Biological Assessment of Callahan WWTF Nassau County NPDES # FL0038407 Sampled February 17, 21, 22, and 23, 2022

Division of Environmental Assessment and Restoration
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Summary of Results

Total residual chlorine (TRC) in the effluent grab sample, collected at the permitted location after dechlorination and prior to discharge, exceeded both the permit limit and the Class III Freshwater criteria. Compliance with permit limits could not be determined from the 2/23/22 effluent composite samples for total phosphorus, total ammonia, nitrate and nitrite, total Kjeldahl nitrogen, and total organic carbon. Due to improper storage, those samples fell out of the acceptable temperature range and were Y-qualified. Organic nitrogen and total nitrogen were calculated using the qualified data. One of the three replicates from the Test Site Hester-Dendy sampler was lost during the deployment period; a minimum of three replicates is required to meet the Class III Water Quality Criteria for Fresh Waters. The macroinvertebrate community composition in Alligator Creek was similar above and below the effluent point of discharge (POD). Possible contributing factors to the differences in macroinvertebrate communities between the three instream sites are habitat and the higher specific conductance in Little Mills Creek and at the Test Site, which is under the influence of the effluent and Little Mills Creek tributary. While compliance cannot be determined for several effluent analytes and macroinvertebrate results, comparisons between the Test Site and the two Control Sites do not indicate nutrient enrichment due to the effluent.

Facility Overview

The Callahan Wastewater Treatment Facility (WWTF) is a domestic wastewater facility. A Facility Summary, including a description of the facility, summary of permit limits, and any relevant Administrative Order (AO), Consent Order (CO), and Discharge Monitoring Report (DMR) information is provided in Appendix A. The effluent is intermittently discharged into Alligator Creek, a Class III Fresh Water [waterbody identification (WBID) 2153] (Figure 1).

Alligator Creek falls within the Peninsular Nutrient Watershed Region for Numeric Nutrient Criteria (NNC). For this region, the NNC, expressed as annual geometric means, are 0.12 mg/L total phosphorus and 1.54 mg/L total nitrogen (Paragraph 62-302.531(2)(c), F.A.C.). Alligator Creek falls within the Northeast bioregion; the daily average dissolved oxygen (DO) saturation shall not be below 34 percent in more than 10 percent of the values (Paragraph 62-302.533(1)(a), F.A.C.). This FYI event only provides single sample results. It should be noted that waterbody impairment assessments are based on longer-term data, and individual exceedances of a criterion do not indicate use impairment. http://ca.dep.state.fl.us/mapdirect/?focus=nutrientcriteria

Methods

Equipment blanks were collected at the facility on 2/17/22. Effluent grab samples were taken from monitoring site location EFD-01, after dechlorination and prior to discharge, for outfall D-001 on 2/21/22. The permit specifies flow-proportioned composite samples and time-proportioned composite samples were collected. On 2/21/2022, DEP staff discovered that the composite sampler did not collect enough volume because the suction line had moved and was not submerged. Therefore, instead of composite samples being collected on 2/21/22 for chronic toxicity analysis, grab samples were collected on 2/23/22 for an acute toxicity analysis. The 24-

hour time-proportioned effluent composite samples were collected from EFD-01 on 2/23/22 for nutrients and carbonaceous biological oxygen demand.

Chemical and biological comparisons were made between a Control Site (located in Alligator Creek beginning approximately 100 m above the point of discharge and ending 200 m above the point of discharge) and a Test Site (located in Alligator Creek beginning approximately 110 m below the point of discharge and ending 10 m below the point of discharge). To determine whether Little Mills Creek (a tributary joining Alligator Creek between the Alligator Creek Control Site and the facility's point of discharge), had any influence on the Test Site results, comparisons also included a second Control Site located in Little Mills Creek (beginning 400 m downstream of US 1 and ending 300 m downstream of US 1; Figure 1). Hester-Dendy samplers were deployed on 1/24/22 and were retrieved on 2/21/22. Upon retrieval, only two out of three replicates deployed were still attached to the Test Site sampler. Stream Condition Index (SCI) samples were not collected due to tidal influence.

Samples were collected by Northeast District and Regional Operation Center samplers (Kim Appleby, Jaena Bernard, Brian Davis, Paul Duff, Katherine Halbert, Vincent McClure, Jeremy Parrish, Shannon Taylor, and Katrin Villinger). Analyses were performed by Eurofins Test America Laboratories in Tampa, and DEP Laboratory in Tallahassee. The report was reviewed by District representatives and the Point Source Studies Review Committee (Herbert Johnson, Austin Nolan, and Ben Nomann).

All field and laboratory methods followed DEP Standard Operating Procedures (see https://floridadep.gov/dear/quality-assurance/content/dep-sops and https://floridadep.gov/dear/florida-dep-laboratory/content/dep-laboratory-quality-assurance-manual-and-sops for details) and met DEP quality assurance/quality control standards (see https://floridadep.gov/dear/quality-assurance). Explanations of specific methods and measurements can be found in Appendix B.

Class III Water Quality Criteria for Fresh and Marine Waters are found in Rule 62-302, F.A.C. All references to Rule 62-302.530, F.A.C. are to the surface water quality criteria table with an effective date of 02/17/2016 and a notice identification number of 17115667.

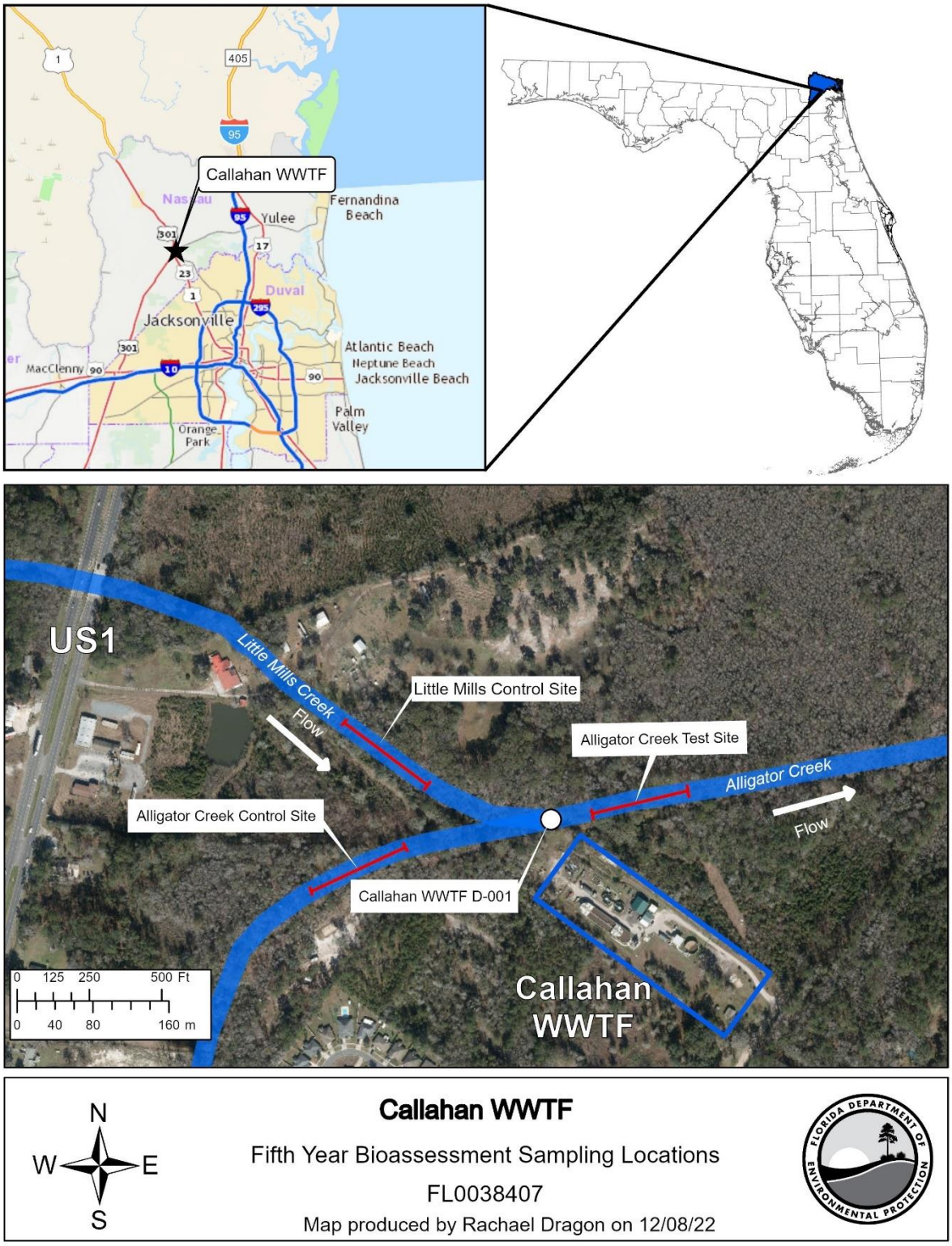


Figure 1. Map of Facility and Sampling Locations

Results

Physical and Chemical Parameters / Site Characterization (See Table 1 and Appendices C, D, and E)

- Habitat Assessment scores were similar at the Little Mills Control Site (65) and the Alligator Creek Test Site (78), which places both sites in the Marginal category. The Alligator Creek Control Site scored higher (95) than both of the other sites, placing it in the Suboptimal category. The substrate diversity in Alligator Creek was similar between the Test Site and Control Site, with both sites having snags, roots, and leaf packs. Little Mills Control Site had only leaf packs. Substrate availability was low overall; none of the sites had more than 5% major productive habitat. All three sites had equally undisturbed riparian zones on the right bank. The Test Site and Little Mills Control Site both lost points for riparian zone disturbance on the left bank. Both banks of the Alligator Creek Control Site had equally large riparian buffer zones. While the Test Site lost points for the riparian buffer zone for both banks, Little Mills Control only lost points for the right bank. The left bank of the Little Mills Control Site had a wider riparian buffer zone than the right bank; however, the vegetation quality was better on the right bank. The Alligator Creek Test Site and the Little Mills Control Site had habitat smothering and artificial channelization with suboptimal bank stability.

- Total Residual Chlorine of the effluent exceeded the Class III Water Quality Criterion for Fresh Waters (Subsection 62-302.530(18), F.A.C.) and effluent permit limits.

- All water quality parameters measured at the Test and Control Sites complied with Class III Water Quality Criteria for Fresh Waters.

Analytical Water Chemistry (See Table 2 and Appendix E)

- All water chemistry analytes detected in the effluent grab samples complied with Class III Water Quality Criteria for Fresh Waters and effluent permit limits.

- All water chemistry analytes detected in the Test and Control Site samples complied with Class III Water Quality Criteria for Fresh Waters.

- Due to improper preservation, compliance cannot be determined for the 2/23/22 effluent total phosphorus, total ammonia, nitrate and nitrite, total Kjeldahl nitrogen, total organic carbon, and total suspended solids composite samples. These results are Y qualified.

- Nutrient measurements in the Test Site and Alligator Creek Control Site samples were similar except for total phosphorus and nitrate and nitrite. There was a greater amount of total phosphorus in the Alligator Creek Control Site sample than in the Test Site sample. There was more nitrate-nitrite in the Test Site sample than in the Alligator Creek Control Site sample. The amount of nutrients detected in the Test Site sample was greater than in the Little Mills Control Site samples for everything except total ammonia and chlorophyll-a corrected. All nutrients detected in the Alligator Creek Control Site sample were higher than in the Little Mills Control Site sample, except for total phosphorus and

total ammonia. The Alligator Creek Control Site sample had less total phosphorus and total ammonia detected than both the Little Mills Control Site and the Test Site samples. While the total ammonia was highest in the Little Mills Control sample, Little Mills Creek does not appear to be negatively impacting Alligator Creek at the Test Site.

- Total ammonia and total organic carbon were detected in the 2/17/22 equipment blank at levels between the method detection limit (MDL) and practical quantitation limit (PQL).

Microbiology (See Table 2 and Appendix B)

- Effluent *Escherichia coli* (*E. coli*) and fecal coliform levels complied with Class III Water Quality Criteria for Fresh Waters and effluent permit limits.

- *E. coli* levels measured in the Test and both Control Site samples complied with Class III Water Quality Criteria for Fresh Waters.

Toxicity Whole Effluent Test (See Table 2 and Appendix B)

- Tests were performed February 24, 2022, through February 28, 2022.

- Acute bioassay results are reported as the Concentration Lethal to 50% of the test organisms (LC50).

- In a 96-hour acute definitive test of 100% effluent, mortality of <20% provides confidence that the effluent meets the acute toxicity criterion of Florida's Surface Water Quality Standards (Rule and 62-302.500(1)a, F.A.C.). Mortality between 20 and 50% indicates low to moderate levels of toxicity, and further action may be required. Mortality of >50% indicates that the effluent fails to meet the minimum requirement to discharge to waters of the state (Rule 62-4.244(3) (a), F.A.C.).

- For the 96-hour acute definitive test, the calculated LC50 for the water flea, *Ceriodaphnia dubia*, was >100% effluent with 0% mortality in 100% sample. The calculated LC50 for the fish, *Pimephales promelas*, was >100% effluent with 5% mortality in 100% sample. The effluent sample was not toxic to either test species during the 96-hour acute definitive bioassays and therefore, complied with effluent permit limits.

- For more information or to obtain copies of the toxicity bench sheets, please contact the Biology Laboratory at 850-245-8177.

Metals (See Table 3 and Appendix E)

- Effluent metals complied with Class III Water Quality Criteria for Fresh Waters. There are no effluent permit limits for metals.

- All metals in the Test and both Control Site samples complied with Class III Water Quality Criteria for Fresh Waters.

Algal Growth Potential (See Table 4 and Appendix B)

- The freshwater unicellular green alga, *Pseudokirchneriella subcapitata*, was used to determine the AGP values in the 2/21/22 effluent grab, Test Site, and both Control Site samples. The analytical chemistry suggests that the effluent and the Little Mills Control Site are both nitrogen-phosphorus co-limited and that the Alligator Creek Test and Control Sites are both nitrogen-limited. (Miller et al. 1978).

- The effluent grab sample AGP result of 0.918 mg dry wt/L is within the AGP range (0.81 to 6.00 mg dry wt/L) suggested to be representative of moderately high productivity for freshwater (Miller et al. 1978). All three instream values were undetected.

- Nitrate-nitrite was not detected in the Little Mills Control Site sample. Half the MDL for nitrate-nitrite was used to calculate the total nitrogen to phosphorus ratio.

- Differences greater than an order of magnitude between actual and predicted AGP values are considered sufficient evidence to warrant follow up testing with the algal growth inhibition bioassay. True algal growth inhibition can only be determined by performing an actual algal growth inhibition test. Should algal growth inhibition be suspected, the district should request that the algal growth inhibition test be performed as a follow-up to the inspection.

Flora (See Appendices B and D)

- Two temporally independent Linear Vegetation Survey (LVS) samplings showing a Coefficient of Conservatism (C of C) score ≥ 2.5 and the frequency of occurrence of Florida Exotic Plant Pest Council (FLEPPC) exotic taxa ≤ 25% are needed to achieve NNC floral metrics. Sites with no observed macrophytes are considered to achieve the LVS component of the NNC. Two temporally independent Rapid Periphyton survey (RPS) samplings with ≤ 25% rank 4-6 (algae >6mm thick) coverage are needed to achieve NNC floral metrics. This FYI event only provides single sample results. It should be noted that waterbody impairment assessments are based on longer-term data, and individual exceedances of a criterion do not indicate use impairment.

- For the LVS, the Test and both Control Sites lacked $2m^2$ of aquatic macrophytes.

- The RPS was performed at the Test and both Control Sites. The Test Site and the Little Mills Control Site both had 7 of the 99 assessed points (approximately 7%) ranked 4-6. While there was little to no canopy cover in the 80-100 m sections of the Test Site, the algae ranked 4-6 were dispersed throughout the 100 m stretch. For the Little Mills Control Site, points ranked 4-6 fell in the 90-100 m section of the 100 m stretch. In the Alligator Creek Control Site only 3 points (approximately 3%) ranked 4-6. The canopy cover was moderate to heavy at both Control Sites. RPS did not indicate nutrient enrichment at the Test Site.

Macroinvertebrates (See Table 5 and Appendices B and D)

- Quantitative macroinvertebrate data were collected from floating Hester-Dendy sampling racks which consisted of three replicates per rack; however, only two replicates were collected from the Alligator Creek Test Site. A minimum of three replicates is required to meet the Class III Water Quality Criteria for Fresh Waters. The Shannon-Weaver diversity score was 3.98 for the Alligator Creek Test Site compared to 3.84 and 2.40 for the Alligator Creek Control Site and Little Mills Control Site, respectively. However, both the Alligator Creek Test Site and Little Mills Control Site calculations were based on fewer than 300 organisms which could negatively bias the diversity scores. The Alligator Creek Test and Control site samples were similar in taxonomic composition. Dipterans were dominant in the Alligator Creek Test and Control Site samples. Amphipods were dominant in the Little Mills Control Site sample. Amphipods and Gastropods comprised a similar, but slightly lower, percentage of the Little Mills Control sample's community composition as compared to the Dipterans in both Alligator Creek Sites. Ephemeroptera, a sensitive taxon, was present at all three sites. There was a higher percentage of *Cheumatopsyche* sp., a semi-tolerant trichopteran, in the Alligator Creek Test Site sample than in the Alligator Creek Control Site sample. There were no Trichoptera in the Little Mills Creek Control Site sample. The Little Mills Control Site sample had the fewest number of individuals. The dominant taxon in the Little Mills Control Site sample, *Gammarus tigrinus* (amphipod), is usually found in higher salinity waters. The conductivity of the Alligator Creek Control Site was 133.8 µmhos/cm. The higher percentage of *Cheumatopsyche* sp. and *Gammarus tigrinus* in the Alligator Creek Test Site, as compared to the Alligator Creek Control Site, show the influence of the higher specific conductivity of Little Mills Creek (366.6 µmhos/cm) and the effluent (906 µmhos/cm) on the macroinvertebrate community in the Test Site (259.2 µmhos/cm). While there was a shift in community composition from the Alligator Creek Control Site to the Alligator Creek Test Site, the macroinvertebrates in the Alligator Test Site sample do not indicate an overall negative impact from the effluent or Little Mills Creek tributary.
- For more information or to obtain a copy of the taxa lists, please contact the Biology Laboratory at 850-245-8177.

Organic Constituents (See Table 6 and Appendix E)

- There are no effluent permit limits for organic constituents.

- Atrazine, azoxystrobin, fipronil sulfide, loratadine, simazine, and tebuconazole were detected in the 2/21/22 effluent grab sample.

- Chlorfenapyr, fipronil desulfinyl, fluxapyroxad, hexazinone, myclobutanil, and phenytoin were detected in the 2/21/22 effluent grab sample at levels between the MDL and PQL.

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Table 1. Measured field parameters

Effluent limits, Class III Water Quality Criteria for Fresh Waters, and field parameters

Parameter	Units	Class III Criteria	Effluent Permit Limits	Effluent 2/21/22	Effluent 2/23/22	Test Alligator	Control Alligator	Control Little Mills
Sample Depth	m	-	-	-	-	0.1	0.3	0.1
Temperature	C	-	Report	18.0	19.3	14.5	14.3	16.8
pH	SU	6.0 - 8.5	6.0 - 8.5	6.8	6.9	6.5	6.8	7.3
Specific Conductance	µmhos/cm	≤ 1,275	-	906	900	259.2	133.8	366.6
Salinity	ppt	-	-	-	-	0.1	0.1	0.2
Salinity (calculated)	ppt	-	-	0.5 c	0.5 c	0.2 c	0.08 c	0.2 c
Dissolved Oxygen	% saturation	≥ 34	-	95.5	96.3	84.0	83.4	81.3
Dissolved Oxygen	mg/L	-	≥ 6.0	9.0	8.8	8.6	8.5	7.9
Flow	MGD	-	0.499	0.165	-	-	-	-
Total Residual Chlorine	mg/L	≤ 0.01	≤ 0.01	2.2 e[1]	2.2 e[1]	-	-	-

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.

e - Value exceeds the Class III Water Quality Criteria or permit limits

c - Value is calculated

1 – There was no TRC detected in any water chemistry or toxicity samples during lab analysis.

Table 2. Analytical water chemistry, microbiological, and toxicological data

Effluent limits, Class III Water Quality Criteria for Fresh Waters, and analytical water chemistry, microbiological, and toxicological data

Analyte	Units	Class III Criteria	Effluent Permit Limits	Effluent Composite (2/23/22)	Effluent Grab (2/21/22)	Test Alligator Creek	Control Alligator Creek	Control Little Mills
Ortho-phosphate	mg P/L	-	Report	-	0.007 I	0.052	0.067	0.021
Total Phosphorus	mg P/L	≤ 0.12 g	≤ 2.0 p	0.031 Y	0.044	0.090	0.11	0.041
Total Ammonia[2]	mg N/L	≤ 4.95 c (Control Little Mills) ≤ 7.20 c (Control Alligator) ≤ 7.57 c (Test Alligator)	Report	0.015 Y	0.027	0.016	0.014	0.019
Nitrate and Nitrite	mg N/L	-	-	0.64 Y	0.16	0.034	0.008 I	0.004 U
Total Kjeldahl Nitrogen	mg N/L	-	Report	0.47 Y	0.66	0.85	0.83	0.72
Organic Nitrogen	mg N/L	-	-	0.46 c	0.63 c	0.83 c	0.82 c	0.7 c
Total Nitrogen	mg N/L	≤ 1.54 g	≤ 6.0 p	1.11 c	0.82 c	0.88 c	0.84 c	0.72 c
Total Organic Carbon[2]	mg C/L	-	-	6.5 AY	5.8	20	23	21
Chlorophyll *a* - Corrected	µg/L	-	-	-	0.89 U	0.82 U	1.5 U	1.4 U
Phaeophytin	µg/L	-	-	-	0.98 U	0.90 U	1.6 U	1.5 U
CBOD, 5 day, N - inhibited	mg/L	-	≤ 10.0 p	2 U	-	-	-	-
Total Suspended Solids	mg/L	-	≤ 10.0 p	2 UYQ	-	-	-	-
Turbidity	NTU	≤ 29 t	-	-	0.55 IA	2.1	2.7	2.4
Color (true)	PCU	-	-	-	3.3 IA	160	210	140
Alkalinity	mg CaCO3/L	≥ 20	-	-	104 A	42	22	128
Chloride	mg Cl/L	-	-	-	97	36 A	19	27
Fluoride	mg F/L	≤ 10.0	-	-	0.41	0.12	0.050 I	0.21

Analyte	Units	Class III Criteria	Effluent Permit Limits	Effluent Composite (2/23/22)	Effluent Grab (2/21/22)	Test Alligator Creek	Control Alligator Creek	Control Little Mills
Sulfate	mg SO4/L	-	-	-	190	47 A	8.3	15
Fecal Coliforms	cfu/100 mL	-	≤ 800 s	-	9 UQ	72 Q	33 BQ	46 Q
Escherichia coli	MPN/100 mL	≤ 410 s	≤ 410 s	-	1.0 UQ	36.9 Q	42.0 Q	52.9 Q
Acute Definitive Bioassay - Water flea *(Ceriodaphnia dubia)*	% effluent	-	≥ 100	> 100 (grab)	-	-	-	-
Acute Definitive Bioassay - Fish *(Pimephales promelas)*	% effluent	-	≥ 100	> 100 (grab)	-	-	-	-

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
c - Value is calculated
g - Value expressed as an annual geometric mean
p - 8-hour flow proportioned composite
s - Single sample
t - Shall not exceed 29 NTUs above background
A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptance range
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
2 - Analyte detected in 2/17/22 Equipment Blank at 0.002 I (Total Ammonia) and 0.55 I (Total Organic Carbon).

Table 3. Analytical metals data

Effluent limits, Class III Water Quality Criteria for Fresh Waters, and analytical metals data

Analyte	Units	Class III Criteria (Effluent Grab)	Effluent Permit Limits	Effluent Grab (2/21/22)	Test Alligator Creek Class III Criteria	Test Alligator Creek	Control Alligator Creek Class III Criteria	Control Alligator Creek	Control Little Mills Class III Criteria	Control Little Mills
Hardness	mg CaCO3/L	-	-	291 c	-	89.5 c	-	42.3 c	-	163 c
Aluminum	µg/L	-	-	70	-	200	-	216	-	91
Arsenic	µg/L	≤ 50	-	0.12 I	≤ 50	0.29	≤ 50	0.32	≤ 50	0.48
Cadmium	µg/L	≤ 0.598 b	-	0.020 U	≤ 0.249 b	0.020 U	≤ 0.143 b	0.020 U	≤ 0.388 b	0.020 U
Calcium	mg/L	-	-	70.5	-	22.6	-	11.4	-	43.0
Chromium, Total[3]	µg/L	≤ 207 b	-	0.40 U	≤ 78.7 b	0.40 U	≤ 42.6 b	0.41 I	≤ 128 b	0.40 U
Copper	µg/L	≤ 23.3 b	-	0.62 I	≤ 8.49 b	0.43 I	≤ 4.48 b	0.40 U	≤ 14.1 b	0.43 I
Iron	µg/L	≤ 1,000	-	30 U	≤ 1,000	480	≤ 1,000	570	≤ 1,000	470
Lead	µg/L	≤ 12.4 b	-	0.20 U	≤ 2.76 b	0.21 I	≤ 1.07 b	0.23 I	≤ 5.91 b	0.20 U
Magnesium	mg/L	-	-	28.0	-	8.03	-	3.37	-	13.4
Nickel	µg/L	≤ 129 b	-	1.4 I	≤ 47.5 b	0.56 I	≤ 25.2 b	0.50 U	≤ 78.7 b	0.52 I
Potassium	mg/L	-	-	12.4	-	4.9	-	3.5	-	0.99 I
Selenium	µg/L	≤ 5.0	-	0.20 U	≤ 5.0	0.20 U	≤ 5.0	0.20 U	≤ 5.0	0.20 U
Silver	µg/L	≤ 0.07	-	0.010 U	≤ 0.07	0.010 U	≤ 0.07	0.010 U	≤ 0.07	0.010 U
Sodium	mg/L	-	-	66.5	-	19.6	-	9.5	-	14.1
Zinc	µg/L	≤ 296 b	-	33	≤ 109 b	6.5 I	≤ 57.8 b	5.0 U	≤ 181 b	5.0 U

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
b - Value is calculated based on hardness, (62-302.530(3))
c - Value is calculated
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
U - Material analyzed for but not detected; value reported is the method detection limit
3 - Class III Freshwater Quality Criterion (62-302.530(19)(a), F.A.C.) is for chromium-III

Table 4. Algal Growth Potential (AGP)

Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN), ortho-phosphate (OP), total nitrogen (TN) and total phosphorus (TP) limitation and ratios of nitrogen to phosphorus

Location	Test Species	AGP (measured)	Predicted AGP (TSIN) ± 20%	Predicted AGP (OP) ± 20%	Predicted AGP (TN) ± 20%	Predicted AGP (TP) ± 20%	Inorganic N:P ratio	Total N:P ratio
Effluent Grab (2/21/22)	*Pseudokirchneriella subcapitata*	0.918	7.1 ± 1.4	3.0 ± 0.6	31 ± 6.2	19 ± 3.8	26.7	19
Test Alligator	*Pseudokirchneriella subcapitata*	0.300 U	1.9 ± 0.4	22 ± 4.5	34 ± 6.7	39 ± 7.7	1.00	9.8
Control Alligator	*Pseudokirchneriella subcapitata*	0.300 U	0.8 ± 0.2	29 ± 5.8	32 ± 6.4	47 ± 9.5	0.300	7.6
Control Little Mills	*Pseudokirchneriella subcapitata*	0.300 U	0.80 ± 0.16 [4]	9.0 ± 1.8	27 ± 5.5 [4]	18 ± 3.5	1.00 [4]	18 [4]

U - Material analyzed for but not detected; value reported is the method detection limit
4 - non-detects in the analytical chemistry; prediction calculated using ½ MDL.

Table 5. Macroinvertebrate Hester-Dendy samples – quantitative

Callahan WWTF	Test Alligator[5]	Control Alligator	Control Little Mills
Summary Statistics			
Shannon-Weaver Diversity*	3.98	3.84	2.4
Number of Taxa	26	26	11
Number of EPT Taxa	4	3	1
Percent Dominant Taxon	20	20	50
Dominant Taxon Name	*Corynoneura* sp. (Diptera)	*Polypedilum flavum* (Diptera)	*Gammarus tigrinus* (Amphipoda)
Total Number of Individuals (counted)	161 *	302	126 *
Total Number of Individuals (#/m^2)	642	800	335
Community Composition: Percent of total			
Acariformes	0.0	0.3	0.0
Amphipoda	1.2	0.3	50.8
Coleoptera	0.0	0.3	0.8
Diptera	84.5	86.8	9.5
Ephemeroptera	10.6	11.3	9.5
Gastropoda	1.2	0.3	22.2
Isopoda	0.0	0.0	1.6
Odonata	0.0	0.0	5.6
Plecoptera	0.0	0.0	0.0
Trichoptera	2.5	0.7	0.0
Functional Feeding Groups: Percent of total			
Predators	12.1	5.8	6.8
Scavengers	0.6	0.2	26.2
Scrapers	3.1	1.5	27.0
Shredders	13.0	19.0	0.0
Surface Deposit Feeders	56.5	50.7	37.3
Suspension Feeders	14.6	22.9	2.8

* - Shannon Weaver Diversity scores calculated on samples with < 300 individuals have the potential for negative bias (lower diversity scores compared to sites with more individuals; Lande 1996).
5 - The diversity criterion requires a minimum of three replicates, per 62-302.530(10a), F.A.C. This result is based on two replicates and is for informational purposes only.

Table 6. Detected Organic Constituents

Effluent limits, Class III Water Quality Criteria for Fresh Waters, and analytical organic and pesticide data

Analyte	Units	Class III Criteria	Effluent Permit Limits	Effluent Grab (2/21/22)
Atrazine	ng/L	-	-	3.2
Azoxystrobin	ng/L	-	-	2.1
Chlorfenapyr	ng/L	-	-	0.55 I
Fipronil Desulfinyl	ng/L	-	-	0.29 I
Fipronil Sulfide	ng/L	-	-	1.4
Fluxapyroxad	ng/L	-	-	0.30 I
Hexazinone	ng/L	-	-	0.66 I
Loratadine	ng/L	-	-	3.0
Myclobutanil	ng/L	-	-	0.48 I
Phenytoin	ng/L	-	-	13 I
Simazine	ng/L	-	-	4.4
Sucralose	µg/L	-	-	70
Tebuconazole	ng/L	-	-	8.1

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Appendix A. Facility Summary

<table>
<tr><th colspan="3">PART I: Information gathered prior to sampling event</th></tr>
<tr><td colspan="2">Prepared By:
Ashlen Ward</td><td>Contact Number:
(904) 256-1603</td></tr>
<tr><td colspan="2">Facility Name (as it appears on permit):
Callahan WWTF</td><td>Former Names:
N/A</td></tr>
<tr><td>NPDES Permit Number:
FL0038407</td><td colspan="2">Permit Expiration Date:
February 21, 2023</td></tr>
<tr><td colspan="3">Physical Address:
618628 Dr. Martin Luther King Jr Avenue, Callahan FL 32011</td></tr>
<tr><td>District:
Northeast</td><td colspan="2">County:
Nassau</td></tr>
<tr><td colspan="3">Function of Facility:
The function of the facility is to treat domestic wastewater from the City of Callahan’s collection system to the standards of the National Pollutant Discharge Elimination System (NPDES) program.</td></tr>
<tr><td>Facility Type:
Domestic Wastewater</td><td colspan="2">Permitted Capacity (MGD):
• 0.5 million gallons per day (MGD)
• 0.499 MGD AADF due to limited capacity of the surface water discharge</td></tr>
<tr><td colspan="3">Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months):
• Average flow for last year = 0.165 MGD
• Flow in monthly averages:
○ 11/30/2021 – 0.149 MGD
○ 10/31/2021 – 0.126 MGD
○ 09/30/2021 – 0.134 MGD
○ 08/31/2021 – 0.197 MGD
○ 07/31/2021 – 0.209 MGD
○ 06/30/2021 – 0.181 MGD
○ 05/31/2021 – 0.153 MGD
○ 04/30/2021 – 0.160 MGD
○ 03/31/2021 – 0.158 MGD
○ 02/28/2021 – 0.214 MGD
○ 01/31/2021 – 0.148 MGD
○ 12/31/2020 – 0.150 MGD</td></tr>
<tr><td colspan="3">If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months):
N/A</td></tr>
</table>

Description of type of Discharge:

☒ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent

☐ Other, please specify:

Description of Sampling Location(s) - actual permit designation of permitted sampling point(s):

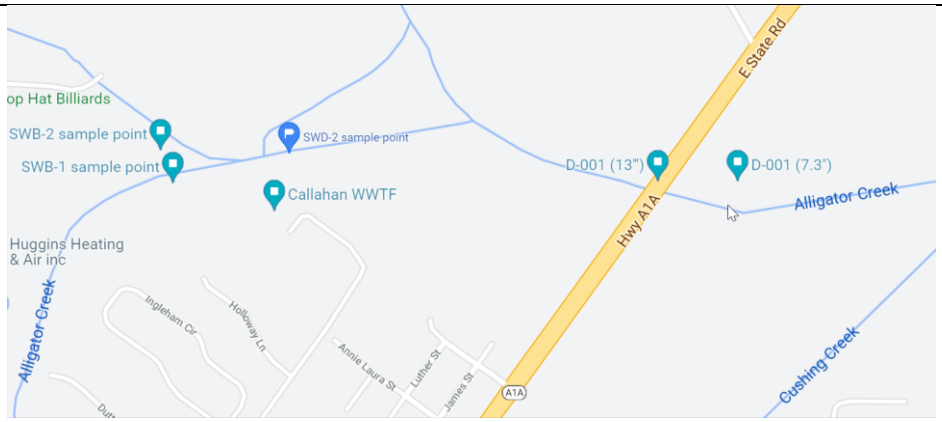
- EFD-1 (monitoring location) is the sample point after dechlorination and prior to discharge to the creek.

- SWB-1 = Sample point 300 ft upstream of the outfall D-001 in the Alligator Creek (30.574972°, -81.829889°) or (30° 34'29.9", -81°49'47.6")
- SWB-2 = Sample point 300 ft upstream of the outfall D-001 in the Little Mills Creek (30.575528°, -81.830139°) or (30°34'31.9", -81°49'48.5")
- SWD-2 = Sample point 300 ft downstream of the outfall D-001 in the Alligator Creek (30.575472°, -81.827583°) or (30°34'31.7", -81°49'39.3")

Description of Permitted Outfall(s):

- Surface water discharge at outfall D-001 (monitoring group), point of discharge at 30°34' 30"N, 81°49' 73"W; however 73 seconds is not possible (value has to be in between 0-60 seconds) thus 7.3'' = (30.575°, -81.818694) and 13'' = (30.575°, -81.820278) were both mapped out in the second image below:





Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility):

- Advanced Treatment

- To operate an existing 0.5 million gallons per day (MGD) annual average daily flow (AADF) design capacity advanced wastewater treatment facility consisting of: 1) A headwork structure which includes: a static screen having a minimum capacity of 1,500 gpm; the screen panel is 120 inches wide by 54 inches long as measured on the 80-inch radius and having 0.10-inch screen openings; a 5,907-gallon aerated grit chamber; and a flow splitting structure. 2) A biological treatment unit which includes a 0.113-million gallon (Mgal) anoxic basin to be mixed by one 4.8-hp submersible mixer and 0.591-Mgal Carrousel basin to be aerated by two 40-hp units. 3) Two center-feed, peripheral draw secondary clarifiers; each clarifier is 35 ft inner diameter and with a 14 ft side water depth. 4) A disc-filter that includes 6 discs using woven polyester as the filter media with a total filter area of 224 ft2, providing a hydraulic loading rate of 4.65 gpm/ft2. 5) A chlorine contact chamber (24,200 gallons), and a dechlorination system; 6) An in-plant lift station; 7) An alum feed facility for phosphorous removal,8) An aerobic digester which is 45 ft inner diameter, 12 ft side water depth, 0.154 Mgal. And 9) Mechanical dewatering equipment.

- The permitted capacity of the wastewater treatment facility is 0.499 MGD AADF due to limited capacity of the surface water discharge.

PART I: Continued										
List current Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under (Leave cell blank if not applicable)										
			Effluent Limitations				Monitoring Requirements			
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
BOD, Carbonaceous 5-day, 20℃	mg/L	Max	5.0	6.25	7..5	10.0	Bi-weekly	8-hr FPC	EFD-1	
Total Suspended Solids	mg/L	Max	5.0	6.25	7.5	10.0	Bi-weekly	8-hr FPC	EFD-1	
pH	s.u.	Min. / Max				6.0 / 8.5	5 days/week	Grab	EFD-1	See I.A.7
Fecal Coliform	#/100 mL	Max	200	200 (geo mean)		800	Bi-weekly	Grab	EFD-1	See I.A.4
E.Coli	#/100mL	Max		126 (geo mean)		410 (90^{th} percentile)	Bi-weekly	Grab	EFD-1	See I.A.4
Dissolved Oxygen	mg/L	Min				6.0	5 Days/Week	Meter	EFD-1	See I.A.6
Total Residual Chlorine	mg/L	Max				0.01	Bi-weekly	Grab	EFD-1	See I.A.11
Total Ammonia, Nitrogen (TAN) as N	mg/L	Max		Report		Report	Bi-weekly	Grab	EFD-1	See I.A.7

Temperature, Water	℃	Max				Report	Bi-weekly	Meter	EFD-1	See I.A.7
Total Nitrogen, Kjeldahl (as N)	mg/L	Max	Report			Report	Quarterly	8-hr FPC	EFD-1	
Total Nitrogen (as N)	mg/L	Max	3.0	3.75	4.5	6.0	Bi-weekly	8-hr FPC	EFD-1	See I.A.8
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Total Phosphorus (as P)	mg/L	Max	1.0	1.25	1.5	2.0	Bi-weekly	8-hr FPC	EFD-1	See I.A.8
Ortho Phosphate (as P)	mg/L	Max	Report			Report	Quarterly	Grab & filtered	EFD-1	
Chronic Toxicity (WET), 7-day IC25, *C.dubia*	Percent	Min				100	Semi-annually	24-hr FPC	EFD-1	See I.A.10
Chronic Toxicity (WET), 7-day IC25, *P. promelas*	Percent	Min				100	Semi-annually	24-hr FPC	EFD-1	See I.A.10
Dissolved Oxygen	mg/L	Max				Report	Quarterly	Grab	SWB1, SWB-2, & SWD-2	See I.A.13
pH	s.u.	max				Report	Quarterly	Grab	SWB1, SWB-2, & SWD-2	See I.A.13

Water temperature °C	°C	Max				Report	Quarterly	Grab	SWB1, SWB-2, & SWD-2	See I.A.13
E. Coli	#/100mL	max				Report	Quarterly	Grab	SWB1, SWB-2, & SWD-2	See I.A.4 & I3
Biochemical Oxygen Demand-5	mg/L	max				Report	Quarterly	Grab	SWB1, SWB-2, & SWD-2	See I.A.13
Total Suspended Solids	mg/L	max				Report	Quarterly	Grab	SWB1, SWB-2, & SWD-2	See I.A.13
Nitrogen, Total Ammonia (as N)	mg/L	max				Report	Quarterly	Grab	SWB1, SWB-2, & SWD-2	See I.A.13
Parameter	Units	Max/Min	Annual Average	Monthly Average	Weekly Average	Single Sample	Monitoring Frequency	Sample Type	Monitoring Location Site Number	Notes
Nitrogen, Kjeldahl (as N)	mg/L	max				Report	Quarterly	Grab	SWB1, SWB-2, & SWD-2	See I.A.13
Total Nitrogen (as N)	mg/L	Max	Report (geo mean)			Report	Quarterly	Grab	SWB1, SWB-2, & SWD-2	See I.A.14
Total Phosphorus (as P)	mg/L	Max	Report (geo mean)			Report	Quarterly	Grab	SWB1, SWB-2, & SWD-2	See I.A.13
Ortho Phosphate (as P)	mg/L	Max				Report	Quarterly	Grab	SWB1, SWB-2, & SWD-2	See I.A.10

PART I: Continued	
Receiving Waters: Alligator Creek (WBID 2153)	Classification (indicate whether fresh or marine): Class III freshwaters

Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.):

- Chronic Toxicity (WET) of *C. dubia* and *P. promelas*
- 10. The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001.

a. Effluent Limitation

(1) Whole effluent chronic toxicity shall not result in an Inhibition Concentration 25% (IC_{25}) less than 100% effluent in any test. *[Rule 62-4.241(1)(b), F.A.C.]*

(2) Whole effluent acute toxicity shall not result in a 96-hour LC50 less than 100% effluent in any test. [Rule 62-4.241(1)(a), F.A.C.]

b. Monitoring Frequency

(1) Routine toxicity tests shall be conducted once every six months, the first starting within 60 days of the issuance date of this permit and lasting for the duration of this permit.

c. Sampling Requirements

(1) For each routine test or additional follow-up test conducted, a total of three flow proportional 24-hr composite samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.

(2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.

(3) Samples for routine and additional follow-up tests shall not be collected on the same day.

d. Test Requirements

(1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: **100%**, **50%**, **25%**, **12.5%**, and **6.25%** final effluent.

(2) The permittee shall conduct a daphnid, ***Ceriodaphnia dubia***, Survival and Reproduction Test and a fathead minnow, ***Pimephales promelas***, Larval Survival and Growth Test, concurrently.

(3) All test species, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th Edition, EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.

(4) The control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7.2.3.

e. Quality Assurance Requirements

(1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.

(2) If the mortality in the control (0% effluent) exceeds 20% for either species in any test or any other test acceptability criteria are not met, the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (***Ceriodaphnia dubia***) and Section 11.11 (***Pimephales promelas***). The repeat test shall begin within 21 days after the last day of the invalid test.

(3) If 100% mortality occurs in all effluent concentrations for either test species prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) for

that species shall be terminated with the conclusion that the test fails and constitutes non-compliance.

(4) Routine and additional follow-up tests shall be evaluated for acceptability based on the observed dose-response relationship as required by EPA-821-R-02-013, Section 10.2.6., and the evaluation shall be included with the bioassay laboratory reports.

f. Reporting Requirements

(1) Results from all required tests shall be reported on the Discharge Monitoring Report (DMR) as the calculated IC25 for each test species.

(2) A bioassay laboratory report for the routine test shall be prepared according to EPA-821-R-02-013, Section 12, Report Preparation and Test Review, and **e-mailed** or mailed to the Department at the address below **within 30 days** after the last day of the test.

(3) For additional follow-up tests, a single bioassay laboratory report for both tests shall be prepared according to EPA-821-R-02-013, Section 12, and mailed or ***e-mailed within 30 days*** after the last day of the second valid additional follow-up test.

(4) Data for invalid tests shall be included in the bioassay laboratory report for the repeat test.

(5) The same bioassay data shall not be reported as the results of more than one test.

(6) All bioassay laboratory reports shall be mailed or ***e-mailed*** within 30 days to Jacksonville ***only***:

g. Test Failures

(1) A test fails when the test results do not meet the limits in 0.a.(1).

(2) Additional Follow-up Tests:

(a) If a routine test does not meet the chronic toxicity limitation in 0.a.(1) above, the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with 0.d.

(b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.

(c) The additional follow-up tests shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5%, and 6.25% effluent. The permittee may modify the dilution series in the additional follow-up tests to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control are run. All test results shall be analyzed according to the procedures in EPA-821-R-02-013.

(3) In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.

(a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.

(b) The Department shall review and approve the plan before initiation.

(c) The plan shall be initiated within 30 days following the Department's written approval of the plan.

(d) Progress reports shall be submitted quarterly to the Department at the address above.

(e) During the implementation of the plan, the permittee shall conduct quarterly routine whole effluent toxicity tests in accordance with 0.d. Additional follow-up tests are not required while the plan is in progress. Following completion or termination of the plan, the frequency of monitoring for routine and additional follow-up tests shall return to the schedule established in 0.b.(1). If a routine test is invalid according to the acceptance criteria in EPA-821-R-02-013, a repeat test shall be initiated within 21 days after the last day of the invalid routine test.

(f) Upon completion of four consecutive quarterly valid routine tests that demonstrate compliance with the effluent limitation in 0.a.(1) above, the permittee may submit a written request to the Department to terminate the plan. The plan shall be terminated upon written verification by the Department that the facility has passed at least four consecutive quarterly valid routine whole effluent toxicity tests.

(g) If a test within the sequence of the four is deemed invalid, but is replaced by a repeat valid test initiated within 21 days after the last day of the invalid test, the invalid test will not be counted

against the requirement for four consecutive quarterly valid routine tests for the purpose of terminating the plan.

(4) If chronic toxicity test results indicate greater than 50% mortality within 96 hours in an effluent concentration equal to or less than the effluent concentration specified as the acute toxicity limit in 0.a.(2), the Department may revise this permit to require acute definitive whole effluent toxicity testing.
(5) The additional follow-up testing and the plan do not preclude the Department taking enforcement action for acute or chronic whole effluent toxicity failures.

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable):

N/A, no current AO and CO

Facility Mixing Zone Details (if applicable):

N/A

List Permit Violations (DMR data) and plant upsets that occurred at the plant within the last year:

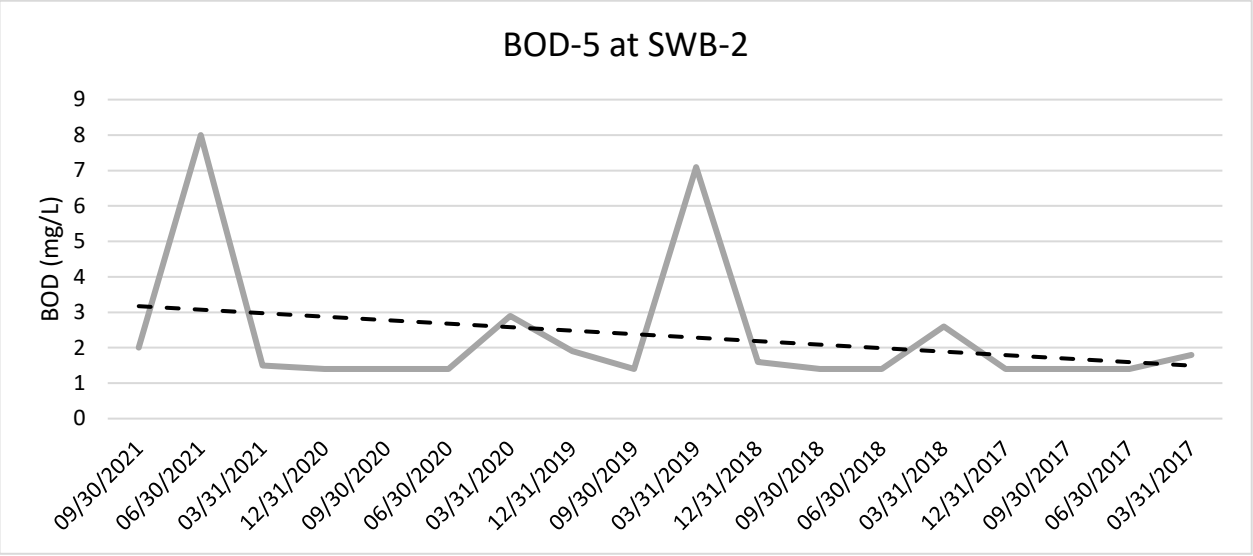
Date	Parameter (Units) – Statistical Base	Limit	Result
11/30/2021	Solids, Total Suspended (mg/L) – maximum	10	14
11/30/2021	Solids, Total Suspended (mg/L) – monthly average	6.25	8.25
11/30/2021	Nitrogen, Ammonia, Total (as N) (mg/L) - maximum	0	1.21
11/30/2021	Nitrogen, Ammonia, Total (as N) (mg/L) – monthly average	0	0.97
01/31/2021	Nitrogen, Total (mg/L) – maximum	6	8.9
01/31/2021	Nitrogen, Total (mg/L) – monthly average	3.75	8.5
05/31/2021	Chlorine, Total Residual (mg/L) – maximum	0.01	0.02
03/31/2021	Chlorine, Total Residual (mg/L) – maximum	0.01	0.03
02/28/2021	E. coli (#/100mL) – 9A-90th percentile	410	1211
02/28/2021	IC25 Statre 7Day Chr Pimephales (percent) – minimum	100	34.49
12/31/2020	IC25 Statre 7Day Chr Pimephales – minimum	100	45.33

Describe previous FYI and WQBEL study: Last FYI5 was done on June 5, 2017, results can be seen at https://depedms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&[guid=38.601136.1]&[profile=Discovery_Compliance]
Describe previous or current Enforcement Actions (including WLs): The last CO was closed out in July 2014, there have been no WLs or CO since then.
Describe any violations or problems noted in previous inspection: Previous inspection was performed on December 6, 2019 by Chris Azcuy and the violations noted were: • No current calibration certification for the NIST thermometers (corrected 12/17/2019) • The reduced pressure zone (RPZ) backflow prevention device was leaking (corrected 12/17/2019) • Audio-visual alarm not functioning at on-site lift station (corrected 12/17/2019) • A self-contained breathing apparatus (SCBA) was not available (temporarily corrected 1/3/2020) • Failed chronic whole effluent toxicity (WET) test (the one follow-up test passed) • Exceedance for total suspended solids (11/30/2017- monthly average, 6.5 mg/L > 6.25 mg/L permit limit)

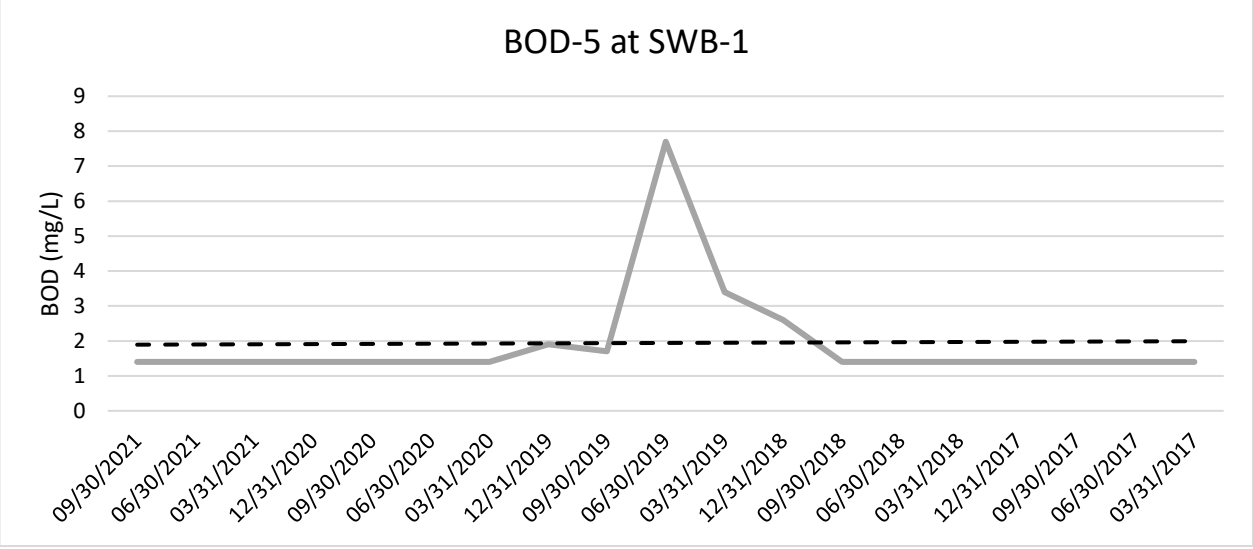
Discuss whether DMR trends within previous five years are improving or declining:

The parameters looked at over the past five years were BOD-5 at the three in-stream sample locations, as well as the effluent trends of TSS, TP, and TN. Linear trend lines (dashed black lines) were added to the maps and show that overall BOD-5 in the streams appears to be averaging around 2 mg/L with no obvious improving or declining trends for SWB-1 and SWD-2, but a somewhat increasing trend seen from past to present times at SWB-2. Linear trends for the effluent parameters show decreasing trends from past to present times at EFD-1 for TSS, TP, and TN; with current averages for TSS of 2.75 mg/L, for TP of 0.2 mg/L and for TN of 1.4 mg/L.

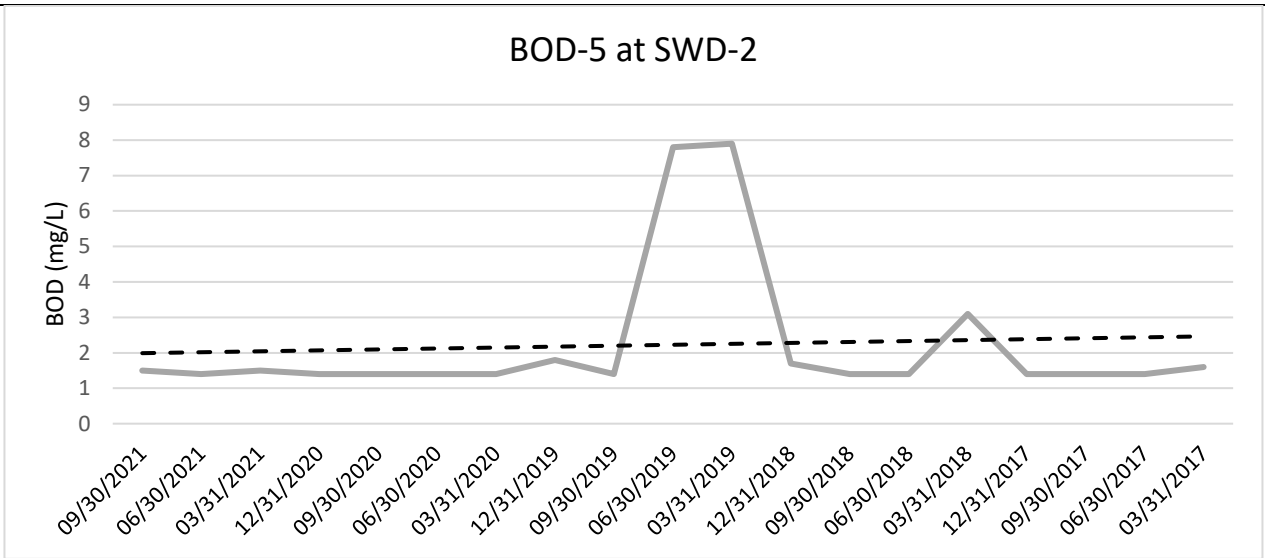
<u>BOD at the three in-stream sample points:</u>



BOD at SWB-2 sample point has had a high peak in 2021 and 2019 with a couple other minor peaks

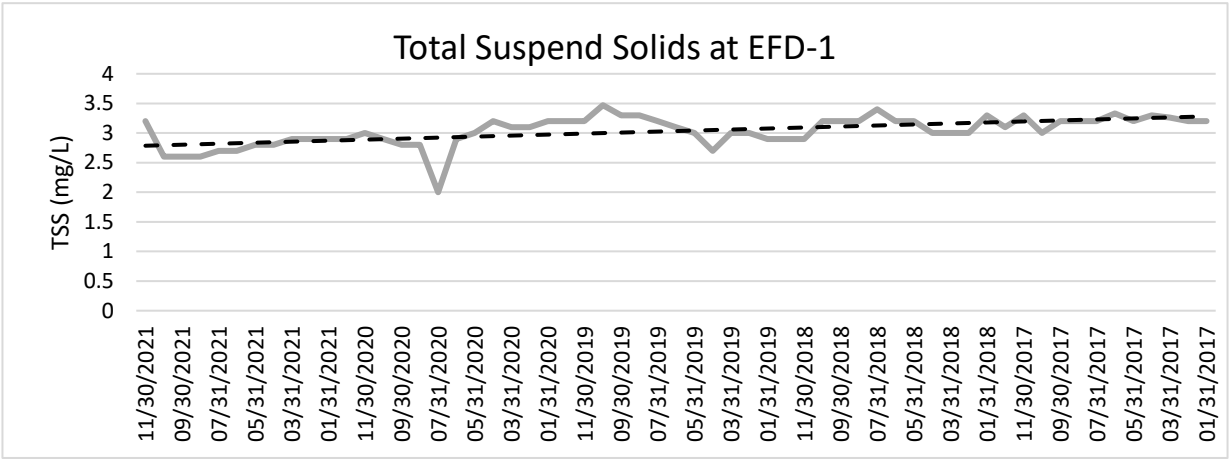


BOD at SWB-1 had one peak in 2019 but has otherwise been stable around 1.5 mg/L

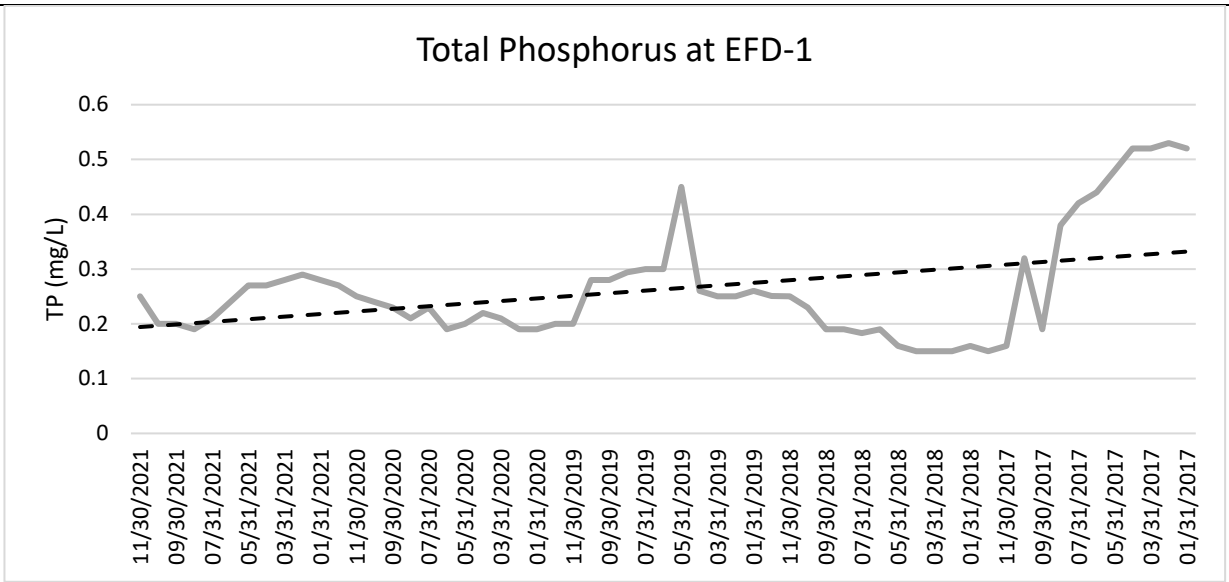


BOD at SWD-2 had a peak in early 2018 and most of 2019, but has been stable around 1.5 mg/L since then

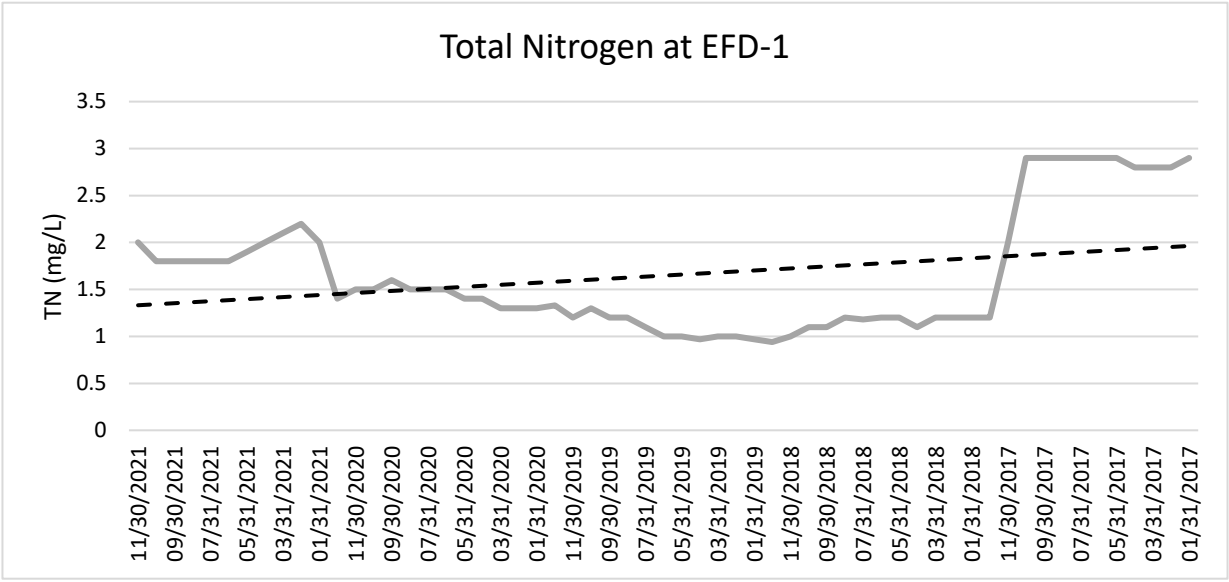
Trends at EFD-1 (D-001 outfall location):



No visible trend seen in TSS, pretty level data readings



It seems the levels of TP have decreased since 2017, with one major peak in mid-2019



The TN levels have decreased since 2017, but have slowly began increasing again with a peak in early 2021

Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse):

N/A

PART II: Sampling Event Information	
Date(s) sample collected: February 21, 2022	Sampler(s): Paul Duff,
Temperature (Deg C):	pH (SU):
Dissolved Oxygen (mg/L):	Conductivity (µmhos/cm):
Total Residual Chlorine (mg/L):	Total Residual Chlorine - after Disinfection (mg/L):
Method of Chlorination:	Method of De-chlorination:
Flow During Sample Collection for each outfall (MGD):	
Mean Flow for each outfall for previous 12 months based on sampling date (If samples are taken on more than one day, indicate Mean Flow for each day): 0.165 MGD	
Describe Discharge during Sampling Event: ☒ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify:	
Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:	

Appendix B. Explanations of Measurements

Biological assessments are prepared by DEP staff to provide information for review of NPDES permit renewal applications. Biological assessments, in conjunction with other information concerning the subject facility and its receiving-water body, are used to determine appropriate permit conditions. References to Rule 62-302.530, F.A.C., are to the currently applicable surface water quality criteria table with an effective date of 02/17/2016 and a notice identification number of 17115667.

- **Chemical Analyses of the Effluent**

  The effluent was analyzed for nutrients, metals, organic constituents (base, neutral, and acid extractables) and pesticides following DEP SOPs. The results from these analyses were compared with Water Quality Criteria (62-302, F.A.C.) and facility permit limits.

- **Toxicity Bioassays**

  Greater than 50% mortality in an acute toxicity test may constitute an exceedance of Paragraph 62-302.500(1)(a) and/or facility permit limits. A 25% inhibition concentration (IC25) is the effluent concentration causing a 25% reduction in a biological response such as biomass or reproduction when compared to a control population. An IC25 of less than 100% in a chronic test may constitute exceedances of Subsection 62-302.530(20), Subsection 62-302.530(62) and/or facility permit limits. A no observed effect concentration (NOEC) less than 100% effluent in a chronic test may constitute an exceedance of Subsection 62-302.530(62) and/or facility permit limits. Standard reference toxicant (SRT) tests are conducted monthly to ensure quality in toxicity testing.

- **Bacteriological Testing**

  High levels of fecal indicator bacteria may constitute an exceedance of Subsection 62-302.530(6) and/or facility permit limits. Fecal coliform results often are based on colony counts outside the acceptable range (B-qualifier). The dilutions performed on the sample did not yield results within the method acceptable range of 20- 60 colony forming units per plate. The B-qualifier does not affect data quality.

- **Habitat Assessment**

  Habitat assessment is used to evaluate the physical structure and extent of disturbance in a waterbody. Eight aspects are ranked, with 20 possible points for each aspect (QA Rule SOP FT 3100). The Habitat Assessment score includes types and amounts of benthic substrates, water velocity, amount of sand or silt accumulation, extent of artificial channelization, bank stability, and riparian zone width and vegetation type. All scores are summed to yield an overall Habitat Assessment score. Habitat Assessment score ranges from 11-160 and overall habitat quality is assigned to one of four categories: Optimal (120-160 points), Suboptimal (80-119 points), Marginal (40-79 points), and Poor (11-39 points).

- **Algal Growth Potential (AGP)**

The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. AGP results within the range 6.10 to 20.0 mg dry wt/L are suggested to be representative of high productivity for freshwaters (Miller et al. 1978). High AGP values may constitute exceedances of Subsection 62-302.530(47), F.A.C., Paragraph 62-302.530(48)(a), F.A.C. and/or Paragraph 62-302.530(48)(b), F.A.C.

The concentration of nutrients in a water sample may be used to calculate the expected yield of AGP under the assumption that other required nutrients (e.g. silicon, micronutrients) are present in excess (Miller *et al*. 1978). The expected amount of production is calculated as 38 times the total soluble inorganic nitrogen (nitrate and nitrite plus ammonia) under nitrogen limitation or 430 times the ortho-phosphate (OP) concentration under phosphorus limitation with an error of ± 20%. When the ratio of nitrogen to phosphorus (N: P) is less than 10:1, nitrogen limitation of algal production is likely. When the N: P ratio is 20:1 or greater, phosphorus limitation is likely (USEPA 2000). For ratios in-between, co-limitation may occur. Production of lower biomass than expected may be evidence of growth inhibition related to toxic compounds present in the water sample tested and may constitute an exceedance of Subsection 62-302.530(62), F.A.C.

- **Benthic Macroinvertebrate Assemblages**

  Quantitative samples were collected from Hester-Dendy multi-plate samplers incubated for 28 days. Benthic macroinvertebrates were sorted and identified to the lowest practical taxonomic level, usually species.

  - Taxa richness: Taxa richness is the number of distinct macroinvertebrate taxa present in a sample. Stress, habitat destruction and pollution tend to reduce the number of different types of organisms present (Karr and Chu 1998). Decreases in taxa richness related to a facility's effluent may constitute exceedances of Subsection 62-302.530(47), F.A.C., Paragraph 62-302.530(48)(a), F.A.C., Paragraph 62-302.530(48)(b), F.A.C. and/or Subsection 62-302.530(62), F.A.C.
  - Percent Contribution of Dominant Taxon: Percent contribution of the dominant taxon is calculated by dividing the number of individuals in the most abundant taxa by the total number of individuals counted. Percent contribution of the dominant taxon tends to increase with increasing perturbation (Plafkin *et al*., 1989). Increases in the percent contribution of the dominant taxon related to a facility's effluent may constitute exceedances of Subsection 62-302.530(47), F.A.C., Paragraph 62-302.530(48)(a), F.A.C. and/or Paragraph 62-302.530(48)(b), F.A.C.
  - Community Composition: Shifts in proportions of major groups of organisms downstream of a point source, compared to upstream, control conditions, may indicate negative effects of a discharge (Fore et. al. 2007, Karr and Chu 1998). Shifts in community composition related to a facility's effluent may constitute exceedances of Subsection 62-302.530(47) F.A.C., Paragraph 62-302.530(48)(a), F.A.C., Paragraph 62-302.530(48)(b), F.A.C. and/or Subsection 62-302.530(62), F.A.C.
  - Functional Feeding Groups: Environmental degradation may differentially affect groups of invertebrates based on how the group feeds (e.g. predators, deposit feeders, etc.). In Florida, pollution may be responsible for reducing the numbers of filter

feeders and shredders (Fore et. al. 2007). Changes in the proportions of functional feeding groups related to a facility's effluent may constitute exceedances of Subsection 62-302.530(47), F.A.C., Paragraph 62-302.530(48)(a), F.A.C., Paragraph 62-302.530(48)(b), F.A.C. and/or Subsection 62-302.530(62), F.A.C.

- Shannon-Weaver Diversity Index: This index is specified in Chapter 62-302 F.A.C. as a measure of biological integrity. Low diversity scores are undesirable. Where diversity is low, only a few taxa are abundant as compared to an area where many taxa are present in equitable abundance among taxa (Magurran 1988). A difference of 25% in Shannon-Weaver diversity between results from Hester-Dendy multiplate samplers incubated for 28 days at test and control sites constitute exceedances of Subsection 62-302.530(10), F.A.C.

- **Rapid Periphyton Survey**

  Rapid Periphyton Survey (RPS) is a rapid method to quantify the extent and abundance of attached algae (periphyton) in a stream or river. A total of 99 points are assessed within a 100m area of sampling reach, 9 equidistant points along 11 cross-section transects spaced 10 m apart, If greater than 20% of sampled points have algal lengths greater than 6mm, a sample is collected and the autecological information associated with the dominant algae is evaluated (see DEP SOP FS 7230 Rapid Periphyton Survey). This method could be used to determine floral health associated with Rule 62-302.531, F.A.C.

- **Linear Vegetation Survey**

  Linear Vegetation Survey (LVS) is a rapid screening tool for ecological condition, by determining how closely a site's flora resembles that of an undisturbed condition. When the total area of macrophytes equals or exceeds two square meters within the wetted area of the 100 m sampling reach, macrophyte taxonomic names are recorded (DEP SOP FS 7320 Stream and River Linear Vegetation Survey (LVS) Method). This method could be used to determine floral health associated with Rule 62-302.531, F.A.C.

- **Definition of Qualifiers** (Rule 62-160.700, F.A.C.)

  A - Value reported is the mean of two or more determinations
  B - Results based on colony counts outside the acceptable range.
  I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
  J - Estimated value
  K - Actual value is known to be less than value given
  L - Actual value is known to be greater than value given
  N - Presumptive evidence of presence of material.
  O - Sampled, but analysis lost or not performed.
  Q - Sample held beyond normal holding time.
  T - Value reported is less than the criterion of detection.
  U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
  V - Analyte was detected in both sample and method blank.
  X - Too few individuals to calculate SCI value.

Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Z - Colonies were too numerous to count (TNTC)

Appendix C. Chain of Custody

Request Number: RQ-2022-02-07-48

FY15 FL0038407 Callahan WWTF Sampling Inspection

Florida Department of Environmental Protection

Central Laboratory Submittal Form

Page 1 of 5

last revised Jan 25, 2018

Customer: NE-DIST

Project ID: FY15

Requester: Elaine Ignacio

Collected By: Paul Duff

Field Report Prepared By: Paul Duff

Sampling Agency: FDEP

Location: Callahan WWTF FY15	☐ Comp ☒ Grab	Collection (comp begin or grab) Date 2/17/22 Time 10:07	Eastern Central	Composite end Date	Time		Bottle Group(s) (See pg 2): F	
Field ID: EQUIP BLANK	Matrix (type, e.g., Salt, Fresh, etc): DI water		Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)			
WIN/STORET #:	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)			
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments: DI from Lab					
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern Central	Composite end Date	Time		Bottle Group(s)	
Field ID	Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)			
WIN/STORET #	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)			
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments					
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern Central	Composite end Date	Time		Bottle Group(s)	
Field ID	Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)			
WIN/STORET #	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)			
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments					
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern Central	Composite end Date	Time		Bottle Group(s)	
Field ID	Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)			
WIN/STORET #	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)			
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments					

Relinquished By:	Date/Time	Shipping Method	Number of Coolers Shipped:	Received By:	Date/Time
	2/17/22 3:00pm	FEDEX	1 Sent with DEAR coolers	MK	2.28.22 1010

Request Number: RQ-2022-02-07-48

FYI5 FL0038407 Callahan WWTF Sampling Inspection

Customer: NE-DIST

Project ID: FYI5

Florida Department of Environmental Protection

Central Laboratory Submittal Form

last revised Jan 25, 2018

Requester: Elaine Ignacio

Collected By: S. Taylor, P. Duff, K. Halbert

Field Report Prepared By: Shannon Taylor

Sampling Agency: FDEP

Callahan WWTF FYI5

EFF GRAB

Location			☐ Comp ☒ Grab	Collection (comp begin or grab) Date 2-21-22 Time 10:00 AM	Eastern Central	Composite end Date NA Time	Bottle Group(s) (See pg 2) A				
Field ID			Matrix (type, e.g., Salt, Fresh, etc) Wastewater effluent		Diss. Oxygen 9.01	☒ mg/L ☐ % sat	Total Res. Chlorine (mg/L) 2.2†				
WIN/STORET #			Temp (C) 18.0	pH 6.79	Sample Depth NA	☐ ft ☐ m	Sp. Conductance (umho/cm) 906				
Latitude	☐ dd ☐ dms	Longitude	☐ dd ☐ dms	Salinity (ppt)	Comments						

Callahan WWTF FYI5

FIELD BLANK

Location			☐ Comp ☒ Grab	Collection (comp begin or grab) Date 2-21-22 Time 9:38	Eastern Central	Composite end Date NA Time	Bottle Group(s) E				
Field ID			Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)				
WIN/STORET #			Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)				
Latitude	☐ dd ☐ dms	Longitude	☐ dd ☐ dms	Salinity (ppt)	Comments DI Water from lab						
Location			☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern Central	Composite end Date Time	Bottle Group(s)				
Field ID			Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)				
WIN/STORET #			Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)				
Latitude	☐ dd ☐ dms	Longitude	☐ dd ☐ dms	Salinity (ppt)	Comments						
Location			☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern Central	Composite end Date Time	Bottle Group(s)				
Field ID			Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)				
WIN/STORET #			Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)				
Latitude	☐ dd ☐ dms	Longitude	☐ dd ☐ dms	Salinity (ppt)	Comments						

Relinquished By:	Date/Time	Shipping Method	Number of Coolers Shipped:	Received By:	Date/Time
Shannon Taylor	2/21/22 3pm	Fedex	3	JK	2-22-2022 9:20 AM

Request Number: RQ-2022-02-07-48

FYI5 FL0038407 Callahan WWTF Sampling Inspection

Customer: NE-DIST

Project ID: FYI5

Florida Department of Environmental Protection

Central Laboratory Submittal Form

last revised Jan 25, 2018

Requester: Elaine Ignacio J Parrish Field Report Prepared By: B Davis

Collected By: B Davis, K Appleby, K Villingen, V Mclure Sampling Agency: PEAR IVEROC, FDEP

Storet/Field ID: G4NE0283 Test Site Alligator Creek Below Callahan WWTP POD	☐ Comp ☑ Grab	Collection (comp begin or grab) Date 2/21/22 Time 1045 Eastern Central	Composite end Date Time	Bottle Group(s) (See pg 2) C, D						
	Matrix (type, e.g., Salt, Fresh, etc) Fresh		Diss. Oxygen 8.56 ☑ mg/L ☐ % sat	Total Res. Chlorine (mg/L)						
	Temp (C) 14.5	pH 6.52	Sample Depth 0.1 ☐ ft ☑ m	Sp. Conductance (umho/cm) 259.2						
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt) 0.12	Comments Sodium sulfite: 86892, Exp 30-Jun-2026 Dioxane Sodium bisulfate: 92352, Exp 5/11/28 preservative							
Storet/Field ID: G4NE0284 Control Site 1 Alligator Creek Above Callahan WWTP POD	☐ Comp ☑ Grab	Collection (comp begin or grab) Date 2/21/22 Time 1120 Eastern Central	Composite end Date Time	Bottle Group(s) C, D						
	Matrix (type, e.g., Salt, Fresh, etc) Fresh		Diss. Oxygen 8.54 ☑ mg/L ☐ % sat	Total Res. Chlorine (mg/L)						
	Temp (C) 14.3	pH 6.83	Sample Depth 0.25 ☐ ft ☑ m	Sp. Conductance (umho/cm) 183.8						
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt) 0.06	Comments Sodium sulfite: 86892, Exp 6/30/26 Dioxane sodium bisulfate: 92352 Exp 5/11/28 preservative							
Storet/Field ID: G4NE0001 Control Site 2 Little Mills ~400m Downstream of US1	☐ Comp ☑ Grab	Collection (comp begin or grab) Date 2/21/22 Time 1335 Eastern Central	Composite end Date Time	Bottle Group(s) C, D						
	Matrix (type, e.g., Salt, Fresh, etc) Fresh		Diss. Oxygen 7.88 ☑ mg/L ☐ % sat	Total Res. Chlorine (mg/L)						
	Temp (C) 16.8	pH 7.31	Sample Depth 0.05 ☐ ft ☑ m	Sp. Conductance (umho/cm) 366.6						
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt) 0.18	Comments Sodium sulfite: 86892, Exp 6/30/26 Dioxane Sodium bisulfate: 92352, Exp 5/11/28 preservative							
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time Eastern Central	Composite end Date Time	Bottle Group(s)						
Field ID	Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen ☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)						
WIN/STORET #	Temp (C)	pH	Sample Depth ☐ ft ☐ m	Sp. Conductance (umho/cm)						
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments							

Relinquished By:	Date/Time	Shipping Method	Number of Coolers Shipped:	Received By:	Date/Time
B Davis	1600 2/21/22	FedEx	3	JR	2-22-2022 9:20 AM

Request Number: RQ-2022-02-07-48

FY15 FL0038407 Callahan WWTF Sampling Inspection

Florida Department of Environmental Protection

Central Laboratory Submittal Form

Page 1 of 5

last revised Jan 25, 2018

Customer: NE-DIST

Project ID: FY15

Requester: Elaine Ignacio

Collected By: Paul D, Jaena B.

Field Report Prepared By: Paul Duff

Sampling Agency: FDEP

Location Field: Callahan WWTF FY15	☑ Comp ☐ Grab	Collection (comp begin or grab) Date 2/22/22 Time 9:30 AM	Eastern Central	Composite end Date 2/23/22 Time 9:30 AM	Bottle Group(s) (See pg 2): B	
WIN: EFF COMPOSITE	Matrix (type, e.g., Salt, Fresh, etc): Effluent	Diss. Oxygen —	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L) —		
Latitu ☐ dd ☐ dms	Temp (C) —	pH —	Sample Depth — ☐ ft ☐ m	Sp. Conductance (umho/cm) —		
	Salinity (ppt) —	Comments —				
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern Central	Composite end Date Time	Bottle Group(s)	
Field ID	Matrix (type, e.g., Salt, Fresh, etc)	Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)		
WIN/STORET #	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)	
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments			
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern Central	Composite end Date Time	Bottle Group(s)	
Field ID	Matrix (type, e.g., Salt, Fresh, etc)	Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)		
WIN/STORET #	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)	
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments			
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern Central	Composite end Date Time	Bottle Group(s)	
Field ID	Matrix (type, e.g., Salt, Fresh, etc)	Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)		
WIN/STORET #	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)	
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments			

Relinquished By:	Date/Time	Shipping Method	Number of Coolers Shipped:	Received By:	Date/Time
	2/23/22 3:00PM	FEDEX	1		1000

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3/1/2022

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
TASK ASSIGNMENT/NOTIFICATION FORM: LAB145

Contract Manager: Linda Allen/Magan Bowden (850)-245-8084 / (850) 245-8095
2600 Blair Stone Rd., MS 6512
Tallahassee, Fl. 32399-2400

Contractor: Eurofins Environment Testing Southeast, LLC
5102 LaRoche Ave
Savannah, GA 31404
ATTN: Noel Savoie

660-117923 Chain of Custody

Loc: 660
11792

DEP Approval By: Linda S. Allen Contractor Approval By: Noel Savoie
Project Manager

Contractor Representatives Contacted: Noel Savoie

Date: 1/24/2022
Means of Contact: Email

Task Assignment Number: OV325 Maximum Cost: $72.50 Turnaround Time: 5 BD

Sample Delivery Date: 2/22/2022

Project Name/Description:
RQ-2022-02-07-48; FY15 FL0038407 Callahan WWTF

Deliverable Number/ Parameter Group/ Method	Sample Matrix	# of Samples	# of Containers	DEP ID #	Unit Cost	% Mark-up (if any)	Cost
Quote/OV-CBOD-IN CBOD, nitrogen-inhibited 5210B-2011	W	1	1		$33.75		$33.75
Quote/OV-BOD-UN BOD, NOT nitrogen-inhibited 5210B-2011	W	1	1		$33.75		$33.75
217/Sample Disposal Fee.	2				$2.50		$5.00
Total Number of Containers Shipped:	2					**Total:**	**$72.50**

QC Instructions:

Comments: Quote # 66017169 - 0

Samples released to Contract Lab by: _____ Date/Time: 2/23/22 / 3:00PM

Delivery Method: FEDEX Shipping Vendor

Samples Accepted by: _____ Date/Time 2/24/22 1000

* **Please sign and return by email to** Linda.S.Allen@FloridaDEP.gov and Magan.Bowden@dep.state.fl.us

2.4 / 3.0 cc-09

Page 13 of 18 3/1/2022

Request Number: RQ-2022-02-07-48

FYI5 FL0038407 Callahan WWTF Sampling Inspection

Florida Department of Environmental Protection

Central Laboratory Submittal Form

Page 1 of 5

last revised Jan 25, 2018

Customer: NE-DIST

Project ID: FYI5

Requester: Elaine Ignacio

Collected By: Paul D. Jaena B.

Field Report Prepared By: Paul Duff

Sampling Agency: FDEP

Location Field ID: Callahan WWTF FYI5 WIN/ST: EFF GRAB Latitude ☐dd ☐dms	☐ Comp ☑ Grab	Collection (comp begin or grab) Date 2/23/22 Time 9:45AM	Eastern Central	Composite end Date Time	Bottle Group(s) (See pg 2) A				
	Matrix (type, e.g., Salt, Fresh, etc) Effluent		Diss. Oxygen 96.4% / 8.85 mg	☑ mg/L ☑ % sat	Total Res. Chlorine (mg/L) 2.2				
	Temp (C) 19.3	pH 6.91	Sample Depth N/A	☐ ft ☐ m	Sp. Conductance (umho/cm) 900				
	Salinity (ppt) N/A	Comments							
Location Field ID: Callahan WWTF FYI5 WIN: EFF COMPOSITE Latitude ☐dd ☐dms	☑ Comp ☐ Grab	Collection (comp begin or grab) Date 2/22/22 Time 9:30AM	Eastern Central	Composite end Date 2/23/22 Time 9:30AM	Bottle Group(s) B				
	Matrix (type, e.g., Salt, Fresh, etc) Effluent		Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)				
	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)				
	Salinity (ppt)	Comments Collected @ 9:30AM							
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern Central	Composite end Date Time	Bottle Group(s)				
Field ID	Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)				
WIN/STORET #	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)				
Latitude ☐dd ☐dms Longitude ☐dd ☐dms	Salinity (ppt)	Comments							
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern Central	Composite end Date Time	Bottle Group(s)				
Field ID	Matrix (type, e.g., Salt, Fresh, etc)		Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)				
WIN/STORET #	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)				
Latitude ☐dd ☐dms Longitude ☐dd ☐dms	Salinity (ppt)	Comments							

Relinquished By:	Date/Time	Shipping Method	Number of Coolers Shipped:	Received By:	Date/Time
	2/23/22 3:00PM	FEDEX	2	JR	2-24-2022 12:57

Request Number: RQ-2022-02-07-48

FYI5 FL0038407 Callahan WWTF Sampling Inspection

Florida Department of Environmental Protection

Central Laboratory Submittal Form

Page 1 of 5

last revised Jan 25, 2018

Customer: NE-DIST

Project ID: FYI5

Requester: Elaine Ignacio

Collected By: Paul D. Jaena B.

Field Report Prepared By: Paul Duff

Sampling Agency: FDEP

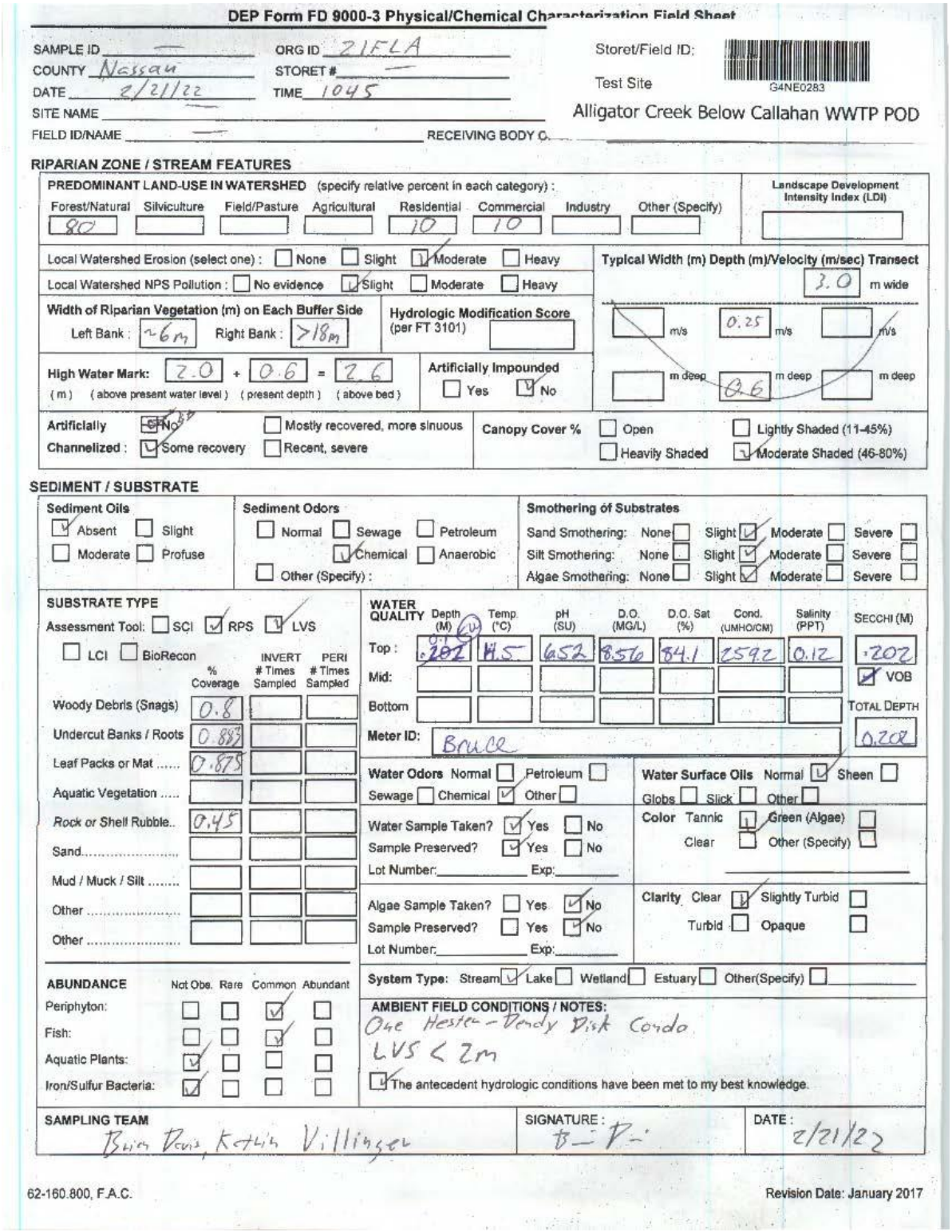
Location: Callahan WWTF FYI5	☐ Comp ☒ Grab	Collection (comp begin or grab) Date 2/23/22 Time 9:45 AM	Eastern Central	Composite end Date Time	Bottle Group(s) (See pg 2): A				
Field ID	Matrix (type, e.g., Salt, Fresh, etc): Effluent	Diss. Oxygen 96.4% / 8.85 mg	☒ mg/L ☒ % sat	Total Res. Chlorine (mg/L) 2.2					
WIN/STORET #: EFF GRAB	Temp (C) 19.3 °C	pH 6.91	Sample Depth N/A	☐ ft ☐ m	Sp. Conductance (umho/cm) 900				
Latitude ☐ dd ☐ dms	Salinity (ppt) N/A	Comments							
Location: Callahan WWTF FYI5	☐ Comp ☐ Grab	Collection (comp begin or grab) Date 2/22/22 Time 9:30 AM	Eastern Central	Composite end Date 2/23/22 Time 9:30 AM	Bottle Group(s): B *				
Field ID	Matrix (type, e.g., Salt, Fresh, etc): Effluent	Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)					
WIN/STORET #: EFF COMPOSITE	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)				
Latitude ☐ dd ☐ dms	Salinity (ppt)	Comments: Collected @ 9:30 AM							
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern Central	Composite end Date Time	Bottle Group(s)				
Field ID	Matrix (type, e.g., Salt, Fresh, etc)	Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)					
WIN/STORET #	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)				
Latitude ☐ dd ☐ dms Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments							
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time	Eastern Central	Composite end Date Time	Bottle Group(s)				
Field ID	Matrix (type, e.g., Salt, Fresh, etc)	Diss. Oxygen	☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)					
WIN/STORET #	Temp (C)	pH	Sample Depth	☐ ft ☐ m	Sp. Conductance (umho/cm)				
Latitude ☐ dd ☐ dms Longitude ☐ dd ☐ dms	Salinity (ppt)	Comments							

Relinquished By:	Date/Time	Shipping Method	Number of Coolers Shipped:	Received By:	Date/Time
	2/23/22 3:00 PM	FEDEX	2	JR	2-24-2022 12:57

* Received by: JR
Date/Time: 2/25/2022 11:23 AM

* Received second cooler for this RQ on 2-25-2022, withe these same sites. - JR

Appendix D. Physical/ Chemical and Habitat Assessment Field Sheets



DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID: — ORG ID: 21FLA
COUNTY: Nassau STORET #: —
DATE: 2/21/22 TIME: 1045
SITE NAME: —
FIELD ID/NAME: — RECEIVING BODY O: —
Storet/Field ID: G4NE0283
Test Site: Alligator Creek Below Callahan WWTP POD

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category):

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industry	Other (Specify)
80				10	10		

Landscape Development Intensity Index (LDI):

Local Watershed Erosion (select one): ☐ None ☐ Slight ☑ Moderate ☐ Heavy
Local Watershed NPS Pollution: ☐ No evidence ☑ Slight ☐ Moderate ☐ Heavy

Width of Riparian Vegetation (m) on Each Buffer Side: Left Bank: ~6m Right Bank: >18m
Hydrologic Modification Score (per FT 3101):

Typical Width (m) Depth (m)/Velocity (m/sec) Transect: 3.0 m wide
m/s | 0.25 m/s | m/s
m deep | 0.6 m deep | m deep

High Water Mark: 2.0 (m) + 0.6 (above present water level) = 2.6 (present depth) (above bed)
Artificially Impounded: ☐ Yes ☑ No

Artificially Channelized: ☑ No ☐ Some recovery ☐ Mostly recovered, more sinuous ☐ Recent, severe

Canopy Cover %: ☐ Open ☐ Lightly Shaded (11-45%) ☐ Heavily Shaded ☑ Moderate Shaded (46-80%)

SEDIMENT / SUBSTRATE

Sediment Oils: ☑ Absent ☐ Slight ☐ Moderate ☐ Profuse
Sediment Odors: ☐ Normal ☐ Sewage ☐ Petroleum ☑ Chemical ☐ Anaerobic ☐ Other (Specify):
Smothering of Substrates: Sand Smothering: None ☐ Slight ☑ Moderate ☐ Severe ☐; Silt Smothering: None ☐ Slight ☑ Moderate ☐ Severe ☐; Algae Smothering: None ☐ Slight ☑ Moderate ☐ Severe ☐

SUBSTRATE TYPE

Assessment Tool: ☐ SCI ☑ RPS ☑ LVS ☐ LCI ☐ BioRecon

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	0.8		
Undercut Banks / Roots	0.887		
Leaf Packs or Mat	0.875		
Aquatic Vegetation			
Rock or Shell Rubble	0.45		
Sand			
Mud / Muck / Silt			
Other			
Other			

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top:	0.202	14.5	6.52	8.56	84.1	259.2	0.12	.202
Mid:								☑ VOB
Bottom								TOTAL DEPTH
								0.202

Meter ID: Bruce

Water Odors: Normal ☐ Petroleum ☐ Sewage ☐ Chemical ☑ Other ☐
Water Surface Oils: Normal ☑ Sheen ☐ Globs ☐ Slick ☐ Other ☐
Water Sample Taken? ☑ Yes ☐ No
Sample Preserved? ☑ Yes ☐ No
Lot Number: Exp:
Color: Tannic ☐ Green (Algae) ☐ Clear ☐ Other (Specify) ☐
Algae Sample Taken? ☐ Yes ☑ No
Sample Preserved? ☐ Yes ☑ No
Lot Number: Exp:
Clarity: Clear ☐ Slightly Turbid ☐ Turbid ☐ Opaque ☐

ABUNDANCE

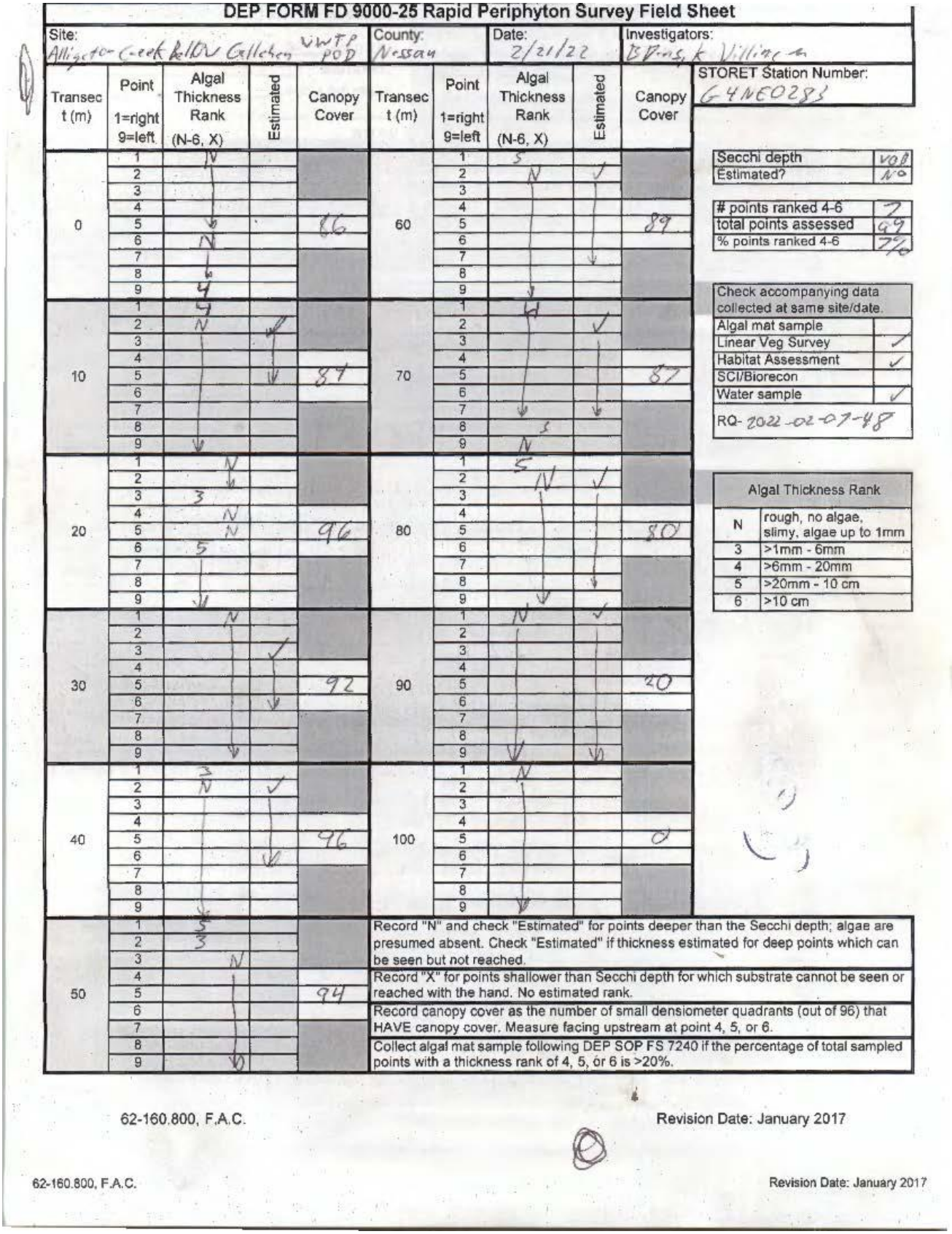
	Not Obs.	Rare	Common	Abundant
Periphyton:	☐	☐	☑	☐
Fish:	☐	☐	☑	☐
Aquatic Plants:	☑	☐	☐	☐
Iron/Sulfur Bacteria:	☑	☐	☐	☐

System Type: Stream ☑ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐

AMBIENT FIELD CONDITIONS / NOTES:
One Hester-Dendy Disk Condo
LVS < 2m
☑ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM: Brian Davis, Katlin Villinger
SIGNATURE: B—D—
DATE: 2/21/22

62-160.800, F.A.C. Revision Date: January 2017



DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Alligator Creek Below Callahan WWTP POD
County: Nassau
Date: 2/21/22
Investigators: D Pinsky, K Villines
STORET Station Number: G4NE0283

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	N		
	2			
	3			
	4			
	5			66
	6	N		
	7			
	8	6		
	9	4		
10	1	4		
	2	N	✓	
	3			
	4			
	5		✓	87
	6			
	7			
	8			
	9	↓		
20	1	N		
	2	↓		
	3	3		
	4	N		
	5	N		96
	6	5		
	7	↓		
	8			
	9	↓		
30	1	N		
	2	↓		
	3		✓	
	4			
	5			92
	6		✓	
	7		↓	
	8			
	9	↓		
40	1	3		
	2	N	✓	
	3	↓	↓	
	4			
	5			96
	6		✓	
	7		↓	
	8			
	9	↓		
50	1	5		
	2	3		
	3	↓ N		
	4	↓		
	5	↓		94
	6	↓		
	7	↓		
	8	↓		
	9	↓		

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
60	1	5		
	2	N	✓	
	3	↓	↓	
	4			
	5			89
	6			
	7		↓	
	8			
	9	↓		
70	1	4		
	2	↓	✓	
	3	↓	↓	
	4	↓		
	5	↓		87
	6	↓		
	7	↓	↓	
	8	5		
	9	N		
80	1	5		
	2	N	✓	
	3	↓	↓	
	4	↓		
	5	↓		80
	6	↓		
	7	↓		
	8	↓	↓	
	9	↓		
90	1	N	✓	
	2	↓	↓	
	3	↓	↓	
	4	↓		
	5	↓		20
	6	↓		
	7	↓	↓	
	8	↓		
	9	↓	↓	
100	1	N		
	2	↓		
	3	↓		
	4	↓		
	5	↓		0
	6	↓		
	7	↓		
	8	↓		
	9	↓		

Secchi depth	0.8
Estimated?	No
# points ranked 4-6	7
total points assessed	99
% points ranked 4-6	7%

Check accompanying data collected at same site/date.	
Algal mat sample	
Linear Veg Survey	✓
Habitat Assessment	✓
SCI/Biorecon	
Water sample	✓

RQ- 2022-02-07-48

Algal Thickness Rank	
N	rough, no algae, slimy, algae up to 1mm
3	>1mm - 6mm
4	>6mm - 20mm
5	>20mm - 10 cm
6	>10 cm

Record "N" and check "Estimated" for points deeper than the Secchi depth; algae are presumed absent. Check "Estimated" if thickness estimated for deep points which can be seen but not reached.

Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. No estimated rank.

Record canopy cover as the number of small densiometer quadrants (out of 96) that HAVE canopy cover. Measure facing upstream at point 4, 5, or 6.

Collect algal mat sample following DEP SOP FS 7240 if the percentage of total sampled points with a thickness rank of 4, 5, or 6 is >20%.

62-160.800, F.A.C.

Revision Date: January 2017

62-160.800, F.A.C.

Revision Date: January 2017

DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

SAMPLING AGENCY: NE ROC		STORET STATION NUMBER: 64NE0283	DATE (MM/DD/YY): 2/21/22	RECEIVING BODY OF WATER: Mill Creek
REMARKS:	COUNTY: Nassau	LOCATION: Below Callahan Alligator Creek WWTP POD		FIELD ID/NAME:

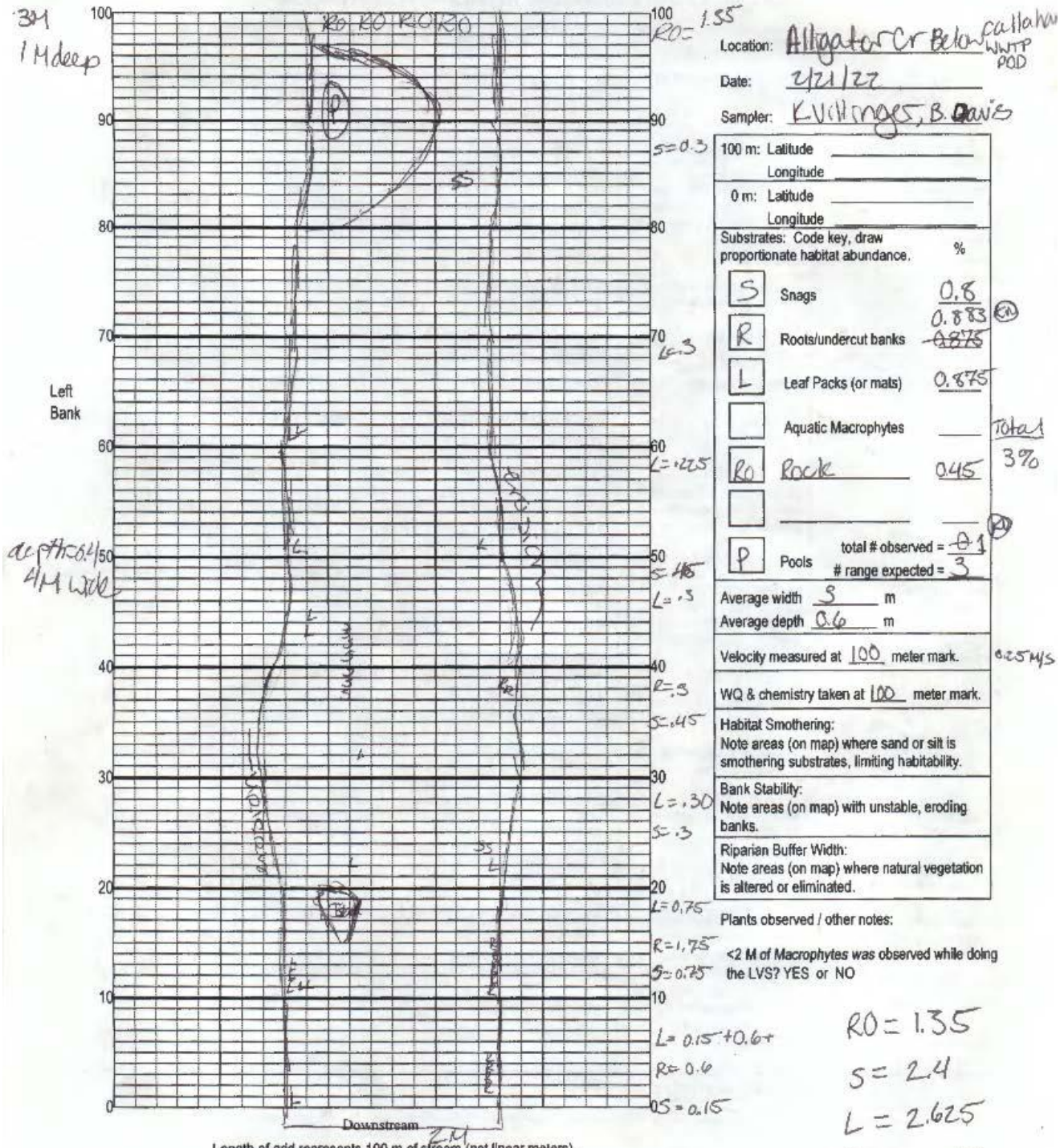
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 11	Four or more major productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock] 20 19 18 17 16	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 (11)	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 7 6	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 3	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 9 8 7 6	Less than 5% major productive habitat 5 4 (3) 2 1
Water Velocity 16	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec ≥0.33 0.31 0.29 0.27 >0.25 20 19 18 17 (16)	Max. observed at typical transect: >0.1 to 0.25 m/sec 0.25 0.21 0.17 0.13 >0.1 (15) 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 0.1 0.09 0.07 0.06 0.05 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec <0.05 0.04 0.03 0.01 <0.01 5 4 3 2 1
Habitat Smothering 7 Primary Score 36	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 11	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). 10 9 8 (7) 6	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 6	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks. 20 19 18 17 16	Good sinuosity within old channelized area. Evidence of dredging in the past (>25 yrs) but mostly recovered. 15 14 13 12 11	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area. 10 9 8 7 (6)	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks. 5 4 3 2 1
Bank Stability Right Bank 5 Left Bank 5	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankfull to top of bank. Bankfull is within or above the root zone with few raw, eroded areas. 10 9	Only meets 2 of the 3 requirements for optimal bank stability. 8 7 6	Only meets 1 of the 3 requirements for optimal bank stability. (5) 4	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank 7 Left Bank 4	Width of vegetation greater than 18 m 10 9	Width of vegetation >12 to 18m 8 (7) 6	Width of vegetation 6 to 12 m. human activities close to system 5 (4)	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 9 Left Bank 6 Secondary Score 42	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants; tree, shrub, and forbs represented, if appropriate). Minimal disturbance. 10 (9)	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 (6)	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. 5 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

78 **TOTAL SCORE**

Date: 2/21/22	Analyst: Brian Davis Katrin Villinger	Signature:

62-160.800, F.A.C. Revision Date: March 1, 2014

DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet



Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).

Location: Alligator Cr Below Callahan WWTP POD
Date: 2/21/22
Sampler: K. Villings, B. Davis

100 m: Latitude / Longitude	
0 m: Latitude / Longitude	

Substrates: Code key, draw proportionate habitat abundance. (%)

S	Snags	0.8 / 0.883 (EA)
R	Roots/undercut banks	~~0.875~~
L	Leaf Packs (or mats)	0.875
	Aquatic Macrophytes	Total 3%
RO	Rock	0.45
		(P)
P	Pools	total # observed = 01; # range expected = 3

Average width 5 m
Average depth 0.6 m

Velocity measured at 100 meter mark. 0.25 M/S

WQ & chemistry taken at 100 meter mark.

Habitat Smothering: Note areas (on map) where sand or silt is smothering substrates, limiting habitability.

Bank Stability: Note areas (on map) with unstable, eroding banks.

Riparian Buffer Width: Note areas (on map) where natural vegetation is altered or eliminated.

Plants observed / other notes:

<2 M of Macrophytes was observed while doing the LVS? YES or NO

RO = 1.35
S = 2.4
L = 2.625
R = 2.65

62-160.800, F.A.C

Revision Date: March 1, 2014

DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

Waterbody: Allister Cr Below WWTP POD | Date: 7/21/22 | County: Nassau | Storet Number: 64NE0285

Analyst: Brian Davis | Signature: B – D –

Comments: < 2m Vegetation

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m^2 of taxa present). Note in the boxes below if no dominant are selected, and note total macrophyte abundance rank for each section. Only the most common taxa are listed, so use blank spaces for additional taxa names.

HERBACEOUS SPECIES	Meter Mark 0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
Alternanthera philoxeroides											
Bacopa caroliniana											
Bacopa monneri											
Bidens mitis											
Boehmeria cylindrica											
Centella asiatica											
Ceratophyllum demersum											
Chara											
Cicuta maculata											
Cladium jamaicense											
Colocasia esculenta											
Commelina diffusa											
Commelina virginica											
Crinum americanum											
Diodia virginiana											
Eichhornia crassipes											
Eleocharis (wispy viviparous)											
Hydrilla verticillata											
Hydrocotle											
Hygrophila polysperma											
Hymenocallis											
Lachnanthes caroliniana											
Landoltia punctata											
Lemna											
Limnophila sessiflora											
Ludwigia leptocarpa											
Ludwigia palustris											
Ludwigia peruviana											
Ludwigia repens											
Luziola fluitans											
If no Dominant or Co-Dominant were selected, indicate with "X"											
Indicate % cover macrophytes per section											
0-5% Macrophyte Coverage											
>5 and ≤10% Macrophyte Coverage											
>10 and ≤25% Macrophyte Coverage											
>25 and ≤50% Macrophyte Coverage											
> 50% Macrophyte Coverage											

HERBACEOUS SPECIES	Meter Mark 0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
Micranthemum glomeratum											
Micranthemum umbrosum											
Myriophyllum aquaticum											
Najas guadelupensis											
Nuphar luteum											
Orontium aquaticum											
Panicum hemitomon											
Panicum repens											
Panicum rigidulum											
Pistia stratioides											
Polygonum glabra											
Polygonum hydropiperoides											
Polygonum punctatum											
Pontedaria cordata											
Potamogeton illinoensis											
Ruellia simplex											
Sacciolepis striata											
Sagittaria kurziana											
Sagittaria lancifolia											
Sagittaria latifolia											
Salvinia minima											
Samolus parviflora											
Saururus cernuus											
Sparganium americanum											
Typha											
Vallisneria americana											
Zizania aquatica											

62-160.800, F.A.C. page 1 of 2 Revision Date: March 1, 2014

DEP Form FD 9000-3 Physical/Chemical Char

Storet/Field ID: G4NE0284

SAMPLE ID G4NE0284 ORG ID 21FLA

COUNTY Nassau STORET #

DATE 2/21/22 TIME 1120

Control Site 1

SITE NAME Alligator Creek Above Callahan WWTP POD

Alligator Creek Above Callahan WWTP POD

FIELD ID/NAME RECEIVING BODY OF WATER

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category):

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industry	Other (Specify)
80					10	10	

Landscape Development Intensity Index (LDI):

Local Watershed Erosion (select one): ☐ None ☒ Slight ☐ Moderate ☐ Heavy

Local Watershed NPS Pollution: ☐ No evidence ☒ Slight ☐ Moderate ☐ Heavy

Width of Riparian Vegetation (m) on Each Buffer Side

Left Bank: >18 Right Bank: >18

Hydrologic Modification Score (per FT 3101):

High Water Mark: 0.7 (m) + 0.3 (above present water level) = 1.0 (present depth) (above bed)

Artificially Impounded ☐ Yes ☒ No

Typical Width (m) Depth (m)/Velocity (m/sec) Transect

3.5 m wide

m/s	0.3 m/s	m/s
m deep	0.3 m deep	m deep

Artificially Channelized: ☐ No ☒ ~~Some recovery~~ ☐ Mostly recovered, more sinuous ☒ Recent, severe

Canopy Cover % ☐ Open ☐ Lightly Shaded (11-45%) ☐ Heavily Shaded ☒ Moderate Shaded (46-80%)

SEDIMENT / SUBSTRATE

Sediment Oils ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse

Sediment Odors ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☒ ~~Anaerobic~~ ☐ Other (Specify):

Smothering of Substrates

	None	Slight	Moderate	Severe
Sand Smothering:	☐	☒	☐	☐
Silt Smothering:	☐	☐	☒	☐
Algae Smothering:	☐	☒	☐	☐

SUBSTRATE TYPE

Assessment Tool: ☐ SCI ☒ RPS ☒ LVS ☐ LCI ☐ BioRecon

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	1		
Undercut Banks / Roots	1		
Leaf Packs or Mat	1		
Aquatic Vegetation			
Rock or Shell Rubble			
Sand	87		
Mud / Muck / Silt	10		
Other			
Other			

WATER QUALITY

	Depth (M)	Temp (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top:	.25	14.3	6.83	8.54	83.4	133.8	0.06	.494
Mid:								☒ VOB
Bottom								TOTAL DEPTH
								.494

Meter ID: Desi

Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐

Water Surface Oils Normal ☒ Sheen ☐ Globs ☐ Slick ☐ Other ☐

Water Sample Taken? ☒ Yes ☐ No

Sample Preserved? ☐ Yes ☐ No

Lot Number: Exp:

Color Tannic ☒ Green (Algae) ☐ Clear ☐ Other (Specify) ☐

Algae Sample Taken? ☐ Yes ☒ No

Sample Preserved? ☐ Yes ☐ No

Lot Number: Exp:

Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐

ABUNDANCE

	Not Obs.	Rare	Common	Abundant
Periphyton:	☐	☒ ~~☒~~	☐ ~~☒~~	☐
Fish:	☒	☐	☐	☐
Aquatic Plants:	☒	☐	☐	☐
Iron/Sulfur Bacteria:	☒	☐	☐	☐

System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐

AMBIENT FIELD CONDITIONS / NOTES:

☒ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM Kim Appleby, Vincent McClure, Jeremy Parrish

SIGNATURE:

DATE: 2/21/22

62-160.800, F.A.C.

Revision Date: January 2017

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Alligator Creek Above Callahan WWTP POD | County: Nassau | Date: 2/23/22 | Investigators: Kim Appleby + Vincent McClure

STORET Station Number: 64NE0254

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	N		
	2			
	3			
	4			
	5			44
	6			
	7			
	8			
	9			
10	1	N		
	2			
	3			
	4			
	5			72
	6			
	7			
	8			
	9			
20	1	N		
	2			
	3			
	4			
	5			94
	6			
	7			
	8			
	9			
30	1	N		
	2			
	3			
	4			
	5			74
	6			
	7			
	8			
	9			
40	1	N		
	2			
	3			
	4			
	5			88
	6			
	7			
	8			
	9			
50	1	N		
	2	N		
	3	N		
	4	N		
	5			80
	6			
	7			
	8			
	9			

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
60	1	N		
	2			
	3			
	4			
	5			38
	6			
	7			
	8			
	9			
70	1	N		
	2			
	3			
	4			
	5			96
	6			
	7	X		
	8	X		
	9	N		
80	1	N		
	2	4		
	3	4		
	4	4		
	5	X		92
	6	N		
	7			
	8			
	9			
90	1	N		
	2	4		
	3	4		
	4	X		
	5	X		96
	6	X		
	7	N		
	8	4		
	9	4		
100	1	N		
	2	4		
	3	X		
	4	N		
	5			96
	6			
	7			
	8			
	9			

Secchi depth	0.79 (VOB)
Estimated?	

# points ranked 4-6	3
total points assessed	94
% points ranked 4-6	3.2

Check accompanying data collected at same site/date.	
Algal mat sample	
Linear Veg Survey	✓
Habitat Assessment	✓
SCI/Biorecon	
Water sample	✓

RQ- 20220207-48

Algal Thickness Rank	
N	rough, no algae, slimy, algae up to 1mm
3	>1mm - 6mm
4	>6mm - 20mm
5	>20mm - 10 cm
6	>10 cm

Record "N" and check "Estimated" for points deeper than the Secchi depth; algae are presumed absent. Check "Estimated" if thickness estimated for deep points which can be seen but not reached.

Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. No estimated rank.

Record canopy cover as the number of small densiometer quadrants (out of 96) that HAVE canopy cover. Measure facing upstream at point 4, 5, or 6.

Collect algal mat sample following DEP SOP FS 7240 if the percentage of total sampled points with a thickness rank of 4, 5, or 6 is >20%.

62-160.800, F.A.C. Revision Date: January 2017

62-160.800, F.A.C. Revision Date: January 2017

DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

SAMPLING AGENCY:		STORET STATION NUMBER:	DATE (MM/DD/YY):	RECEIVING BODY OF WATER:
NE ROC		G4NE0284	2/21/22	
REMARKS: Callahan FYI	COUNTY: Nassau	LOCATION: Alligator Creek Above Callahan WWTP FOT		FIELD ID/NAME:

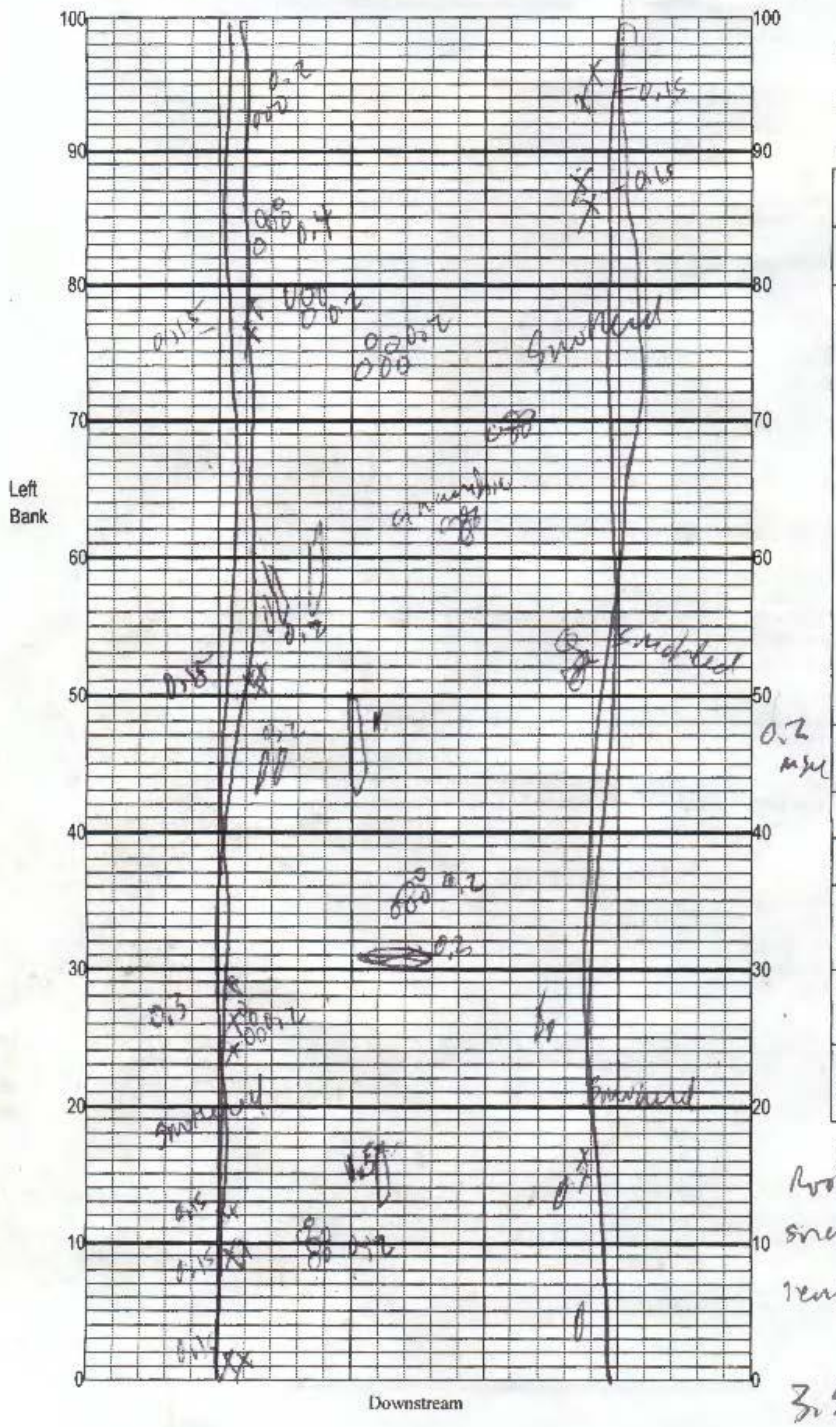
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 11	Four or more major productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock] 20 19 18 17 16	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 (11)	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 7 6	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 3	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 9 8 7 6	Less than 5% major productive habitat 5 4 (3) 2 1
Water Velocity 14	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec ≥0.33 0.31 0.29 0.27 >0.25 20 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 0.25 0.21 0.17 0.13 >0.1 15 (14) 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 0.1 0.09 0.07 0.06 0.05 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec <0.05 0.04 0.03 0.01 <0.01 5 4 3 2 1
Habitat Smothering 10 Primary Score 38	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 11	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). (10) 9 8 7 6	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 10	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks. 20 19 18 17 16	Good sinuosity within old channelized area. Evidence of dredging or straightening in the past (>25 yrs) but mostly recovered. 15 14 13 12 11	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area. (10) 9 8 7 6	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks. 5 4 3 2 1
Bank Stability Right Bank 5 *Left Bank* 4	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankful to top of bank. Bankfull is within or above the woody rool zone with few raw, eroded areas. 10 9	Only meets 2 of the 3 requirements for optimal bank stability. 8 7 6	Only meets 1 of the 3 requirements for optimal bank stability. (5) (4)	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the woody rool zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank 10 Left Bank 10	Width of vegetation greater than 18 m (10) 9	Width of vegetation >12 to 18m 8 7 6	Width of vegetation 6 to 12 m. human activities close to system 5 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
9 5 7 **Riparian Zone Vegetation Quality** Right Bank 9 Left Bank 9 Secondary Score 57	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants; tree, shrub, and forbs represented, if appropriate). Minimal disturbance. 10 (9)	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 6	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. 5 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

95 **TOTAL SCORE**

Date: 2/21/22	Analyst: Jeremy Parrish	Signature: Jeremy Parrish

62-160.800, F.A.C. Revision Date: January 2017

DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet



Location: Alligator Creek Above Callahan WWTP POD

Date: 2/21/22

Sampler: _____

100 m: Latitude _____
Longitude _____

0 m: Latitude _____
Longitude _____

Substrates: Code key, draw proportionate habitat abundance. %

- Snags 1%
- Roots/undercut banks <1
- Leaf Packs (or mats) <1
- Aquatic Macrophytes ____
- _____ ____
- _____ ____
- Pools total # observed = ____ # range expected = ____

Average width _____ m
Average depth _____ m

Velocity measured at ____ meter mark.

WQ & chemistry taken at 60 meter mark.

Habitat Smothering:
Note areas (on map) where sand or silt is smothering substrates, limiting habitability.

Bank Stability:
Note areas (on map) with unstable, eroding banks.

Riparian Buffer Width:
Note areas (on map) where natural vegetation is altered or eliminated.

Plants observed / other notes:

Root - 2m
Snag - 1.5 m+
Root - 2m
0.2 m/sec
3.5 m wide

Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).

62-160.800, F.A.C

Revision Date: January 2017

DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

Waterbody: Alligator Creek Above Callahan WWTP POD | Date: 2/21/22 | County: Nassau | Storet Number: 64NE0284

Analyst: Jeremy Parrish | Signature: Jeremy Parrish

Comments: Less than 2m of vegetation

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m^2 of taxa present). Note in the boxes below if no dominant are selected, and note total macrophyte abundance rank for each section. Only the most common taxa are listed, so use blank spaces for additional taxa names.

HERBACEOUS SPECIES	Meter Mark 0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
Alternanthera philoxeroides											
Bacopa caroliniana											
Bacopa monneri											
Bidens mitis											
Boehmeria cylindrica											
Centella asiatica											
Ceratophyllum demersum											
Chara											
Cicuta maculata											
Cladium jamaicense											
Colocasia esculenta											
Commelina diffusa											
Commelina virginica											
Crinum americanum											
Diodia virginiana											
Eichhornia crassipes											
Eleocharis (wispy viviparous)											
Hydrilla verticillata											
Hydrocotle											
Hygrophila polysperma											
Hymenocallis											
Lachnanthes caroliniana											
Landoltia punctata											
Lemna											
Limnophila sessiflora											
Ludwigia leptocarpa											
Ludwigia palustris											
Ludwigia peruviana											
Ludwigia repens											
Luziola fluitans											
If no Dominant or Co-Dominant were selected, indicate with "X"											
Indicate % cover macrophytes per section											
0-5% Macrophyte Coverage											
>5 and ≤10% Macrophyte Coverage											
>10 and ≤25% Macrophyte Coverage											
>25 and ≤50% Macrophyte Coverage											
> 50% Macrophyte Coverage											

HERBACEOUS SPECIES	Meter Mark 0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
Micranthemum glomeratum											
Micranthemum umbrosum											
Myriophyllum aquaticum											
Najas guadelupensis											
Nuphar luteum											
Orontium aquaticum											
Panicum hemitomon											
Panicum repens											
Panicum rigidulum											
Pistia stratioides											
Polygonum glabra											
Polygonum hydropiperoides											
Polygonum punctatum											
Pontedaria cordata											
Potamogeton illinoensis											
Ruellia simplex											
Sacciolepis striata											
Sagittaria kurziana											
Sagittaria lancifolia											
Sagittaria latifolia											
Salvinia minima											
Samolus parviflora											
Saururus cernuus											
Sparganium americanum											
Typha											
Vallisneria americana											
Zizania aquatica											

62-160.800, F.A.C. page 1 of 2 Revision Date: March 1, 2014

DEP Form FD 9000-3 Physical/Chemical C

Storet/Field ID: G4NE0001

Control Site 2

Little Mills ~400m Downstream of US1

SAMPLE ID _____ ORG ID: FLA

COUNTY Nassau STORET # G4NE001

DATE 2/21/22 TIME 1335

SITE NAME Little Mills ~400m Downstream of US1

FIELD ID/NAME _____ RECEIVING BODY OF WATER Alligator Creek

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category):

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industry	Other (Specify)
75			5		10	10	

Landscape Development Intensity Index (LDI):

Local Watershed Erosion (select one): ☐ None ☒ Slight ☐ Moderate ☐ Heavy

Local Watershed NPS Pollution: ☐ No evidence ☒ Slight ☐ Moderate ☐ Heavy

Width of Riparian Vegetation (m) on Each Buffer Side — Left Bank: >18 Right Bank: 6

Hydrologic Modification Score (per FT 3101):

High Water Mark: 0.4 (m) + 0.1 (above present water level) = 0.5 (present depth) (above bed)

Artificially Impounded ☐ Yes ☒ No

Typical Width (m) Depth (m)/Velocity (m/sec) Transect

1.5 m wide

m/s	0.1 m/s	m/s
m deep	0.1 m deep	m deep

Artificially Channelized: ☐ No ☐ Some recovery ☒ Recent, severe ☐ Mostly recovered, more sinuous

Canopy Cover % ☐ Open ☐ Lightly Shaded (11-45%) ☒ Heavily Shaded ☐ Moderate Shaded (46-80%)

SEDIMENT / SUBSTRATE

Sediment Oils: ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse

Sediment Odors: ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify):

Smothering of Substrates

	None	Slight	Moderate	Severe
Sand Smothering:	☐	☐	☐	☐
Silt Smothering:	☐	☐	☐	☐
Algae Smothering:	☐	☐	☐	☐

SUBSTRATE TYPE

Assessment Tool: ☒ SCI ☒ RPS ☒ LVS ☐ LCI ☐ BioRecon

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	4		
Undercut Banks / Roots	4		
Leaf Packs or Mat	2		
Aquatic Vegetation			
Rock or Shell Rubble			
Sand	90		
Mud / Muck / Silt			
Other			
Other			

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top:	0.05	16.5	7.31	7.88	91.1	3666	0.18	0.1
Mid:								☒ VOB
Bottom								TOTAL DEPTH
								0.1

Meter ID: Des.

Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐

Water Surface Oils Normal ☒ Sheen ☐ Globs ☐ Slick ☐ Other ☐

Water Sample Taken? ☒ Yes ☐ No

Sample Preserved? ☒ Yes ☐ No

Lot Number: _____ Exp: _____

Color Tannic ☒ Green (Algae) ☐ Clear ☐ Other (Specify) ☐

Algae Sample Taken? ☐ Yes ☒ No

Sample Preserved? ☐ Yes ☐ No

Lot Number: _____ Exp: _____

Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐

ABUNDANCE

	Not Obs.	Rare	Common	Abundant
Periphyton:	☐	☒	☐	☐
Fish:	☒	☐	☐	☐
Aquatic Plants:	☒	☐	☐	☐
Iron/Sulfur Bacteria:	☒	☐	☐	☐

System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐ _____

AMBIENT FIELD CONDITIONS / NOTES:

☒ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM Kim Applett, Jeremy Parrish, Vincent McClure

SIGNATURE:

DATE: 2/21/22

62-160.800, F.A.C.

Revision Date: January 2017

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Little Mills n400m Downstream of

County: Nassau

Date: 2/21/22

Investigators: Kim Applebury, Vincent McClure

STORET Station Number: G-4 NEood

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	N		
	2			
	3			
	4			
	5			96
	6			
	7			
	8			
	9			
10	1	N		
	2			
	3			
	4			
	5			96
	6			
	7			
	8			
	9			
20	1	N		
	2			
	3			
	4			
	5			96
	6			
	7			
	8			
	9			
30	1	N		
	2			
	3			
	4			
	5			96
	6			
	7			
	8			
	9			
40	1	N		
	2			
	3			
	4			
	5			96
	6			
	7			
	8			
	9			
50	1	N		
	2			
	3			
	4			
	5			96
	6			
	7			
	8			
	9			

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
60	1	N		
	2			
	3			
	4			
	5			96
	6			
	7			
	8			
	9			
70	1	N		
	2			
	3			
	4			
	5			92
	6			
	7			
	8			
	9			
80	1	N		
	2			
	3			
	4			
	5			96
	6			
	7			
	8			
	9			
90	1	N		
	2			
	3			
	4			
	5			96
	6			
	7			
	8			
	9			
100	1	4		
	2	6		
	3	6		
	4	5		
	5	5		96
	6	5		
	7	5		
	8	N		
	9	N		

Secchi depth	0.1 (v.3)
Estimated?	

# points ranked 4-6	7
total points assessed	99
% points ranked 4-6	7.1

Check accompanying data collected at same site/date.	
Algal mat sample	
Linear Veg Survey	
Habitat Assessment	✓
SCI/Biorecon	✓
Water sample	✓

RQ-2022-02-07-48

Algal Thickness Rank	
N	rough, no algae, slimy, algae up to 1mm
3	>1mm - 6mm
4	>6mm - 20mm
5	>20mm - 10 cm
6	>10 cm

Record "N" and check "Estimated" for points deeper than the Secchi depth; algae are presumed absent. Check "Estimated" if thickness estimated for deep points which can be seen but not reached.

Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. No estimated rank.

Record canopy cover as the number of small densiometer quadrants (out of 96) that HAVE canopy cover. Measure facing upstream at point 4, 5, or 6.

Collect algal mat sample following DEP SOP FS 7240 if the percentage of total sampled points with a thickness rank of 4, 5, or 6 is >20%.

62-160.800, F.A.C. Revision Date: January 2017

62-160.800, F.A.C. Revision Date: January 2017

B

DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

SAMPLING AGENCY:		STORET STATION NUMBER: 64NE0001	DATE (MMDDYY): 2/21/22	RECEIVING BODY OF WATER:
REMARKS:	COUNTY: Nassau	LOCATION: Little Mills 400m Downstream of US1		FIELD ID/NAME:

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 4	Four or more major productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock] 20 19 18 17 16	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 11	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 7 6	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 (4) 3 2 1
Substrate Availability 2	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 9 8 7 6	Less than 5% major productive habitat 5 4 3 (2) 1
Water Velocity 12	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec ≥0.33 0.31 0.29 0.27 >0.25 20 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 0.25 0.21 0.17 0.13 >0.1 15 14 13 (12) 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 0.1 0.09 0.07 0.06 0.05 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occuring: > 1 m/sec <0.05 0.04 0.03 0.01 <0.01 5 4 3 2 1
Habitat Smothering 6 Primary Score 24	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 11	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). 10 9 8 7 (6)	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 6	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks. 20 19 18 17 16	Good sinuosity within old channelized area. Evidence of dredging or straightening in the past (>25 yrs) but mostly recovered. 15 14 13 12 11	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area. 10 9 8 7 (6)	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks. 5 4 3 2 1
Bank Stability Right Bank 4 Left Bank 4	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankful to top of bank. Bankfull is within or above the woody root zone with few raw, eroded areas. 10 9	Only meets 2 of the 3 requirements for optimal bank stability. 8 7 6	Only meets 1 of the 3 requirements for optimal bank stability. 5 (4)	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the woody root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank 4 Left Bank 9	Width of vegetation greater than 18 m 10 (9)	Width of vegetation >12 to 18m 8 7 6	Width of vegetation 6 to 12 m. human activities close to system 5 (4)	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 9 Left Bank 5 Secondary Score 41	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants; tree, shrub, and forbs represented, if appropriate). Minimal disturbance. 10 (9)	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 6	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. (5) 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions) 3 2 1

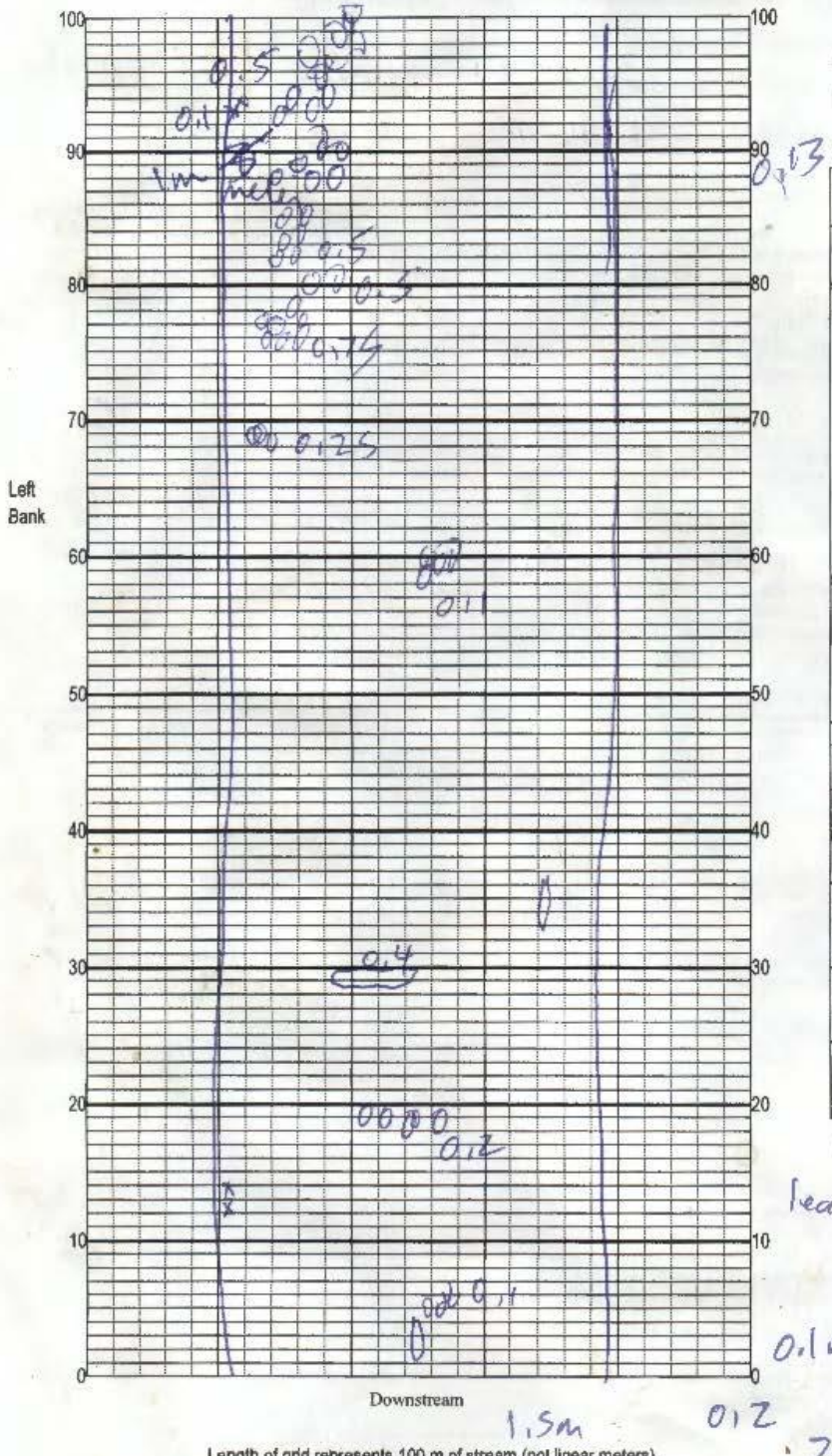
18 13 14 1

65 **TOTAL SCORE**

Date: 2/21/22	Analyst: Jerry Penn	Signature: Jerry Penn

62-160.800, F.A.C. Revision Date: January 2017

DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet



Location: Little mills 400m US
Date: 2/2.1/22
Sampler: JRamsh

100 m: Latitude _____
Longitude _____

0 m: Latitude _____
Longitude _____

Substrates: Code key, draw proportionate habitat abundance.	%
Snags	<1
Roots/undercut banks	<1
Leaf Packs (or mats)	2
Aquatic Macrophytes	
Pools — total # observed = ____ ; # range expected = ____	

Average width 2 m
Average depth 0.2 m

Velocity measured at 90 meter mark.

WQ & chemistry taken at 20 meter mark.

Habitat Smothering:
Note areas (on map) where sand or silt is smothering substrates, limiting habitability.

Bank Stability:
Note areas (on map) with unstable, eroding banks.

Riparian Buffer Width:
Note areas (on map) where natural vegetation is altered or eliminated.

Plants observed / other notes:

leaf = 0.7 + 0.3 + 3.1
4 m

0.1 msec

Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).

62-160.800, F.A.C

Revision Date: January 2017

DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

G4NE0001

Waterbody: Little Mills stream Downstream of US1 Date: 7/21/22 County: Nassau Storet Number: G4NE

Analyst: Jeremy Parrish Signature: Jeremy Parrish

Comments: Less than 2m of vegetation

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m^2 of taxa present). Note in the boxes below if no dominant are selected, and note total macrophyte abundance rank for each section. Only the most common taxa are listed, so use blank spaces for additional taxa names.

HERBACEOUS SPECIES	Meter Mark 0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
Alternanthera philoxeroides											
Bacopa caroliniana											
Bacopa monneri											
Bidens mitis											
Boehmeria cylindrica											
Centella asiatica											
Ceratophyllum demersum											
Chara											
Cicuta maculata											
Cladium jamaicense											
Colocasia esculenta											
Commelina diffusa											
Commelina virginica											
Crinum americanum											
Diodia virginiana											
Eichhornia crassipes											
Eleocharis (wispy viviparous)											
Hydrilla verticillata											
Hydrocotle											
Hygrophila polysperma											
Hymenocallis											
Lachnanthes caroliniana											
Landoltia punctata											
Lemna											
Limnophila sessiflora											
Ludwigia leptocarpa											
Ludwigia palustris											
Ludwigia peruviana											
Ludwigia repens											
Luziola fluitans											
If no Dominant or Co-Dominant were selected, indicate with "X"											
Indicate % cover macrophytes per section											
0-5% Macrophyte Coverage											
>5 and ≤10% Macrophyte Coverage											
>10 and ≤25% Macrophyte Coverage											
>25 and ≤50% Macrophyte Coverage											
> 50% Macrophyte Coverage											

HERBACEOUS SPECIES	Meter Mark 0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
Micranthemum glomeratum											
Micranthemum umbrosum											
Myriophyllum aquaticum											
Najas guadelupensis											
Nuphar luteum											
Orontium aquaticum											
Panicum hemitomon											
Panicum repens											
Panicum rigidulum											
Pistia stratioides											
Polygonum glabra											
Polygonum hydropiperoides											
Polygonum punctatum											
Pontedaria cordata											
Potamogeton illinoensis											
Ruellia simplex											
Sacciolepis striata											
Sagittaria kurziana											
Sagittaria lancifolia											
Sagittaria latifolia											
Salvinia minima											
Samolus parviflora											
Saururus cernuus											
Spargarium americanum											
Typha											
Vallisneria americana											
Zizania aquatica											

62-160.800, F.A.C. page 1 of 2 Revision Date: March 1, 2014

Appendix E. Chemical Analysis of Effluent and Receiving Water

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/17/2022 10:07	Equipment Blank	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.080	0.20
2/17/2022 10:07	Equipment Blank	Nutrients	Total-P	0.002 U	mg P/L	0.0020	0.0050
2/17/2022 10:07	Equipment Blank	Nutrients	Ammonia-N	0.002 I	mg N/L	0.0020	0.0050
2/17/2022 10:07	Equipment Blank	Nutrients	Organic Carbon	0.55 I	mg C/L	0.50	1.0
2/17/2022 10:07	Equipment Blank	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.0040	0.010
2/21/2022 10:00	Effluent Grab 2/21/22	AGP/LN	Algal Growth Potential	0.918	mg DryWt/L	0.300	0.900
2/21/2022 10:00	Effluent Grab 2/21/22	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.98 U	µg/L	0.98	2.9
2/21/2022 10:00	Effluent Grab 2/21/22	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	0.65 U	µg/L	0.65	2.0
2/21/2022 10:00	Effluent Grab 2/21/22	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.89 U	µg/L	0.89	2.7
2/21/2022 10:00	Effluent Grab 2/21/22	Microbiology	Fecal Coliforms-Membrane Filter	9 UQ	cfu/100 mL	9	9
2/21/2022 10:00	Effluent Grab 2/21/22	Microbiology	Escherichia Coli-Quanti-Tray	1.0 UQ	MPN/100 mL	1.0	1.0
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Cadmium	0.020 U	µg/L	0.020	0.080
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Arsenic	0.12 I	µg/L	0.050	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Calcium	70.5	mg/L	0.075	0.30
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Copper	0.62 I	µg/L	0.40	0.80
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Magnesium	28.0	mg/L	0.040	0.16
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Zinc	33	µg/L	5.0	20
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Potassium	12.4	mg/L	0.30	1.2
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Aluminum	70	µg/L	5.0	20
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Selenium	0.20 U	µg/L	0.20	0.80
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Iron	30 U	µg/L	30	120
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Sodium	66.5	mg/L	0.50	2.0
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Chromium	0.40 U	µg/L	0.40	1.6
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Nickel	1.4 I	µg/L	0.50	2.0
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Silver	0.010 U	µg/L	0.010	0.040
2/21/2022 10:00	Effluent Grab 2/21/22	Metals	Lead	0.20 U	µg/L	0.20	0.40
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	Total Alkalinity	104 A	mg CaCO3/L	0.65	2.5
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	Kjeldahl Nitrogen	0.66	mg N/L	0.080	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	Fluoride	0.41	mg F/L	0.035	0.10
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	Turbidity	0.55 IA	NTU	0.10	1.0
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	Sulfate	190	mg SO4/L	2.0	5.0

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	Color (true)	3.3 IA	PCU	2.5	6.0
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	NO2NO3-N	0.16	mg N/L	0.0040	0.010
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	Organic Carbon	5.8	mg C/L	1.0	2.0
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	O-Phosphate-P	0.007 I	mg P/L	0.0040	0.010
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	Total-P	0.044	mg P/L	0.0020	0.0050
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	Chloride	97	mg Cl/L	0.40	1.0
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	Ammonia-N	0.027	mg N/L	0.0020	0.0050
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Acetochlor	0.24 U	ng/L	0.24	0.95
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Azinphos Methyl	1.9 U	ng/L	1.9	7.6
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Butylate	0.38 U	ng/L	0.38	1.5
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Fenamiphos	0.47 U	ng/L	0.47	1.9
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Fipronil	0.24 U	ng/L	0.24	0.95
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Flumioxazin	1.7 U	ng/L	1.7	6.6
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Fonofos	0.19 U	ng/L	0.19	0.76
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Hexazinone	0.66 I	ng/L	0.47	1.9
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Iprodione	0.57 U	ng/L	0.57	2.3
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Cyprodinil	0.095 U	ng/L	0.095	0.47
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Oxyfluorfen	0.14 U	ng/L	0.14	0.57
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Coumaphos	0.47 U	ng/L	0.47	1.9
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Pyraflufen Ethyl	0.24 U	ng/L	0.24	0.95
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Pyridaben	0.43 U	ng/L	0.43	2.1
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Pyriproxyfen	0.12 U	ng/L	0.12	0.47
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Pendimethalin	0.95 U	ng/L	0.95	3.8
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Sulfentrazone	0.47 U	ng/L	0.47	1.9
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Terbuthylazine	0.40 U	ng/L	0.40	1.6
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Phorate	0.50 U	ng/L	0.50	2.0
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Dimethenamid	0.095 U	ng/L	0.095	0.38
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Fluazifop-P-butyl	0.095 U	ng/L	0.095	0.38
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Metalaxyl	0.71 U	ng/L	0.71	2.8
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Malathion	0.33 U	ng/L	0.33	1.3
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Mevinphos	0.99 U	ng/L	0.99	4.0
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Etridiazole	0.14 U	ng/L	0.14	0.57
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Tebuconazole	8.1	ng/L	0.47	1.9
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Prometon	0.85 U	ng/L	0.85	3.4

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Bromacil	0.47 U	ng/L	0.47	1.9
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Chlorpyrifos Ethyl	0.24 U	ng/L	0.24	0.95
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Fipronil Sulfide	1.4	ng/L	0.14	0.57
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Myclobutanil	0.48 I	ng/L	0.24	0.95
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Naled	1.4 U	ng/L	1.4	5.7
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Parathion Ethyl	0.24 U	ng/L	0.24	0.95
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Dimethomorph	0.17 U	ng/L	0.17	0.99
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Napropamide	0.38 U	ng/L	0.38	1.5
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Propanil	0.12 U	ng/L	0.12	0.47
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Carbophenothion	2.4 U	ng/L	2.4	9.5
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Difenoconazole	0.57 U	ng/L	0.57	2.3
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Fenbuconazole	0.12 U	ng/L	0.12	0.47
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Fludioxonil	0.12 U	ng/L	0.12	0.47
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Imazalil	0.71 U	ng/L	0.71	2.8
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Norflurazon	0.47 U	ng/L	0.47	1.9
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Sucralose	70	µg/L	0.10	0.40
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Parathion Methyl	0.52 U	ng/L	0.52	2.1
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Pronamide	0.14 U	ng/L	0.14	0.57
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Simazine	4.4	ng/L	0.47	1.9
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Terbufos	0.095 U	ng/L	0.095	0.38
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Atrazine Desethyl	1.4 U	ng/L	1.4	5.7
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Azoxystrobin	2.1	ng/L	0.47	1.9
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Demeton	1.4 U	ng/L	1.4	5.7
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Dithiopyr	0.17 U	ng/L	0.17	0.66
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Ethion	0.14 U	ng/L	0.14	0.57
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Molinate	0.28 U	ng/L	0.28	1.1
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Stirophos	0.12 U	ng/L	0.12	0.47
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Propargite	1.4 U	ng/L	1.4	5.7
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Propiconazole	0.47 U	ng/L	0.47	1.9
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Prometryn	0.19 U	ng/L	0.19	0.76
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Prodiamine	0.28 U	ng/L	0.28	1.1
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Atrazine	3.2	ng/L	0.24	0.95
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Alachlor	0.24 U	ng/L	0.24	0.95
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Carfentrazone Ethyl	0.095 U	ng/L	0.095	0.38

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Disulfoton	0.47 U	ng/L	0.47	1.9
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	EPTC	1.2 U	ng/L	1.2	4.7
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Fipronil Desulfinyl	0.29 I	ng/L	0.12	0.47
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Fluxapyroxad	0.30 I	ng/L	0.095	0.38
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Metribuzin	2.4 U	ng/L	2.4	9.5
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Triadimefon	0.24 U	ng/L	0.24	0.95
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Caffeine	7.1 U	ng/L	7.1	28
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Loratadine	3.0	ng/L	0.095	0.38
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Ibuprofen	0.020 U	µg/L	0.020	0.080
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Diazinon	0.12 U	ng/L	0.12	0.47
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Ethoprop	0.095 U	ng/L	0.095	0.38
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Fipronil Sulfone	0.14 U	ng/L	0.14	0.57
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Flutolanil	0.095 U	ng/L	0.095	0.38
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Metolachlor	0.33 U	ng/L	0.33	1.3
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Thiobencarb	0.57 U	ng/L	0.57	2.3
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Naproxen	0.0080 U	µg/L	0.0080	0.032
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Ametryn	0.57 U	ng/L	0.57	2.3
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Cyanazine	3.1 U	ng/L	3.1	12
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Chlorpyrifos Methyl	0.047 U	ng/L	0.047	0.19
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Oxadiazon	0.28 U	ng/L	0.28	1.1
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Chlorfenapyr	0.55 I	ng/L	0.17	0.66
2/21/2022 10:00	Effluent Grab 2/21/22	Pesticides	Phenytoin	13 I	ng/L	3.3	13
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	2-Chlorophenol	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	2,4-Dichlorophenol	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Diethyl phthalate	2.0 U	µg/L	2.0	8.2
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.026 U	µg/L	0.026	0.10
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Benzo(k)fluoranthene	0.026 U	µg/L	0.026	0.10
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Benzidine	10 U	µg/L	10	41
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	4-Nitrophenol	10 U	µg/L	10	41
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Acenaphthylene	0.026 U	µg/L	0.026	0.10
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Anthracene	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	2-Nitrophenol	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.051 U	µg/L	0.051	0.20

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	2,6-Dinitrotoluene	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Chrysene	0.026 U	µg/L	0.026	0.10
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Dimethyl phthalate	0.20 U	µg/L	0.20	0.82
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	2-Chloronaphthalene	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Di-n-octyl phthalate	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Fluoranthene	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Hexachloroethane	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.026 U	µg/L	0.026	0.10
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Naphthalene	0.10 U	µg/L	0.10	0.41
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Benzo(a)anthracene	0.026 U	µg/L	0.026	0.10
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Benzo(a)pyrene	0.026 U	µg/L	0.026	0.10
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Di-n-butyl phthalate	2.0 U	µg/L	2.0	8.2
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Fluorene	0.026 U	µg/L	0.026	0.10
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	2,4-Dinitrophenol	10 U	µg/L	10	41
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Nitrobenzene	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Pyrene	0.10 U	µg/L	0.10	0.41
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Phenol	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.026 U	µg/L	0.026	0.10
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Hexachlorobutadiene	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Hexachlorocyclopentadiene	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Isophorone	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	3,3'-Dichlorobenzidine	10 U	µg/L	10	41
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Acenaphthene	0.026 U	µg/L	0.026	0.10
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Butyl benzyl phthalate	1.0 U	µg/L	1.0	4.1
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Hexachlorobenzene	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	1,4-Dioxane	0.31	µg/L	0.040	0.16
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1 U	µg/L	3.1	12

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	2,4-Dimethylphenol	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	N-Nitrosodimethylamine	2.0 U	µg/L	2.0	8.2
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Pentachlorophenol	0.51 U	µg/L	0.51	2.0
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Phenanthrene	0.10 U	µg/L	0.10	0.41
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Benzo(b)fluoranthene	0.026 U	µg/L	0.026	0.10
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	5.1 U	µg/L	5.1	20
2/21/2022 10:00	Effluent Grab 2/21/22	Priority Organic Pollutants	2,4-Dinitrotoluene	0.051 U	µg/L	0.051	0.20
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	Temperature	18.0	C		
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	pH	6.79			
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	Dissolved Oxygen mg/L	9.01	mg/L		
2/21/2022 10:00	Effluent Grab 2/21/22	Nutrients	Specific Conductance	906	µmhos/cm		
2/21/2022 13:35	Control Little Mills	AGP/LN	Algal Growth Potential	0.300 U	mg DryWt/L	0.300	0.900
2/21/2022 13:35	Control Little Mills	Chlorophyll/Grain Size/BOD	Phaeophytin-a	1.5 U	µg/L	1.5	4.5
2/21/2022 13:35	Control Little Mills	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.4 U	µg/L	1.4	4.1
2/21/2022 13:35	Control Little Mills	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	1.0 U	µg/L	1.0	3.0
2/21/2022 13:35	Control Little Mills	Microbiology	Fecal Coliforms-Membrane Filter	46 Q	cfu/100 mL	2	2
2/21/2022 13:35	Control Little Mills	Microbiology	Escherichia Coli-Quanti-Tray	52.9 Q	MPN/100 mL	1.0	1.0
2/21/2022 13:35	Control Little Mills	Metals	Copper	0.43 I	µg/L	0.40	0.80
2/21/2022 13:35	Control Little Mills	Metals	Sodium	14.1	mg/L	0.50	2.0
2/21/2022 13:35	Control Little Mills	Metals	Silver	0.010 U	µg/L	0.010	0.040
2/21/2022 13:35	Control Little Mills	Metals	Lead	0.20 U	µg/L	0.20	0.40
2/21/2022 13:35	Control Little Mills	Metals	Chromium	0.40 U	µg/L	0.40	1.6
2/21/2022 13:35	Control Little Mills	Metals	Aluminum	91	µg/L	5.0	20
2/21/2022 13:35	Control Little Mills	Metals	Potassium	0.99 I	mg/L	0.30	1.2
2/21/2022 13:35	Control Little Mills	Metals	Nickel	0.52 I	µg/L	0.50	2.0
2/21/2022 13:35	Control Little Mills	Metals	Cadmium	0.020 U	µg/L	0.020	0.080
2/21/2022 13:35	Control Little Mills	Metals	Arsenic	0.48	µg/L	0.050	0.20
2/21/2022 13:35	Control Little Mills	Metals	Iron	470	µg/L	30	120
2/21/2022 13:35	Control Little Mills	Metals	Magnesium	13.4	mg/L	0.040	0.16
2/21/2022 13:35	Control Little Mills	Metals	Selenium	0.20 U	µg/L	0.20	0.80
2/21/2022 13:35	Control Little Mills	Metals	Zinc	5.0 U	µg/L	5.0	20
2/21/2022 13:35	Control Little Mills	Metals	Calcium	43.0	mg/L	0.075	0.30
2/21/2022 13:35	Control Little Mills	Nutrients	Organic Carbon	21	mg C/L	0.50	1.0
2/21/2022 13:35	Control Little Mills	Nutrients	Ammonia-N	0.019	mg N/L	0.0020	0.0050

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/21/2022 13:35	Control Little Mills	Nutrients	Fluoride	0.21	mg F/L	0.035	0.10
2/21/2022 13:35	Control Little Mills	Nutrients	Color (true)	140	PCU	2.5	6.0
2/21/2022 13:35	Control Little Mills	Nutrients	Sulfate	15	mg SO4/L	0.20	0.50
2/21/2022 13:35	Control Little Mills	Nutrients	O-Phosphate-P	0.021	mg P/L	0.0040	0.010
2/21/2022 13:35	Control Little Mills	Nutrients	Total-P	0.041	mg P/L	0.0020	0.0050
2/21/2022 13:35	Control Little Mills	Nutrients	Turbidity	2.4	NTU	0.10	1.0
2/21/2022 13:35	Control Little Mills	Nutrients	Kjeldahl Nitrogen	0.72	mg N/L	0.080	0.20
2/21/2022 13:35	Control Little Mills	Nutrients	Total Alkalinity	128	mg CaCO3/L	0.65	2.5
2/21/2022 13:35	Control Little Mills	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.0040	0.010
2/21/2022 13:35	Control Little Mills	Nutrients	Chloride	27	mg Cl/L	0.20	0.50
2/21/2022 13:35	Control Little Mills	Priority Organic Pollutants	1,4-Dioxane	0.048 I	µg/L	0.040	0.16
2/21/2022 13:35	Control Little Mills	Nutrients	Specific Conductance	366.6	µmhos/cm		
2/21/2022 13:35	Control Little Mills	Nutrients	pH	7.31			
2/21/2022 13:35	Control Little Mills	Nutrients	Temperature	16.8	C		
2/21/2022 13:35	Control Little Mills	Nutrients	Sample Depth	0.05	m		
2/21/2022 13:35	Control Little Mills	Nutrients	Dissolved Oxygen mg/L	7.88	mg/L		
2/21/2022 11:20	Control Alligator	AGP/LN	Algal Growth Potential	0.300 U	mg DryWt/L	0.300	0.900
2/21/2022 11:20	Control Alligator	Chlorophyll/Grain Size/BOD	Phaeophytin-a	1.6 U	µg/L	1.6	4.9
2/21/2022 11:20	Control Alligator	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	1.1 U	µg/L	1.1	3.3
2/21/2022 11:20	Control Alligator	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.5 U	µg/L	1.5	4.5
2/21/2022 11:20	Control Alligator	Microbiology	Fecal Coliforms-Membrane Filter	33 BQ	cfu/100 mL	2	2
2/21/2022 11:20	Control Alligator	Microbiology	Escherichia Coli-Quanti-Tray	42.0 Q	MPN/100 mL	1.0	1.0
2/21/2022 11:20	Control Alligator	Metals	Copper	0.40 U	µg/L	0.40	0.80
2/21/2022 11:20	Control Alligator	Metals	Calcium	11.4	mg/L	0.075	0.30
2/21/2022 11:20	Control Alligator	Metals	Iron	570	µg/L	30	120
2/21/2022 11:20	Control Alligator	Metals	Chromium	0.41 I	µg/L	0.40	1.6
2/21/2022 11:20	Control Alligator	Metals	Lead	0.23 I	µg/L	0.20	0.40
2/21/2022 11:20	Control Alligator	Metals	Potassium	3.5	mg/L	0.30	1.2
2/21/2022 11:20	Control Alligator	Metals	Nickel	0.50 U	µg/L	0.50	2.0
2/21/2022 11:20	Control Alligator	Metals	Zinc	5.0 U	µg/L	5.0	20
2/21/2022 11:20	Control Alligator	Metals	Selenium	0.20 U	µg/L	0.20	0.80
2/21/2022 11:20	Control Alligator	Metals	Silver	0.010 U	µg/L	0.010	0.040
2/21/2022 11:20	Control Alligator	Metals	Sodium	9.5	mg/L	0.50	2.0
2/21/2022 11:20	Control Alligator	Metals	Magnesium	3.37	mg/L	0.040	0.16

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/21/2022 11:20	Control Alligator	Metals	Aluminum	216	µg/L	5.0	20
2/21/2022 11:20	Control Alligator	Metals	Cadmium	0.020 U	µg/L	0.020	0.080
2/21/2022 11:20	Control Alligator	Metals	Arsenic	0.32	µg/L	0.050	0.20
2/21/2022 11:20	Control Alligator	Nutrients	Fluoride	0.050 I	mg F/L	0.035	0.10
2/21/2022 11:20	Control Alligator	Nutrients	Chloride	19	mg Cl/L	0.20	0.50
2/21/2022 11:20	Control Alligator	Nutrients	Turbidity	2.7	NTU	0.10	1.0
2/21/2022 11:20	Control Alligator	Nutrients	Color (true)	210	PCU	7.5	18
2/21/2022 11:20	Control Alligator	Nutrients	Total Alkalinity	22	mg CaCO3/L	0.65	2.5
2/21/2022 11:20	Control Alligator	Nutrients	Organic Carbon	23	mg C/L	0.50	1.0
2/21/2022 11:20	Control Alligator	Nutrients	Kjeldahl Nitrogen	0.83	mg N/L	0.080	0.20
2/21/2022 11:20	Control Alligator	Nutrients	NO2NO3-N	0.008 I	mg N/L	0.0040	0.010
2/21/2022 11:20	Control Alligator	Nutrients	O-Phosphate-P	0.067	mg P/L	0.0040	0.010
2/21/2022 11:20	Control Alligator	Nutrients	Sulfate	8.3	mg SO4/L	0.20	0.50
2/21/2022 11:20	Control Alligator	Nutrients	Ammonia-N	0.014	mg N/L	0.0020	0.0050
2/21/2022 11:20	Control Alligator	Nutrients	Total-P	0.11	mg P/L	0.0050	0.050
2/21/2022 11:20	Control Alligator	Priority Organic Pollutants	1,4-Dioxane	0.040 U	µg/L	0.040	0.16
2/21/2022 11:20	Control Alligator	Nutrients	Dissolved Oxygen mg/L	8.54	mg/L		
2/21/2022 11:20	Control Alligator	Nutrients	Temperature	14.3	C		
2/21/2022 11:20	Control Alligator	Nutrients	Sample Depth	0.25	m		
2/21/2022 11:20	Control Alligator	Nutrients	Specific Conductance	133.8	µmhos/cm		
2/21/2022 11:20	Control Alligator	Nutrients	pH	6.83			
2/21/2022 10:45	Test Alligator	AGP/LN	Algal Growth Potential	0.300 U	mg DryWt/L	0.300	0.900
2/21/2022 10:45	Test Alligator	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Uncorrected	0.64 I	µg/L	0.60	1.8
2/21/2022 10:45	Test Alligator	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.90 U	µg/L	0.90	2.7
2/21/2022 10:45	Test Alligator	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.82 U	µg/L	0.82	2.5
2/21/2022 10:45	Test Alligator	Microbiology	Escherichia Coli-Quanti-Tray	36.9 Q	MPN/100 mL	1.0	1.0
2/21/2022 10:45	Test Alligator	Microbiology	Fecal Coliforms-Membrane Filter	72 Q	cfu/100 mL	2	2
2/21/2022 10:45	Test Alligator	Metals	Aluminum	200	µg/L	5.0	20
2/21/2022 10:45	Test Alligator	Metals	Cadmium	0.020 U	µg/L	0.020	0.080
2/21/2022 10:45	Test Alligator	Metals	Copper	0.43 I	µg/L	0.40	0.80
2/21/2022 10:45	Test Alligator	Metals	Arsenic	0.29	µg/L	0.050	0.20
2/21/2022 10:45	Test Alligator	Metals	Calcium	22.6	mg/L	0.075	0.30
2/21/2022 10:45	Test Alligator	Metals	Sodium	19.6	mg/L	0.50	2.0
2/21/2022 10:45	Test Alligator	Metals	Chromium	0.40 U	µg/L	0.40	1.6

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/21/2022 10:45	Test Alligator	Metals	Silver	0.010 U	µg/L	0.010	0.040
2/21/2022 10:45	Test Alligator	Metals	Lead	0.21 I	µg/L	0.20	0.40
2/21/2022 10:45	Test Alligator	Metals	Iron	480	µg/L	30	120
2/21/2022 10:45	Test Alligator	Metals	Selenium	0.20 U	µg/L	0.20	0.80
2/21/2022 10:45	Test Alligator	Metals	Nickel	0.56 I	µg/L	0.50	2.0
2/21/2022 10:45	Test Alligator	Metals	Magnesium	8.03	mg/L	0.040	0.16
2/21/2022 10:45	Test Alligator	Metals	Zinc	6.5 I	µg/L	5.0	20
2/21/2022 10:45	Test Alligator	Metals	Potassium	4.9	mg/L	0.30	1.2
2/21/2022 10:45	Test Alligator	Nutrients	Total-P	0.090	mg P/L	0.0050	0.050
2/21/2022 10:45	Test Alligator	Nutrients	NO2NO3-N	0.034	mg N/L	0.0040	0.010
2/21/2022 10:45	Test Alligator	Nutrients	Chloride	36 A	mg Cl/L	0.20	0.50
2/21/2022 10:45	Test Alligator	Nutrients	Organic Carbon	20	mg C/L	0.50	1.0
2/21/2022 10:45	Test Alligator	Nutrients	Total Alkalinity	42	mg CaCO3/L	0.65	2.5
2/21/2022 10:45	Test Alligator	Nutrients	Sulfate	47 A	mg SO4/L	0.20	0.50
2/21/2022 10:45	Test Alligator	Nutrients	Fluoride	0.12	mg F/L	0.035	0.10
2/21/2022 10:45	Test Alligator	Nutrients	Kjeldahl Nitrogen	0.85	mg N/L	0.080	0.20
2/21/2022 10:45	Test Alligator	Nutrients	Color (true)	160	PCU	7.5	18
2/21/2022 10:45	Test Alligator	Nutrients	Ammonia-N	0.016	mg N/L	0.0020	0.0050
2/21/2022 10:45	Test Alligator	Nutrients	O-Phosphate-P	0.052	mg P/L	0.0040	0.010
2/21/2022 10:45	Test Alligator	Nutrients	Turbidity	2.1	NTU	0.10	1.0
2/21/2022 10:45	Test Alligator	Priority Organic Pollutants	1,4-Dioxane	0.11 I	µg/L	0.040	0.16
2/21/2022 10:45	Test Alligator	Nutrients	Sample Depth	0.1	m		
2/21/2022 10:45	Test Alligator	Nutrients	Dissolved Oxygen mg/L	8.56	mg/L		
2/21/2022 10:45	Test Alligator	Nutrients	Specific Conductance	259.2	µmhos/cm		
2/21/2022 10:45	Test Alligator	Nutrients	pH	6.52			
2/21/2022 10:45	Test Alligator	Nutrients	Temperature	14.5	C		
2/21/2022 9:38	Field Blank	Metals	Magnesium	0.040 U	mg/L	0.040	0.16
2/21/2022 9:38	Field Blank	Metals	Selenium	0.20 U	µg/L	0.20	0.80
2/21/2022 9:38	Field Blank	Metals	Calcium	0.075 U	mg/L	0.075	0.30
2/21/2022 9:38	Field Blank	Metals	Zinc	5.0 U	µg/L	5.0	20
2/21/2022 9:38	Field Blank	Metals	Sodium	0.50 U	mg/L	0.50	2.0
2/21/2022 9:38	Field Blank	Metals	Chromium	0.40 U	µg/L	0.40	1.6
2/21/2022 9:38	Field Blank	Metals	Lead	0.20 U	µg/L	0.20	0.40
2/21/2022 9:38	Field Blank	Metals	Aluminum	5.0 U	µg/L	5.0	20

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/21/2022 9:38	Field Blank	Metals	Silver	0.010 U	µg/L	0.010	0.040
2/21/2022 9:38	Field Blank	Metals	Iron	30 U	µg/L	30	120
2/21/2022 9:38	Field Blank	Metals	Arsenic	0.050 U	µg/L	0.050	0.20
2/21/2022 9:38	Field Blank	Metals	Potassium	0.30 U	mg/L	0.30	1.2
2/21/2022 9:38	Field Blank	Metals	Cadmium	0.020 U	µg/L	0.020	0.080
2/21/2022 9:38	Field Blank	Metals	Nickel	0.50 U	µg/L	0.50	2.0
2/21/2022 9:38	Field Blank	Metals	Copper	0.40 U	µg/L	0.40	0.80
2/21/2022 9:38	Field Blank	Nutrients	Fluoride	0.035 U	mg F/L	0.035	0.10
2/21/2022 9:38	Field Blank	Nutrients	NO2NO3-N	0.004 U	mg N/L	0.0040	0.010
2/21/2022 9:38	Field Blank	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.0040	0.010
2/21/2022 9:38	Field Blank	Nutrients	Sulfate	0.20 U	mg SO4/L	0.20	0.50
2/21/2022 9:38	Field Blank	Nutrients	Turbidity	0.10 U	NTU	0.10	1.0
2/21/2022 9:38	Field Blank	Nutrients	Organic Carbon	0.50 U	mg C/L	0.50	1.0
2/21/2022 9:38	Field Blank	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.080	0.20
2/21/2022 9:38	Field Blank	Nutrients	Total Alkalinity	0.65 U	mg CaCO3/L	0.65	2.5
2/21/2022 9:38	Field Blank	Nutrients	Color (true)	2.5 U	PCU	2.5	6.0
2/21/2022 9:38	Field Blank	Nutrients	Ammonia-N	0.002 U	mg N/L	0.0020	0.0050
2/21/2022 9:38	Field Blank	Nutrients	Chloride	0.20 U	mg Cl/L	0.20	0.50
2/21/2022 9:38	Field Blank	Nutrients	Total-P	0.002 U	mg P/L	0.0020	0.0050
2/21/2022 9:38	Field Blank	Pesticides	Loratadine	0.095 U	ng/L	0.095	0.38
2/21/2022 9:38	Field Blank	Pesticides	Butylate	0.38 U	ng/L	0.38	1.5
2/21/2022 9:38	Field Blank	Pesticides	Carbophenothion	2.4 U	ng/L	2.4	9.5
2/21/2022 9:38	Field Blank	Pesticides	EPTC	1.2 U	ng/L	1.2	4.8
2/21/2022 9:38	Field Blank	Pesticides	Flutolanil	0.095 U	ng/L	0.095	0.38
2/21/2022 9:38	Field Blank	Pesticides	Iprodione	0.57 U	ng/L	0.57	2.3
2/21/2022 9:38	Field Blank	Pesticides	Mevinphos	1.0 U	ng/L	1.0	4.0
2/21/2022 9:38	Field Blank	Pesticides	Myclobutanil	0.24 U	ng/L	0.24	0.95
2/21/2022 9:38	Field Blank	Pesticides	Norflurazon	0.48 U	ng/L	0.48	1.9
2/21/2022 9:38	Field Blank	Pesticides	Parathion Methyl	0.52 U	ng/L	0.52	2.1
2/21/2022 9:38	Field Blank	Pesticides	Etridiazole	0.14 U	ng/L	0.14	0.57
2/21/2022 9:38	Field Blank	Pesticides	Pyraflufen Ethyl	0.24 U	ng/L	0.24	0.95
2/21/2022 9:38	Field Blank	Pesticides	Stirophos	0.12 U	ng/L	0.12	0.48
2/21/2022 9:38	Field Blank	Pesticides	Chlorpyrifos Methyl	0.048 U	ng/L	0.048	0.19
2/21/2022 9:38	Field Blank	Pesticides	Fipronil Sulfide	0.14 U	ng/L	0.14	0.57

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/21/2022 9:38	Field Blank	Pesticides	Fluazifop-P-butyl	0.095 U	ng/L	0.095	0.38
2/21/2022 9:38	Field Blank	Pesticides	Malathion	0.33 U	ng/L	0.33	1.3
2/21/2022 9:38	Field Blank	Pesticides	Propiconazole	0.48 U	ng/L	0.48	1.9
2/21/2022 9:38	Field Blank	Pesticides	Cyprodinil	0.095 U	ng/L	0.095	0.48
2/21/2022 9:38	Field Blank	Pesticides	Alachlor	0.24 U	ng/L	0.24	0.95
2/21/2022 9:38	Field Blank	Pesticides	Atrazine Desethyl	1.4 U	ng/L	1.4	5.7
2/21/2022 9:38	Field Blank	Pesticides	Ethoprop	0.095 U	ng/L	0.095	0.38
2/21/2022 9:38	Field Blank	Pesticides	Fipronil Desulfinyl	0.12 U	ng/L	0.12	0.48
2/21/2022 9:38	Field Blank	Pesticides	Hexazinone	0.48 U	ng/L	0.48	1.9
2/21/2022 9:38	Field Blank	Pesticides	Terbufos	0.095 U	ng/L	0.095	0.38
2/21/2022 9:38	Field Blank	Pesticides	Chlorfenapyr	0.17 U	ng/L	0.17	0.67
2/21/2022 9:38	Field Blank	Pesticides	Thiobencarb	0.57 U	ng/L	0.57	2.3
2/21/2022 9:38	Field Blank	Pesticides	Sucralose	0.010 U	µg/L	0.010	0.040
2/21/2022 9:38	Field Blank	Pesticides	Ametryn	0.57 U	ng/L	0.57	2.3
2/21/2022 9:38	Field Blank	Pesticides	Bromacil	0.48 U	ng/L	0.48	1.9
2/21/2022 9:38	Field Blank	Pesticides	Fipronil Sulfone	0.14 U	ng/L	0.14	0.57
2/21/2022 9:38	Field Blank	Pesticides	Imazalil	0.72 U	ng/L	0.72	2.9
2/21/2022 9:38	Field Blank	Pesticides	Metolachlor	0.33 U	ng/L	0.33	1.3
2/21/2022 9:38	Field Blank	Pesticides	Oxyfluorfen	0.14 U	ng/L	0.14	0.57
2/21/2022 9:38	Field Blank	Pesticides	Tebuconazole	0.48 U	ng/L	0.48	1.9
2/21/2022 9:38	Field Blank	Pesticides	Dimethomorph	0.17 U	ng/L	0.17	1.0
2/21/2022 9:38	Field Blank	Pesticides	Phenytoin	3.3 U	ng/L	3.3	13
2/21/2022 9:38	Field Blank	Pesticides	Propargite	1.4 U	ng/L	1.4	5.7
2/21/2022 9:38	Field Blank	Pesticides	Disulfoton	0.48 U	ng/L	0.48	1.9
2/21/2022 9:38	Field Blank	Pesticides	Fenbuconazole	0.12 U	ng/L	0.12	0.48
2/21/2022 9:38	Field Blank	Pesticides	Metalaxyl	0.72 U	ng/L	0.72	2.9
2/21/2022 9:38	Field Blank	Pesticides	Phorate	0.50 U	ng/L	0.50	2.0
2/21/2022 9:38	Field Blank	Pesticides	Prometryn	0.19 U	ng/L	0.19	0.76
2/21/2022 9:38	Field Blank	Pesticides	Napropamide	0.38 U	ng/L	0.38	1.5
2/21/2022 9:38	Field Blank	Pesticides	Propanil	0.12 U	ng/L	0.12	0.48
2/21/2022 9:38	Field Blank	Pesticides	Pyridaben	0.43 U	ng/L	0.43	2.1
2/21/2022 9:38	Field Blank	Pesticides	Azinphos Methyl	1.9 U	ng/L	1.9	7.6
2/21/2022 9:38	Field Blank	Pesticides	Azoxystrobin	0.48 U	ng/L	0.48	1.9
2/21/2022 9:38	Field Blank	Pesticides	Carfentrazone Ethyl	0.095 U	ng/L	0.095	0.38

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/21/2022 9:38	Field Blank	Pesticides	Dimethenamid	0.095 U	ng/L	0.095	0.38
2/21/2022 9:38	Field Blank	Pesticides	Dithiopyr	0.17 U	ng/L	0.17	0.67
2/21/2022 9:38	Field Blank	Pesticides	Ethion	0.14 U	ng/L	0.14	0.57
2/21/2022 9:38	Field Blank	Pesticides	Fludioxonil	0.12 U	ng/L	0.12	0.48
2/21/2022 9:38	Field Blank	Pesticides	Flumioxazin	1.7 U	ng/L	1.7	6.7
2/21/2022 9:38	Field Blank	Pesticides	Terbuthylazine	0.41 U	ng/L	0.41	1.6
2/21/2022 9:38	Field Blank	Pesticides	Pyriproxyfen	0.12 U	ng/L	0.12	0.48
2/21/2022 9:38	Field Blank	Pesticides	Caffeine	7.2 U	ng/L	7.2	29
2/21/2022 9:38	Field Blank	Pesticides	Naproxen	0.0080 U	µg/L	0.0080	0.032
2/21/2022 9:38	Field Blank	Pesticides	Acetochlor	0.24 U	ng/L	0.24	0.95
2/21/2022 9:38	Field Blank	Pesticides	Chlorpyrifos Ethyl	0.24 U	ng/L	0.24	0.95
2/21/2022 9:38	Field Blank	Pesticides	Fluxapyroxad	0.095 U	ng/L	0.095	0.38
2/21/2022 9:38	Field Blank	Pesticides	Metribuzin	2.4 U	ng/L	2.4	9.5
2/21/2022 9:38	Field Blank	Pesticides	Parathion Ethyl	0.24 U	ng/L	0.24	0.95
2/21/2022 9:38	Field Blank	Pesticides	Simazine	0.48 U	ng/L	0.48	1.9
2/21/2022 9:38	Field Blank	Pesticides	Pendimethalin	0.95 U	ng/L	0.95	3.8
2/21/2022 9:38	Field Blank	Pesticides	Prometon	0.86 U	ng/L	0.86	3.4
2/21/2022 9:38	Field Blank	Pesticides	Pronamide	0.14 U	ng/L	0.14	0.57
2/21/2022 9:38	Field Blank	Pesticides	Coumaphos	0.48 U	ng/L	0.48	1.9
2/21/2022 9:38	Field Blank	Pesticides	Triadimefon	0.24 U	ng/L	0.24	0.95
2/21/2022 9:38	Field Blank	Pesticides	Ibuprofen	0.020 U	µg/L	0.020	0.080
2/21/2022 9:38	Field Blank	Pesticides	Atrazine	0.24 U	ng/L	0.24	0.95
2/21/2022 9:38	Field Blank	Pesticides	Cyanazine	3.1 U	ng/L	3.1	12
2/21/2022 9:38	Field Blank	Pesticides	Demeton	1.4 U	ng/L	1.4	5.7
2/21/2022 9:38	Field Blank	Pesticides	Diazinon	0.12 U	ng/L	0.12	0.48
2/21/2022 9:38	Field Blank	Pesticides	Difenoconazole	0.57 U	ng/L	0.57	2.3
2/21/2022 9:38	Field Blank	Pesticides	Fenamiphos	0.48 U	ng/L	0.48	1.9
2/21/2022 9:38	Field Blank	Pesticides	Fipronil	0.24 U	ng/L	0.24	0.95
2/21/2022 9:38	Field Blank	Pesticides	Fonofos	0.19 U	ng/L	0.19	0.76
2/21/2022 9:38	Field Blank	Pesticides	Molinate	0.29 U	ng/L	0.29	1.1
2/21/2022 9:38	Field Blank	Pesticides	Naled	1.4 U	ng/L	1.4	5.7
2/21/2022 9:38	Field Blank	Pesticides	Oxadiazon	0.29 U	ng/L	0.29	1.1
2/21/2022 9:38	Field Blank	Pesticides	Sulfentrazone	0.48 U	ng/L	0.48	1.9
2/21/2022 9:38	Field Blank	Pesticides	Prodiamine	0.29 U	ng/L	0.29	1.1

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	2-Chloronaphthalene	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	2-Nitrophenol	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	2,4-Dichlorophenol	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.026 U	µg/L	0.026	0.10
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Phenol	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	4-Nitrophenol	10 U	µg/L	10	42
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.026 U	µg/L	0.026	0.10
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.026 U	µg/L	0.026	0.10
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.026 U	µg/L	0.026	0.10
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Pyrene	0.10 U	µg/L	0.10	0.42
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Acenaphthylene	0.026 U	µg/L	0.026	0.10
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.026 U	µg/L	0.026	0.10
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Dimethyl phthalate	0.21 U	µg/L	0.21	0.83
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1 U	µg/L	2.1	8.3
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	10 U	µg/L	10	42
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Benzidine	10 U	µg/L	10	42
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Di-n-butyl phthalate	2.1 U	µg/L	2.1	8.3
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	1,4-Dioxane	0.040 U	µg/L	0.040	0.16
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Nitrobenzene	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Phenanthrene	0.10 U	µg/L	0.10	0.42
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	2,4-Dimethylphenol	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Acenaphthene	0.026 U	µg/L	0.026	0.10
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.026 U	µg/L	0.026	0.10
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Fluoranthene	0.052 U	µg/L	0.052	0.21

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Fluorene	0.026 U	µg/L	0.026	0.10
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Hexachlorobenzene	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Hexachlorobutadiene	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Isophorone	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Naphthalene	0.10 U	µg/L	0.10	0.42
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Anthracene	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Butyl benzyl phthalate	1.0 U	µg/L	1.0	4.2
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Diethyl phthalate	2.1 U	µg/L	2.1	8.3
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Hexachloroethane	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1 U	µg/L	3.1	12
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.026 U	µg/L	0.026	0.10
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	5.2 U	µg/L	5.2	21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Chrysene	0.026 U	µg/L	0.026	0.10
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Pentachlorophenol	0.52 U	µg/L	0.52	2.1
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	2-Chlorophenol	0.052 U	µg/L	0.052	0.21
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	2,4-Dinitrophenol	10 U	µg/L	10	42
2/21/2022 9:38	Field Blank	Priority Organic Pollutants	Di-n-octyl phthalate	0.052 U	µg/L	0.052	0.21
2/21/2022 13:35	Ctrl Little Mills Field Params	Nutrients	Specific Conductance	366.6	µmhos/cm		
2/21/2022 13:35	Ctrl Little Mills Field Params	Nutrients	Dissolved Oxygen mg/L	7.88	mg/L		
2/21/2022 13:35	Ctrl Little Mills Field Params	Nutrients	Sample Depth	0.05	m		
2/21/2022 13:35	Ctrl Little Mills Field Params	Nutrients	pH	7.31			
2/21/2022 13:35	Ctrl Little Mills Field Params	Nutrients	Temperature	16.8	C		
2/21/2022 11:20	Ctrl Alligator Field Params	Nutrients	Specific Conductance	133.8	µmhos/cm		
2/21/2022 11:20	Ctrl Alligator Field Params	Nutrients	Dissolved Oxygen mg/L	8.54	mg/L		
2/21/2022 11:20	Ctrl Alligator Field Params	Nutrients	Temperature	14.3	C		
2/21/2022 11:20	Ctrl Alligator Field Params	Nutrients	pH	6.83			
2/21/2022 11:20	Ctrl Alligator Field Params	Nutrients	Sample Depth	0.25	m		
2/21/2022 10:45	Test Alligator Field Params	Nutrients	Specific Conductance	259.2	µmhos/cm		
2/21/2022 10:45	Test Alligator Field Params	Nutrients	Dissolved Oxygen mg/L	8.56	mg/L		
2/21/2022 10:45	Test Alligator Field Params	Nutrients	pH	6.52			
2/21/2022 10:45	Test Alligator Field Params	Nutrients	Temperature	14.5	C		
2/21/2022 10:45	Test Alligator Field Params	Nutrients	Sample Depth	0.1	m		

Date Sampled	Site ID	Analysis Group	Component	Result	Units	MDL	PQL
2/23/2022 9:30	Effluent Composite	Nutrients	Ammonia-N	0.015 Y	mg N/L	0.0020	0.0050
2/23/2022 9:30	Effluent Composite	Nutrients	Organic Carbon	6.5 AY	mg C/L	0.50	1.0
2/23/2022 9:30	Effluent Composite	Nutrients	Total-P	0.031 Y	mg P/L	0.0020	0.0050
2/23/2022 9:30	Effluent Composite	Nutrients	TSS	2 UYQ	mg/L	2.0	10
2/23/2022 9:30	Effluent Composite	Nutrients	Kjeldahl Nitrogen	0.47 Y	mg N/L	0.16	0.40
2/23/2022 9:30	Effluent Composite	Nutrients	NO2NO3-N	0.64 Y	mg N/L	0.020	0.050
2/23/2022 9:30	Effluent Composite	Overflow	Carbonaceous Biochemical Oxygen Demand	2.0 U	mg/L	2.0	2.0
2/23/2022 9:45	Effluent Grab 2/23/22	Toxicology	Bioassay-Acute-Def-FW-Fish, LC50	100 L	LC50		
2/23/2022 9:45	Effluent Grab 2/23/22	Toxicology	Bioassay-Acute-Def-FW-C.dubia, LC50	100 L	LC50		
2/23/2022 9:45	Effluent Grab 2/23/22	Nutrients	Dissolved Oxygen %Sat	96.4	%Sat		
2/23/2022 9:45	Effluent Grab 2/23/22	Nutrients	pH	6.91			
2/23/2022 9:45	Effluent Grab 2/23/22	Nutrients	Temperature	19.3	C		
2/23/2022 9:45	Effluent Grab 2/23/22	Nutrients	Specific Conductance	900	µmhos/cm		