Pennsylvania Department of Environmental Protection

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0050521**
Facility Type	**Municipal**	APS ID	**1116981**
Major / Minor	**Minor**	Authorization ID	**1490758**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Green Lane – Marlborough Joint Authority**	Facility Name	**Green Lane – Marlboro STP**
Applicant Address	PO Box 45	Facility Address	106 Gravel Pike
	Green Lane, PA 18054-0045		Green Lane, PA 18054
Applicant Contact	Oleg Zonis	Facility Contact	Dave Brooks
Applicant Phone	(215) 499-8086	Facility Phone	(215) 368-3375
Client ID	52132	Site ID	257224
Ch 94 Load Status	Not Overloaded	Municipality	Green Lane Borough
Connection Status		County	Montgomery
Date Application Received	June 26, 2024	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Permit Renewal.

Summary of Review

Green Lane – Marlborough Joint Authority submitted application for renewal of NPDES permit to discharge 0.2 MGD of treated sewage from Green Lane – Marlboro STP to Perkiomen Creek. The creek is located in 3-E – Perkiomen Watershed. The facility serves the communities Borough of Green Lane (40%) and Marlborough Township (60%).

The GLMJA's WWTP is a conventional activated sludge treatment process consisting of two separate treatment trains. The WWTP include an influent grinder, a manual bar screen, 2 aeration tanks, 2 settling tanks, 2 chlorine contact tanks with post aeration, UV disinfection, an aerobic sludge digester, 2 reed beds, and chemical feed - chlorination (back-up disinfection), dichlorination (back-up disinfection), and phosphorus removal. The WQM permit 4621412 was issued to GLMJA for the upgrade of existing Grayville Pike Pump Station. The wet/dry well pumping setup will be upgraded to submersible pump setup and will be above the 100-year flood plain. This upgrade project will be operational in near future.

The GLMJA uses Ultra-Violet disinfection and requests the Total Residual Chlorine (TRC) permit limit remain in future NPDES Permits. Sodium Hypochlorite 12.5% and Sodium Bisulfate 38% would be utilized for back-up disinfection utilizing the existing chlorine contact tank. Soda Ash and/or Sodium bicarbonate are added as needed for supplemental alkalinity as required for nitrification. Effluent from STP is generally in compliance with NPDES permit limits. Effluent limits for all the parameters will remain the same in this permit renewal. Quarterly monitoring for E. Coli has been included in this permit renewal and is consistent with SOP.

SSO and Bypass reports were submitted in the permit application. GLMJA is working diligently to eliminate SSO's in the collection system and bypasses at the treatment plant. Major collection system work from 2019 – 2023 to eliminate SSO's is listed in the renewal application.

Approve	Deny	Signatures	Date
X		*Ketan Thaker* Ketan Thaker / Project Manager	11/18/2024
X		*Pravin Patel* Pravin C. Patel, P.E. / Environmental Engineer Manager	11/18/2024

Summary of Review

Following are effluent limits:

Parameters	Effluent Limits (AV. MO. in mg/l)	Basis
CBOD5	25	WQM Model
Ammonia-Nitrogen	10	WQM Model
Dissolved Oxygen	6.0	WQM Model
Total Residual Chlorine (TRC)	0.5	92a.47-48
pH (S.U.)	6.0 – 9.0 (S.U.)	92a.47, 95.2
Total Suspended Solids	30	92a.47
Ultraviolet Light Intensity (mW/cm^2)	Report	92a.47
Fecal Coliform	200 Geo Mean (No./100 ml)	92a.47
Total Phosphorus	2.0	BPJ
Total Nitrogen	Report	92a.61
Total Dissolved Solids	1000	DRBC
E. Coli	Report	92a.47

Act-14 Notification to Montgomery County Commissioners Office on April 8, 2024.
Act-14 Notification to Marlborough Township on April 8, 2024.

Sludge use and disposal description and location(s): Liquid sewage sludge was hauled off site for disposal. Waste sludge is aerobically digested and then pumped to onsite reed beds.

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03E	1017	PERKIOMEN CREEK

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)
20.000	Green Lane Marl	PA0050521	0.200	CBOD5	25		
				NH3-N	10	20	
				Dissolved Oxygen			6

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
03E	1017	PERKIOMEN CREEK

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
20.00	Green Lane Marl	25	25	10	10	6	6	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03E	1017	PERKIOMEN CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
20.000	0.200	20.085	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
58.403	0.808	72.321	0.384
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.39	0.243	0.17	0.705
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.205	4.973	Tsivoglou	6
Reach Travel Time (days)			
0.159			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.016	2.38	0.17	8.23
0.032	2.37	0.17	8.23
0.048	2.37	0.17	8.23
0.064	2.36	0.16	8.23
0.080	2.35	0.16	8.23
0.095	2.34	0.16	8.23
0.111	2.33	0.16	8.23
0.127	2.32	0.16	8.23
0.143	2.31	0.15	8.23
0.159	2.30	0.15	8.23

WQM 7.0 Modeling Specifications

Parameters	D.O.	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
03E	1017	PERKIOMEN CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
20.000	17.80	0.00	17.80	.3094	0.00189	.808	58.4	72.32	0.38	0.159	20.09	7.00
Q1-10 Flow												
20.000	11.39	0.00	0.00	.3094	0.00189	NA	NA	NA	0.00	0.000	0.00	0.00
Q30-10 Flow												
20.000	24.21	0.00	0.00	.3094	0.00189	NA	NA	NA	0.00	0.000	0.00	0.00

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03E	1017	PERKIOMEN CREEK	**20.000**	220.00	71.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	17.80	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Green Lane Marl	PA0050521	0.2000	0.0000	0.2000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	6.00	8.24	0.00	0.00
NH3-N	10.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03E	1017	PERKIOMEN CREEK	**19.000**	210.00	94.50	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

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)	0.2
Latitude	40Âº 20' 19.78"	Longitude	-75Âº 28' 24.58"
Quad Name	Perkiomenville	Quad Code	1642
Wastewater Description:	Sewage Effluent		

Receiving Waters	Perkiomen Creek (WWF, MF)	Stream Code	01017
NHD Com ID	25987448	RMI	20
Drainage Area	71.2 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	17.8	Q_{7-10} Basis	Previous WQPR
Elevation (ft)	150	Slope (ft/ft)	0.0037
Watershed No.	3-E	Chapter 93 Class.	WWF, MF
Existing Use	None	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	N/A
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Aqua PA		
PWS Waters	Perkiomen Creek – Wetherill Dam	Flow at Intake (cfs)	24.8 cfs (Streamstats)
PWS RMI	0.9	Distance from Outfall (mi)	~ 19

Treatment Facility Summary

Treatment Facility Name: Green Lane - Marlboro STP

WQM Permit No.	Issuance Date
4621412	12/16/2021
4618401	6/18/2018

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Phosphorus Reduction	Activated Sludge	Ultraviolet	0.2

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.709	340	Not Overloaded	Drying	

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	0.099	0.126	0.113	0.133	0.172	0.284	0.341	0.237	0.333	0.299	0.138	0.109
Flow (MGD) Daily Maximum	0.149	0.453	0.156	0.381	0.203	0.887	0.767	0.399	0.734	0.834	0.426	0.243
pH (S.U.) Instantaneous Minimum	7.0	7.1	7	6.7	6.8	7.1	7.0	6.9	7.0	7.2	7.1	7.0
pH (S.U.) Instantaneous Maximum	7.5	7.6	7.7	7.5	7.4	7.5	7.5	7.4	7.5	7.6	7.7	7.8
DO (mg/L) Instantaneous Minimum	7.7	6.8	6.8	6.6	7.2	8.9	8.5	10.6	10.3	7.4	8.6	6.6
TRC (mg/L) Average Monthly	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) Instantaneous Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
CBOD5 (lbs/day) Average Monthly	< 2	< 2	3	< 2	< 4	< 4	< 5	< 7	< 5	< 12	< 3	< 2
CBOD5 (lbs/day) Weekly Average	2	4	5	2	5	< 5	< 6	7	17	39	< 6	< 2
CBOD5 (mg/L) Average Monthly	< 2	< 2	3	< 2	< 3	< 2	< 2	< 3	< 2	< 13	< 2	< 2
CBOD5 (mg/L) Raw Sewage Influent Average Monthly	182	124.6	161	155	122	100.9	79.7	113.8	90.7	125.9	150.6	158
CBOD5 (mg/L) Weekly Average	3	2	6	3	4	< 2	< 2	4	6	44	2	2
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	127	158	154	165	196	186	179	221	174	159	233	185

BOD5 (mg/L) Raw Sewage Influent Average Monthly	197	144	159	193	139	102	80	112	89	128	159	215
TSS (lbs/day) Average Monthly	< 3	< 7	< 4	< 4	< 6	< 8	< 9	< 8	< 10	< 6	< 6	< 3
TSS (lbs/day) Weekly Average	< 4	< 5	< 5	< 4	< 8	< 10	12	< 10	17	< 7	< 12	< 4
TSS (mg/L) Average Monthly	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 3	< 4	< 4	< 4	< 4
TSS (mg/L) Raw Sewage Influent Average Monthly	235	174	189	231	174	126	93	131	99	145	176	226
TSS (mg/L) Weekly Average	< 4	< 4	5	6	< 5	< 4	4	< 4	4	< 4	< 4	< 4
Total Dissolved Solids (mg/L) Average Quarterly				559.3			457.3			572.6		
Total Dissolved Solids (mg/L) Daily Maximum				678			602.0			678		
Fecal Coliform (No./100 ml) Geometric Mean	< 2	< 3	< 1	< 1	< 1	< 2	5	< 3	< 2	< 5	< 2	< 2
Fecal Coliform (No./100 ml) Instantaneous Maximum	5	32	< 1	1	2	10	9	8	7	21	27	8
UV Intensity (mW/cm²) Instantaneous Minimum	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3
Total Nitrogen (lbs/day) Daily Maximum				26.7			25			16.8		
Total Nitrogen (mg/L) Daily Maximum				11.9			16.3			28.9		
Ammonia (lbs/day) Average Monthly	< 0.1	< 0.1	< 0.09	< 0.08	< 0.2	< 0.4	2.52	< 0.2	2.95	< 1.12	< 0.2	< 2.67
Ammonia (lbs/day) Weekly Average	< 0.1	< 0.2	< 0.1	< 0.1	< 0.2	0.8	5.49	< 0.3	6.67	3.65	< 0.3	5.75
Ammonia (mg/L) Average Monthly	< 0.07	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	0.8	< 0.1	1.2	< 0.7	< 0.1	< 3.3

Ammonia (mg/L) Weekly Average	< 0.09	< 0.1	< 0.1	< 0.1	0.2	0.3	1.8	0.1	2.9	2.0	< 8.6	7.3
Total Phosphorus (lbs/day) Average Monthly	1.2	1.6	1.4	1.1	0.8	0.7	1.0	1.0	1.2	0.7	1.5	0.8
Total Phosphorus (mg/L) Average Monthly	1.65	1.37	1.45	1.25	0.62	0.38	0.04	0.48	0.52	0.55	0.93	0.88

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.0	1/day	Grab
CBOD5	42	66	XXX	25	40	50	1/week	24-Hr Composite
CBOD5 Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS Raw Sewage Influent	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	50	75	XXX	30	45	60	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	1000.0 Avg Qrtly	2000.0 Daily Max	2500	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Intensity (mW/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Nitrogen	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite
Ammonia	17	25	XXX	10	15	20	1/week	24-Hr Composite
Total Phosphorus	3.3	XXX	XXX	2.0	XXX	4	1/week	24-Hr Composite

Pennsylvania
Department of
Environmental Protection

Approve	Deny	Signatures	Date
X		Ketan Thaker Ketan Thaker / Project Manager	11/18/2024
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	11/18/2024