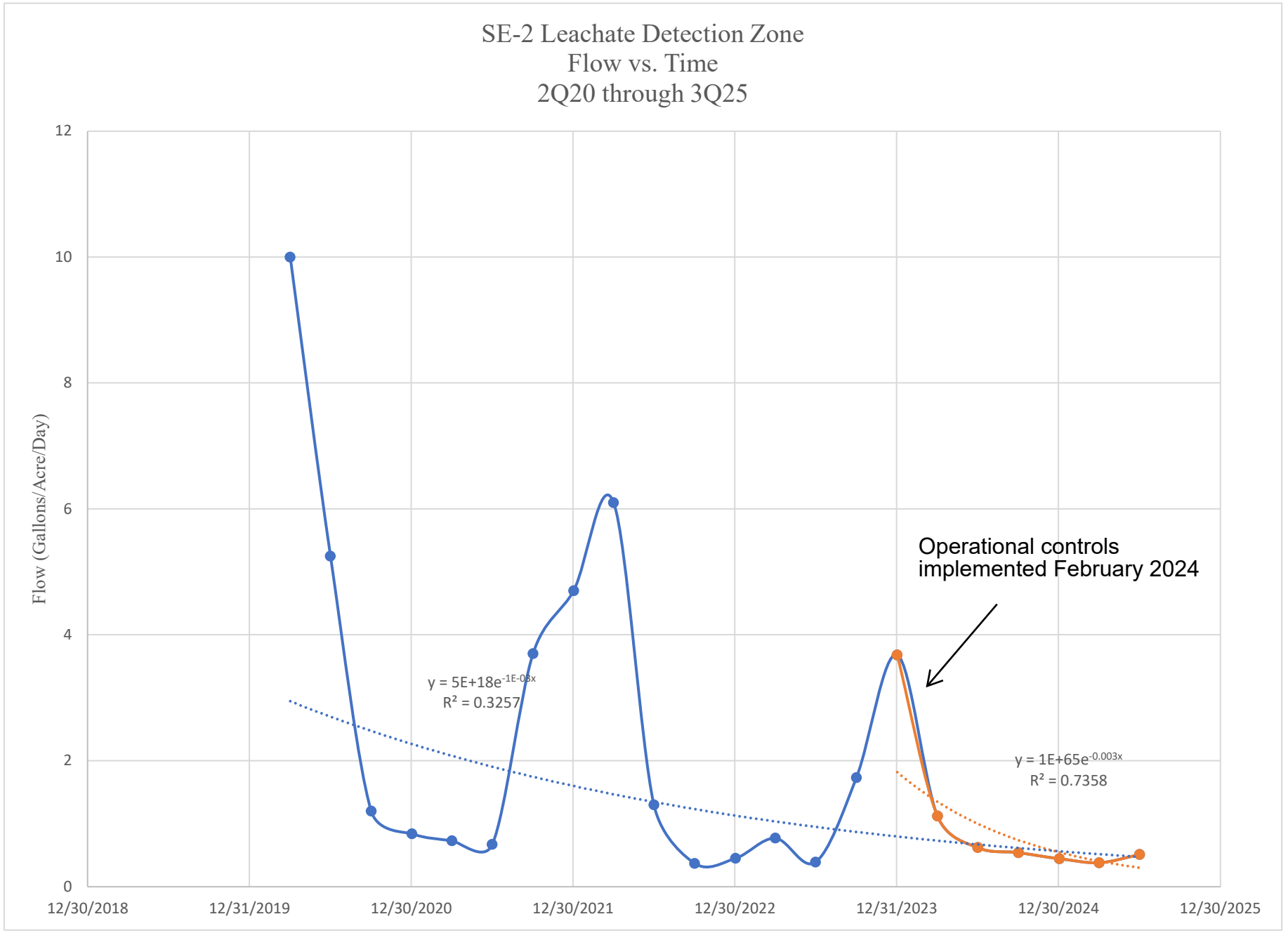
Attachment C

Detection Zone SE-2 Concentration Plot


Leachate Detection Zone SE2 Select Leachate Indicator Parameters
1Q20 through 3Q25
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Concentration (mg/L)
05/15/19
09/26/20
02/08/22
06/23/23
11/04/24
03/19/26
Sample Date
Chloride
Potassium
Ammonia

Attachment D

Detection Zone SE-2 Flow Plot


SE-2 Leachate Detection Zone
Flow vs. Time
2Q20 through 3Q25
Flow (Gallons/Acre/Day)
12
10
8
6
4
2
0
12/30/2018
12/31/2019
12/30/2020
12/30/2021
12/30/2022
12/31/2023
12/30/2024
12/30/2025
Operational controls implemented February 2024
y = 5E+18e-1E-03x
R² = 0.3257
y = 1E+65e-0.003x
R² = 0.7358

Attachment E

February 6, 2024 Letter to PADEP

249 Dunham Drive Dunmore, PA 18512

Commonwealth
Environmental Systems L.P.

February 6, 2024

Mr. Roger Bellas

Program Manager

Pennsylvania Department of Environmental Protection

Northeast Regional Office

2 Public Square

Wilkes-Barre, PA 18711-0790

Mr. Bellas,

On Wednesday, January 24, 2024, we were notified by CES staff the pumps stopped working in the lower pump house in the Southern Expansion area. We could not get the pumps operational from the electric panel, so we contacted an electrician and ERG technical support. We then pulled out the pumps and transducers to clean, and repair and/or replace them.

Brad Lester from PA DEP was notified as he was on site for an engineer's meeting. In addition, we contacted Tracey McGurk on January 30, 2024, and described our situation. She requested a report detailing the situation as of February 2, 2024. As of this date, we have found electrical issues with our control panel, due to a power surge or outage. The pumps were not pumping at full capacity, due to one pump clogged with fines and issues with the transducers. At this time, we have the two pumps running at full capacity and two pumps on standby.

Due to the above noted issues and recent heavy rain events we started trucking leachate on January 30, 2024, to Passaic, New Jersey. We are also working with Titus Environmental for additional disposal sites.

Our RO unit is fully operational, treating 100,000 gallons per day. Additionally, CES will continue to transport leachate offsite until the storage tank levels are within the 25% storage capacity limit.

We will keep the Department informed of our situation as time progresses with meetings with Brad Lester, our new site engineer from DEP. If you need any additional information, please contact me.

Sincerely,

Michael Piepoli, P.E.

cc: Tracey McGurk, PA DEP

Phone
(570) 343-5782

FAX
(570) 348-3135