Pennsylvania Department of Environmental Protection

Northeast Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0032328**
Facility Type	**Non-Municipal**	APS ID	**603049**
Major / Minor	**Minor**	Authorization ID	**1464212**

Applicant and Facility Information

Applicant Name	**Hickory Hills Mobile Home Community LLC**	Facility Name	**Hickory Hills Mobile Home Community Wastewater Treatment Plant**
Applicant Address	2015 Spring Road, Suite 600 Oak Brook, IL 60523	Facility Address	Route 512 Moorestown Moorestown, PA 18014
Applicant Contact	Sherry Saxon, Senior Vice President	Facility Contact	Kristi Kieffer, Community Manager
Applicant Phone	(610) 759-6280	Facility Phone	(630) 645-8109
Client ID	133700	Site ID	245924
Ch 94 Load Status	Not Overloaded	Municipality	Moore Township
Connection Status	-	County	Northampton
Date Application Received	October 29, 2023	EPA Waived?	Yes
Date Application Accepted	December 19, 2023	If No, Reason	-

Purpose of Application: Renewal of NPDES permit for discharge of treated sewage.

Summary of Review

The applicant is requesting the renewal of an NPDES permit to discharge up to 0.6 MGD of treated sewage into an Unnamed Tributary to East Branch Monocacy Creek, a High Quality, Cold-Water Fishery, Migratory Fish (HQ, CWF, MF) receiving stream in State Water Plan Basin 2-C (Lower Lehigh River). As per the Department's current existing use list, the receiving stream does not have an existing use classification that is more protective than its designated use. This stream segment is not designated as a naturally reproducing trout stream as per PA Fish & Boat Commission. This discharge is not expected to affect public water supplies.

Limitations for pH, Total Suspended Solids (TSS), and Fecal Coliform are technology-based and carried over from the previous permit.

Limitations for $CBOD_5$, Ammonia-Nitrogen, Dissolved Oxygen (DO) are water quality-based and carried over from the previous permit. WQM 7.0 modeling did not recommend stricter limits.

The Total Residual Chlorine (TRC) average monthly effluent limitation has been removed because UV Disinfection is used as the primary disinfection method. The TRC Calculation Spreadsheet recommended a stricter limitation than the previous permit. The IMAX water quality-based limitation (0.27 mg/L) is to be sampled "daily when discharging" in the event the facility uses chlorine for cleaning purposes or as a back-up disinfection option, (see requirements under Part C.I.E).

Sewage discharges now require monitoring and reporting for E. Coli. A monitoring frequency of 1/month for design flows >= 1 MGD, 1/quarter for design flows >= 0.05 and < 1 MGD, 1/year for design flows of 0.002 – 0.05 MGD will be utilized.

The quarterly monitoring and reporting for Total Nitrogen, Total Phosphorous, Total Kjeldahl Nitrogen, and Nitrate-Nitrite as N has been maintained in this permit.

Approve	Deny	Signatures	Date
X		Allison Seybold Zukosky Allison S. Zukosky / Project Manager	January 8, 2025
X		Amy M. Bellanca (signed) Amy M. Bellanca, P.E. / Acting Engineer Manager	1-15-25

Summary of Review

A WQM Permit amendment for upgrades at the Wastewater Treatment Plant (WWTP) was issued on April 14, 2023. The amendment approves the construction of two new SBR Tanks to replace the extended aeration process trains, new pumps for the influent equalization tank with a repurposed overflow equalization tank, new post-equalization tank to collect SBR effluent, new sludge holding tank, and replacement of the existing contact tank. The NPDES renewal application dated October 25, 2023, indicates that the aeration process trains will be replaced with SBRs, along with other upgrades, within the next 1-2 years. The most recent inspection report dated August 29, 2023, indicates the construction has been pushed back to an unknown date. The facility's operator informed the Department via email dated December 1, 2024 that the sewage plant upgrade project is now being organized. The management team was recently changed, which caused a delay in moving forward.

The latest DRBC Docket No. D-1973-079-3 requires the addition of monthly monitoring/reporting for 85% minimum $CBOD_5$ Percent Removal, a monthly $CBOD_5$ monitoring requirement for the Raw Sewage Influent, and quarterly monitoring/ reporting for Total Dissolved Solids. These parameters have been added to the NPDES permit.

The DRBC Docket also provides parameters that will be applicable at the Proposed Upgraded WWTP Startup. These parameters include mass loads for Ammonia-Nitrogen, Nitrate as N, Phosphorus, and Total Nitrogen. The limitations can be seen in Part A.I.A of the permit and the schedule of compliance can be seen in Part C.III of the permit. The permittee shall notify the Department at least 60 days before the new or upgraded facilities are expected to be completed so any necessary amendments to the NPDES Permit can be completed.

For this permit renewal, all monitoring frequencies for parameters with limitations are consistent with the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (document no. 362-0400-001).

24-hour composite sampling is now required in place of 8-hour composite sampling.

There are no active representative stream gages in the vicinity of the outfall and the drainage area at Outfall 001 is too small for USGS StreamStats to estimate accurate low flow values. The previous permit carried over the 0.09 cfs $Q_{7\text{-}10}$ from previous modeling used in the 1990 DEP Pollution Report. However, the state-wide default Low Flow Yield (LFY) of 0.1 cfs/mi^2 generates a lower $Q_{7\text{-}10}$ of 0.046 cfs. Therefore, the state-wide default was used to model the discharge. For modeling inputs, RMI values were obtained using the "PA Historic Streams" feature of eMapPA, drainage areas were delineated using USGS's StreamStats Interactive Map, and elevations were obtained using the elevation profile feature of StreamStats.

The effluent is discharged to a location with little or no assimilative capacity or dilution during critical periods. If the effluent creates a health hazard or nuisance, the permittee shall, upon notice from DEP, provide such additional treatment as may be required by DEP.

The existing permit expired on April 30, 2024 and the application for renewal was received on time.

A Water Management System Inspection query indicated that on August 29, 2023 a Routine/Partial Inspection was performed.

There are currently four open violations for this client that may need to be resolved before issuance of the final permit:

1. 08/10/2023 - Violation ID 8155038 – Violation Code 92A.44 – NPDES – Violation of effluent limits in Part A of permit.

2. 08/10/2023 - Violation ID 8155039 – Violation Code 271.917(B) – NPDES – Biosolids - Permittee failed to monitor containers of residential septage for compliance with §271.932(c) and/or §271.933(b)(11).

3. 08/10/2023 - Violation ID 8155041 – Violation Code 92A.41(A)10C – NPDES - Failure to collect representative samples.

4. 09/20/2023 - Violation ID 8160070 – Violation Code C4A – Failure operate and maintain the water system. (Safe Drinking Water - Program Specific ID: 3480015).

Sludge use and disposal description and location(s): As per the permittee's NPDES Renewal Application, sludge is hauled to the Lehigh Pre-Treatment Wastewater Facility in Wescosville, PA by Yeska Septic Service.

Summary of Review
Public Participation DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.06
Latitude	40º 46' 3.75"	Longitude	-75º 22' 27.51"
Quad Name	Wind Gap	Quad Code	1243
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to East Branch Monocacy Creek (HQ-CWF, MF)	Stream Code	3408
NHD Com ID	26290893	RMI	0.24
Drainage Area	0.46 mi^2	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	0.046	Q_{7-10} Basis	State-wide default
Elevation (ft)	629.41	Slope (ft/ft)	-
Watershed No.	2-C	Chapter 93 Class.	HQ-CWF, MF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	-		
Source(s) of Impairment	-		
TMDL Status	-	Name	-
Nearest Downstream Public Water Supply Intake	BCWSA New Hope		
PWS Waters	Delaware River	Flow at Intake (cfs)	-
PWS RMI	73.3	Distance from Outfall (mi)	~ 63.5

Treatment Facility Summary

Treatment Facility Name: Hickory Hills Mhp/ Sewer

WQM Permit No.	Issuance Date	Scope
4807405 A-2	4/17/2023	New SBRs to replace extended aeration process trains
4807405 A-1	3/19/2019	WWTP Upgrades
4807405	10/04/2007	-

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Ultraviolet	0.06

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.06	136	-	Holding Tank	Hauled

Compliance History

DMR Data for Outfall 001 (from October 1, 2023 to September 30, 2024)

Parameter	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23
Flow (MGD) Average Monthly	0.054	0.065	0.051	0.052	0.046	0.095	0.102	0.085	0.078	0.07	0.048	0.046
Flow (MGD) Daily Maximum	0.077	0.098	0.079	0.069	0.081	0.176	0.151	0.126	0.144	0.122	0.073	0.062
pH (S.U.) Instantaneous Min.	7.0	7.3	7.0	7.4	7.0	7.2	7.43	7.01	7.4	7.04	7.18	7.05
pH (S.U.) Instantaneous Max.	7.9	7.9	7.9	7.6	7.9	7.8	7.81	7.81	7.98	7.98	7.88	7.91
DO (mg/L) Instantaneous Min.	0.4	6.0	6.2	8.7	6.5	8.7	10.5	13.1	11.2	8.9	8.0	7.1
TRC (mg/L) Average Monthly	0.05	0.10	0.10	0.03	0.10	0.10	0.10	GG	GG	GG	GG	GG
TRC (mg/L) Instantaneous Max.	0.08	0.31	0.26	0.20	0.30	0.27	0.28	GG	GG	GG	GG	GG
CBOD5 (mg/L) Average Monthly	< 4.0	12.0	< 4.0	< 6.0	< 8.0	< 7.0	21.0	< 7.0	< 28.0	4.0	5.0	2.0
TSS (mg/L) Average Monthly	< 4.0	< 4.00	5.0	< 5.0	< 6.0	< 4.0	< 4.0	< 5.0	29.0	< 4.0	< 5.0	< 4.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1.0	< 12	< 2.0	32	11.0	86	103	< 11	148	> 2419.6	3	< 1
Fecal Coliform (No./100 ml) Instantaneous Max.	1.0	152.9	4.0	137.4	21.6	90.8	124.9	130.9	2419.6	> 2419.6	4.1	1
Nitrate-Nitrite (mg/L) Average Quarterly	15.1			23.0			17.7			26.6		
Total Nitrogen (mg/L) Average Quarterly	16.3			25.5			22.0			28.4		
Ammonia (mg/L) Average Monthly	0.20	0.30	< 1.2	0.40	0.60	0.20	< 0.1	< 0.1	4.9	< 0.3	0.3	< 0.1
TKN (mg/L) Average Quarterly	1.2			2.50			4.2			1.8		
Total Phosphorus (mg/L) Average Quarterly	3.4			3.8			2.5			3.3		

Compliance History

Effluent Violations for Outfall 001, from: November 1, 2023 To: September 30, 2024

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
DO	09/30/24	Inst Min	0.4	mg/L	6.0	mg/L
CBOD5	01/31/24	Avg Mo	< 28.0	mg/L	25.0	mg/L
Fecal Coliform	12/31/23	Geo Mean	> 2419.6	No./100 ml	2000	No./100 ml
Fecal Coliform	12/31/23	IMAX	> 2419.6	No./100 ml	10000	No./100 ml
Ammonia	01/31/24	Avg Mo	4.9	mg/L	4.5	mg/L

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.06
Latitude 40º 46' 3.00" **Longitude** -75º 22' 29.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25.0	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
Nov 1 - Apr 30	50.0	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended	30.0	Average Monthly	133.102(b)(1)	92a.47(a)(1)
Solids	60.0	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
E. Coli	Report	IMAX	-	92a.61

Water Quality-Based Limitations

The following limitations were determined through water quality modeling:

Parameter	Limit (mg/l)	SBC	Model
$CBOD_5$	20.0	Average Monthly	Previous Modeling/Permits
May 1 - Oct 31	40.0	IMAX	
Ammonia-Nitrogen	1.5	Average Monthly	
(May 1 - Oct 31)	3.0	IMAX	
Ammonia-Nitrogen	4.5	Average Monthly	
(Nov 1 - Apr 30)	9.0	IMAX	
Dissolved Oxygen	6.0	Minimum	
Total Residual Chlorine	0.27	IMAX	TRC Calculation Spreadsheet
Carbonaceous Biochemical Oxygen Demand (CBOD5) Raw Sewage Influent	Report	Average Monthly	DRBC Docket D-1973-079-3
CBOD5 Minimum % Removal (%)	85	Minimum Monthly Average	
Total Dissolved Solids	Report	Average Quarterly	
Nitrate-Nitrite as N	Report	Average Quarterly	Previous Permits
Total Nitrogen	Report	Average Quarterly	
Total Kjeldahl Nitrogen	Report	Average Quarterly	
Total Phosphorus	Report	Average Quarterly	

Anti-Backsliding

No limitations were made less stringent.

Modeling Using State-wide Low-Flow Yield (LFY) of 0.1 cfs/mi²:

$$\frac{0.1\ ft^3/sec}{mi^2} \times 0.46\ mi^2 = \frac{\mathbf{0.046\ ft^3}}{\mathbf{sec}}$$

Modeling Using USGS StreamStats:

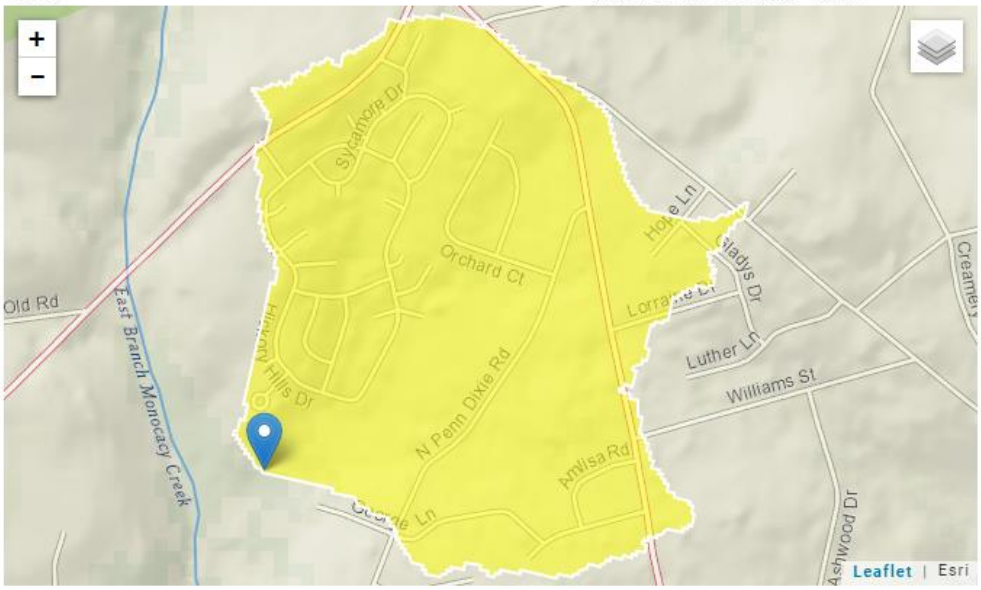
At Outfall 001 on Unnamed Tributary to East Branch Monocacy Creek:

RMI	Elevation (ft)	Drainage Area (mi²)	$Q_{7\text{-}10}$ Flow (cfs)
0.24	629.41	0.46	0.00834

$$Low\ Flow\ Yield\ using\ StreamStats = \frac{0.00834\ ft^3/sec}{0.46\ mi^2} = \mathbf{0.0181}\ \frac{\mathbf{ft^3/sec}}{\mathbf{mi^2}}$$

StreamStats Report

Region ID:	PA
Workspace ID:	PA20241125142842123000
Clicked Point (Latitude, Longitude):	40.76736, -75.37452
Time:	2024-11-25 09:29:05 -0500



Parameter Code	Parameter Name	Value	Units
DRNAREA	Drainage Area	0.46	square miles

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0348	ft^3/s
30 Day 2 Year Low Flow	0.0569	ft^3/s
7 Day 10 Year Low Flow	0.00834	ft^3/s

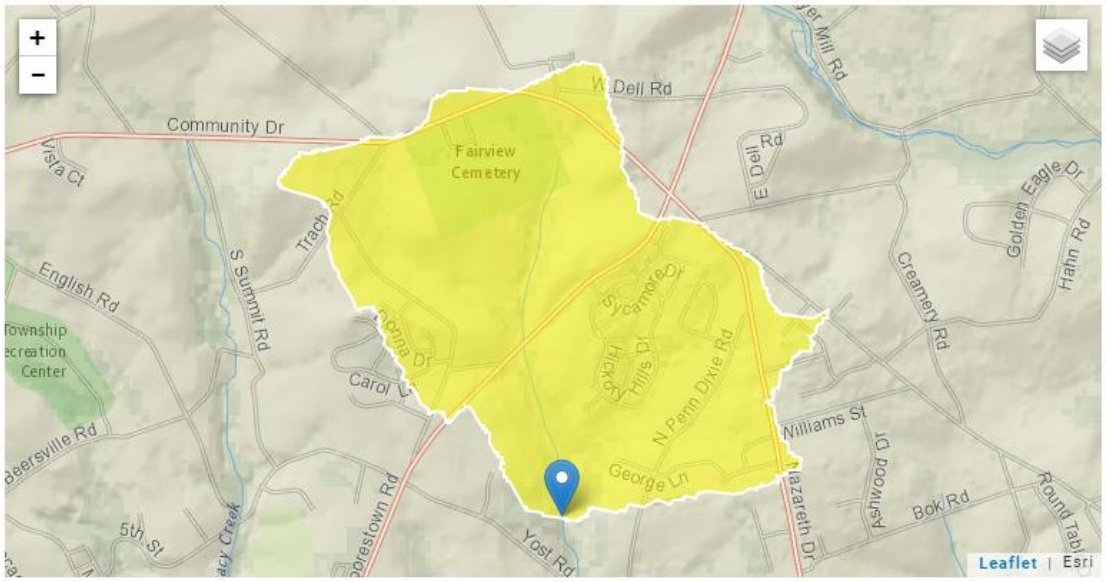
One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

At confluence with East Branch Monocacy Creek (3393):

RMI	Elevation (ft)	Drainage Area (mi^2)
0.0 6.35 (on Each Branch Monocacy Creek)	598.85	1.38

StreamStats Report

Region ID: PA
Workspace ID: PA20241125144339440000
Clicked Point (Latitude, Longitude): 40.76403, -75.37621
Time: 2024-11-25 09:44:04 -0500



Parameter Code	Parameter Name	Value	Units
DRNAREA	Drainage Area	1.38	square miles

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
02C	3408	Trib 03408 to E Branch Monocacy Cr

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.240	HickoryHillsMHP	PA0032328	0.060	CBOD5	25		
				NH3-N	2.59	5.18	
				Dissolved Oxygen			4

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.046	= Q stream (cfs)	0.5	= CV Daily
0.06	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.177	1.3.2.iii	WLA cfc =	0.165
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.066	5.1d	LTA_cfc =	0.096

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.081	AFC
		INST MAX LIMIT (mg/l) =	0.266	

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))... ...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))... ...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)

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Approve	Deny	Signatures	Date
X		Allison Seybold Zukosky Allison S. Zukosky / Project Manager	January 8, 2025
X		Amy M. Bellanca (signed) Amy M. Bellanca, P.E. / Acting Engineer Manager	1-15-25