Biological Assessment of

Noma Wastewater Treatment Plant

Holmes County

NPDES # FL0040207

Sampled March 7, 2012

July 2012

Biology Section

Bureau of Laboratories

Division of Environmental Assessment and Restoration

Quality Manual No. 870346G

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EPA End Sheet

Facility Overview

The Noma Wastewater Treatment Plant is a Municipal Domestic Wastewater Treatment Facility. The treatment system consists of a trash trap/sludge holding tank, a surge anoxic mix (SAM) tank, a sequencing batch reactor (SBR), a flow equalization tank, an effluent meter, a tablet chlorinator, dual chlorine contact chambers, a tablet dechlorinator, tertiary filters and an effluent pump station with 5,330 feet of effluent force main to the existing outfall. The effluent is discharged into Wrights Creek, a Class III Freshwater (see map Appendix A). The design flow of the wastewater system is 0.025 million gallons per day (MGD) annual average daily flow (AADF). The annual average flow for March 2011 to February 2012 was 0.014 MGD.

Biological assessments are prepared by FDEP 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.

See the Facility Summary (Appendix B) for a description of the facility, summary of permit limits, and discharge monitoring report (DMR) information.

Methods

The purpose of this investigation was to determine the discharge's effects on the biota of the receiving waters. Chemical and biological comparisons were made between a Control Site (located in Wrights Creek beginning 100m upstream of the point of discharge and ending 200m upstream of the point of discharge) and a Test Site (located in Wrights Creek beginning 140m downstream of the point of discharge and ending 40m downstream of the point of discharge). Effluent samples for all analyses were taken as grab samples from monitoring location EFF-02 after dechlorination.

All field and laboratory biological methods followed Bureau of Laboratories and Biology Section Standard Operating Procedures (see http://www.dep.state.fl.us/labs/library/lab_sops.htm and http://www.dep.state.fl.us/water/sas/sop/sops.htm for details) and met DEP quality assurance/quality control standards (see http://www.dep.state.fl.us/water/sas/qa/index.htm). Explanations of specific methods and measurements can be found in Appendix C.

The following were involved in this investigation: Nathan Mulkey and Rick Abad (FDEP Northwest District Office, Pensacola), and FDEP Central Laboratory in Tallahassee. The report was reviewed by District representatives and the Point Source Studies Review Committee (Michelle Fish, Ed Smith and Nancy Ross).

Results

Organic Constituents (See Table 1 and Appendix F)

- No organic constituents were detected in the effluent.
- No organic constituents were detected in the field blank.

Metals (See Table 2 and Appendix F)

- Effluent metals were undetected or detected at levels that complied with Class III Freshwater Quality Criteria (62-302.530, F.A.C).
- Control Site iron (1,060 µg/L) and Test Site iron (1,050 µg/L) exceeded Class III Freshwater Quality Criteria (62-302.530(38), F.A.C). All other metals in the Control and Test Site samples complied with Class III Freshwater Quality Criteria (62-302.530, F.A.C).
- No metals were detected in the field blank.

Physical and Chemical Parameters (See Table 1 and Appendices D, E and F)

- Habitat Assessment scores were similar at the Control Site (125) and the Test Site (128), which places both sites in the Optimal category (Appendix C). While the Test Site had better substrate diversity,

both sites had low substrate availability and experienced slight to moderate amounts of habitat smothering. Both sites scored in the Optimal Category for all secondary habitat components.

- Dissolved oxygen (mg/L), pH (Standard Units), and specific conductance (µmhos/cm) of the effluent, Control Site, and Test Site complied with Class III Freshwater Quality Criteria (62-302.530, F.A.C.) and effluent permit limits.
- Effluent total residual chlorine (TRC) detected in the field (0.01 mg/L) complied with Class III Freshwater Quality Criterion (62-302.530(18), F.A.C.) and the permit limit.
- Chlorophyll *a* (corrected) was undetected in the effluent sample and was detected at a low level at both the Control and Test Sites.
- Total suspended solids (mg/L) and Carbonaceous Biochemical Oxygen Demand (CBOD; mg/L) of the effluent complied with permit limits.
- Turbidity (NTU) and Fluoride (mg/L) in the effluent and at the Control and Test Sites were detected at levels that complied with Class III Criteria.
- Alkalinity (mg CaCO3/L) of the effluent complied with Class III Criteria. The alkalinity of the Test Site was not being depressed by the effluent.

Microbiology (See Table 1 and Appendix F)

- Fecal coliforms were not detected in the effluent and were detected at both the Control and Test Sites at levels which complied with Class III Freshwater Quality Criterion (62-302.530(6), F.A.C.) and facility permit limits.

Nutrients (See Table 1 and Appendix F)

- Effluent nutrient levels complied with permit limits and the Class III Fresh Water Quality Criterion (62-302.530(3), F.A.C.).
- Ortho phosphate and total nitrogen in the effluent sample were 4 times higher than at the Control and Test Sites, and effluent nitrate and nitrite was 18 times higher than the Control and Test Site values. Total organic carbon in the Test and Control Site samples was more than twice the levels found in the effluent sample. Other nutrients were detected at similar levels in the effluent, Control and Test Site samples. There were no significant differences in the nutrient levels found in the Control and Test Site samples, and the similarities between the sites indicated that there was no detectable nutrient enrichment downstream from the effluent.
- No nutrients were detected in the field blank.

Algal Growth Potential (See Table 3 and Appendix F)

- Raschke and Shultz (1987) determined that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The AGP value in the effluent sample using the freshwater species, *Pseudokirchneriella subcapitata,* was approximately 5 times greater than the problem threshold value. The analytical chemistry suggests that the effluent is phosphorus-limited.
- The AGP values for the Control and Test Site samples were lower than the problem threshold. The analytical chemistry suggests that Control and Test Sites are co-limited by both nitrogen and phosphorus. The low AGP values of the Control and Test Sites as compared to the higher effluent AGP value indicate adequate dilution downstream at the time of sampling. However, the facility's effluent has the potential to enrich this portion of Wrights Creek.

Bioassessment

Macroinvertebrates (See Table 4 and Appendix G-1 and G-2)

- Quantitative macroinvertebrate samples were scheduled to be collected from Hester-Dendy samplers at the Control and Test Sites. However, due to heavy rain during the 28 day incubation period, the Test Site sampler was lost and the Control Site sample was cancelled.
- Qualitative macroinvertebrate data from dipnet samples indicated that the macroinvertebrate community at the Test Site was similar to the Control Site. The Test Site scored 81 A on the Stream

Condition Index (SCI), and the Control Site scored 76 A, placing both in Category 1 (see Appendix C for an explanation of SCI Categories). Both sites had similar numbers of ephemeroptera, trichoptera, sensitive and clinger taxa. The Control Site had a slightly higher percentage of tanytarsini individuals, which tend to decline with human disturbance, but the percentage of very tolerant individuals found at both sites was similar. Overall, there were no negative effects on macroinvertebrates at the Test Site that were attributable to the effluent.

Conclusion

Control Site iron (1,060 µg/L) and Test Site iron (1,050 µg/L) exceeded Class III Freshwater Quality Criteria (62-302.530(38), F.A.C). The alkalinity of the effluent complied with the Class III limits and was not depressing the alkalinity of the Test Site. AGP value was 5 times higher than at the Control and Test Sites, and without adequate dilution, the effluent has the potential to cause enrichment in the receiving water. There were no significant differences in the macroinvertebrate communities at the Control and Test Sites. Overall, the effluent did not appear to be adversely affecting this portion of Wrights Creek.

Literature Cited

Fore, L.S., Frydenborg, R., Miller, D., Frick, T., Whiting, D., Espy, J., and Wolfe, L. 2007. Development and Testing of Biomonitoring Tools for Macroinvertebrates in Florida Streams (Stream Condition Index and Biorecon). Florida Department of Environmental Protection. 110pp.

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Stevenson, R. J. and L. L. Bahls. 1999. Periphyton protocols. Pp. 6.1-6.22 in: Rapid bioassessment protocols for use in wadeable streams and rivers. 2nd edition. By: M. T. Barbour, J. Gerritsen, B. D. Snyder and J. B. Stribling. EPA 841-B-99-002. U. S. Environmental Protection Agency, Office of Water, Washington, D. C.

USEPA. 2000. Nutrient Criteria Technical Guidance Manual – River and Streams. EPA-822-B-00-002.

Table 1. Effluent limits, Class III Freshwater Criteria and chemical, and microbiological data.

Noma WWTP	Class III Criteria	Effluent Limits	Effluent	Control Site	Test Site
Organic Constituents (µg/L)					
None Detected	-	-	None Detected	-	-
Nutrients (mg/L)					
Ortho-phosphate	-	-	0.035	0.008 I	0.008 I
Total Phosphorus	-	-	0.059	0.041	0.042
Total Ammonia	-	Report	0.032	0.045	0.048
Un-ionized Ammonia	≤ 0.02 s	Report	≤ 0.02 c	≤ 0.02 c	≤ 0.02 c
Nitrate and Nitrite	-	-	2.4	0.13	0.13
Total Kjeldahl Nitrogen	-	≤ 10.0s	0.46	0.59	0.59
Organic Nitrogen	-	-	0.428 c	0.545 c	0.542 c
Total Nitrogen	-	-	2.86 c	0.72 c	0.72 c
Total Organic Carbon	-	-	4.7 I	15	11
General Physical and Chemical Parameters					
Habitat Assessment	-	-	-	125	128
Dissolved Oxygen (mg/L)	≥ 5.0	-	7.0	8.4	8.5
pH (SU)	6.0 - 8.5	6.0 - 8.5s	7.2	7.2	7.5
Conductivity (µmhos/cm)	≤ 1,275	-	215	67	67
Temperature (°C)	-	Report	19.3	16.4	16.0
Sample Depth (m)	-	-	-	0.15	0.15
Total Residual Chlorine (mg/L)	≤ 0.01	≤ 0.01s	0.01 §	-	-
Chlorophyll *a* (µg/L) - Corrected	-	-	0.55 U	1.3 I	1.3 I
Phaeophytin (µg/L)	-	-	0.4 U	0.4 U	0.4 U
Total Suspended Solids (mg/L)	-	≤ 60.0s	2 U	9 I	8 I
Alkalinity (mg CaCO3/L)	≥ 20.0	-	58	11	15
Turbidity (NTU)	< 29t	-	0.5	14 A	14
Color, True (PCU)	-	-	3.7 I	86 A	87
CBOD, 5 day (mg/L), N - inhibited	-	≤ 60.0s	15	1.2 I	0.86 I
Chloride (mg/L)	-	-	21	5.5	5.5
Fluoride (mg/L)	≤ 10.0	-	0.058 I	0.035 U	0.037 I
Sulfate (mg/L)	-	-	240	4	4.1
Flow (MGD)	-	≤ 0.025 a	0.014* a	-	-
Hardness (mg $CaCO_3$)	-	-	74.5 c	24.7 c	24.6 c
Microbiology (Number of colony forming units/100ml)					
Fecal Coliforms ¥	≤ 400s #	≤ 800s	2 U	110	110

a - Annual average daily flow
c - Value is calculated
s - Single sample
t - Shall not exceed 29 NTUs above background
A - Value reported is the mean of two or more determinations
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
- If 10 or fewer samples are taken within a month, the single sample limit is 400 CFU (62-302.530(6), F.A.C.)
¥ - Fecal coliform analysis performed by FDEP Central Lab, Tallahassee, FL
§ - Sample take at monitoring location EFA-01
* - March 2011 to February 2012

Table 2. Effluent limits, Class III Freshwater Criteria and metals data. Class III Criteria based on hardness are presented individually for each site based on hardness at that site.

Noma WWTP	Effluent Class III Criteria	Effluent Limits	Effluent	Control Site Class III Criteria	Control Site	Test Site Class III Criteria	Test Site
Metals (µg/L unless otherwise noted)							
Aluminum	-	-	46	-	618	-	584
Arsenic	≤ 50	-	0.25 U	≤ 50	0.58 I	≤ 50	0.48 I
Cadmium	≤ 0.2 b	-	0.05 U	≤ 0.10 b	0.05 U	≤ 0.10 b	0.05 U
Calcium (mg/L)	-	-	24.4	-	7.63	-	7.62
Chromium-III	≤ 67.7 b	-	0.3 U	≤ 27.7 b	1.5	≤ 27.7 b	1.4
Copper	≤ 7.3 b	-	0.69 I	≤ 2.85 b	0.91 I	≤ 2.85 b	0.87 I
Iron	≤ 1,000	-	33 I	≤ 1,000	1060	≤ 1,000	1050
Lead	≤ 2.2 b	-	0.37 I	≤ 0.54 b	0.52 I	≤ 0.54 b	0.51 I
Magnesium (mg/L)	-	-	3.29	-	1.37	-	1.36
Nickel	≤ 40.7 b	-	0.44 I	≤ 16.1 b	0.53 I	≤ 16.1 b	0.49 I
Selenium	≤ 5.0	-	0.2 U	≤ 5.0	0.2 U	≤ 5.0	0.2 U
Sodium (mg/L)	-	-	130	-	2.7	-	2.7
Silver	≤ 0.07	-	0.025 U	≤ 0.07	0.025 U	≤ 0.07	0.025 U
Zinc	≤ 93.3 b	-	19 I	≤ 37.0 b	5 U	≤ 37.0 b	5 U

See Table 1 for calculated hardness.

Value exceeds the Class III Water Quality Criteria or permit limits

b - Value is calculated based on hardness

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

Table 3. Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN), orthophosphate (OP), total nitrogen (TN) and total phosphorus (TP) limitation of the freshwater species *Pseudokirchneriella subcapitata* and ratios of nitrogen to phosphorus.

Noma WWTP						
Location	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	25.3 A		15.1 ± 3.0		25.4 ± 5.1	69.5	48.5
Control Site	2.3	6.7 ± 1.3	3.4 ± 0.7	27.4 ± 5.5	17.6 ± 3.5	21.9	17.6
Test Site	3.0	6.8 ± 1.4	3.4 ± 0.7	27.4 ± 5.5	18.1 ± 3.6	22.3	17.1

A - Value reported is the mean of two or more determinations

Table 4. Macroinvertebrate Dipnet Samples - Qualitative.

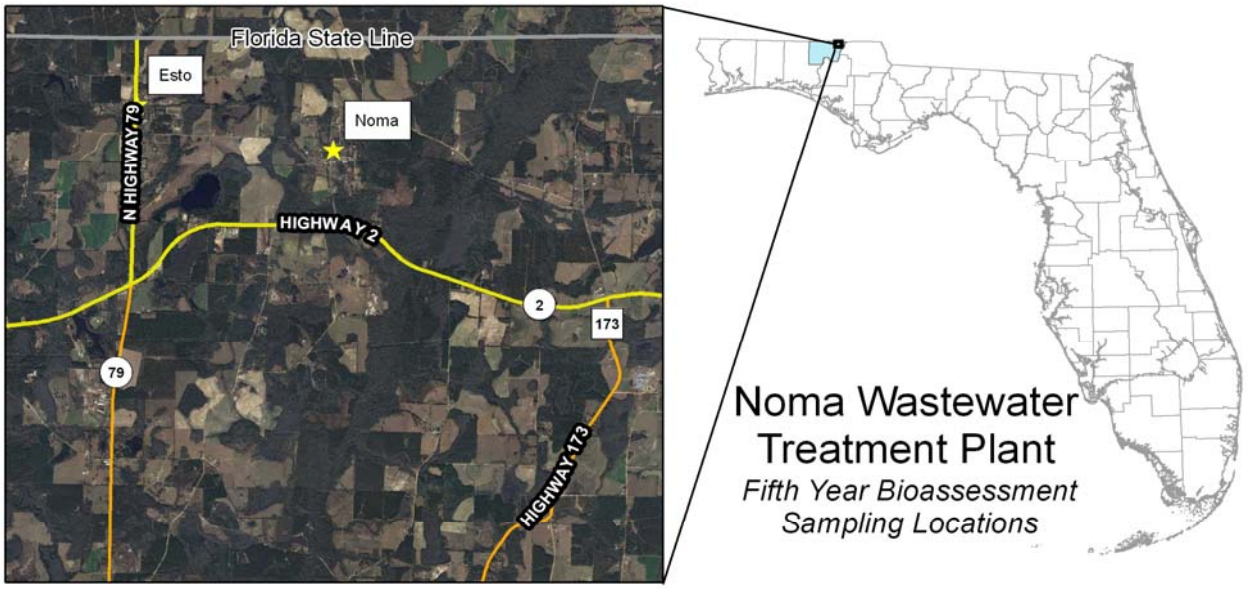
Noma WWTP	Control Site		Test Site	
Summary Statistics				
Stream Condition Index 2007 (value)	76 A		81 A	
Stream Condition Index 2007 (category) *	Category 1		Category 1	
Stream Condition Index Metrics	Rep 1	Rep 2	Rep 1	Rep 2
Number of Total Taxa	46	51	48	48
Number of Ephemeroptera Taxa	7	9	6	8
Number of Trichoptera Taxa	3	3	6	4
Number of Clinger Taxa	11	12	13	8
Number of Long-lived Taxa	1	3	4	4
Number of Sensitive Taxa	14	15	16	15
Percent of Dominant Taxon	13.3	11.3	10.3	9.7
Percent Suspension Feeders and Filterers	15.4	12.3	16.8	17.7
Percent of Tanytarsini Individuals	5.6	6.3	0.7	2.1
Percent of Very Tolerant Individuals	1.4	2.1	3.4	0.7
Total Number of Individuals	143	142	146	144
Community Composition: Percent of total				
Dominant Taxon Name	*Lirceus* sp. (Isopoda)	*Lirceus* sp. (Isopoda)	*Elimia* sp. (Gastropoda)	*Corbicula* sp. (Bivalvia)
Acariformes	0.7	0.7	2.7	3.5
Amphipoda	0.7	0.0	0.0	0.0
Bivalvia	2.8	4.2	6.9	9.7
Coleoptera	4.9	9.2	6.9	10.4
Decapoda	0.0	2.1	0.0	0.0
Diptera	30.1	28.2	23.3	24.3
Ephemeroptera	24.5	26.8	23.3	19.4
Gastropoda	3.5	2.1	13.7	11.8
Isopoda	14.7	11.3	2.1	0.7
Odonata	0.0	0.0	0.0	1.4
Oligochaeta	2.8	2.1	2.7	6.3
Plecoptera	7.0	11.3	7.5	5.6
Trichoptera	8.4	2.1	11.0	4.9
Other	0.0	0.0	0.0	2.1
Functional Feeding Groups: Percent of total				
Browser-Grazers	7.7	5.6	1.0	0.4
Burrowing Deposit Feeders	2.8	1.4	2.7	6.3
Piercers	3.5	0.0	0.7	0.0
Predators	11.5	16.2	13.4	17.4
Scavengers	8.4	7.4	1.0	0.4
Scrapers	15.7	15.5	26.4	22.2
Shredders	5.6	7.0	7.5	7.6
Surface Deposit Feeders	25.2	28.9	27.1	24.7
Suspension Feeders	15.4	12.3	16.8	17.7
Unknown	4.2	5.7	3.4	3.5

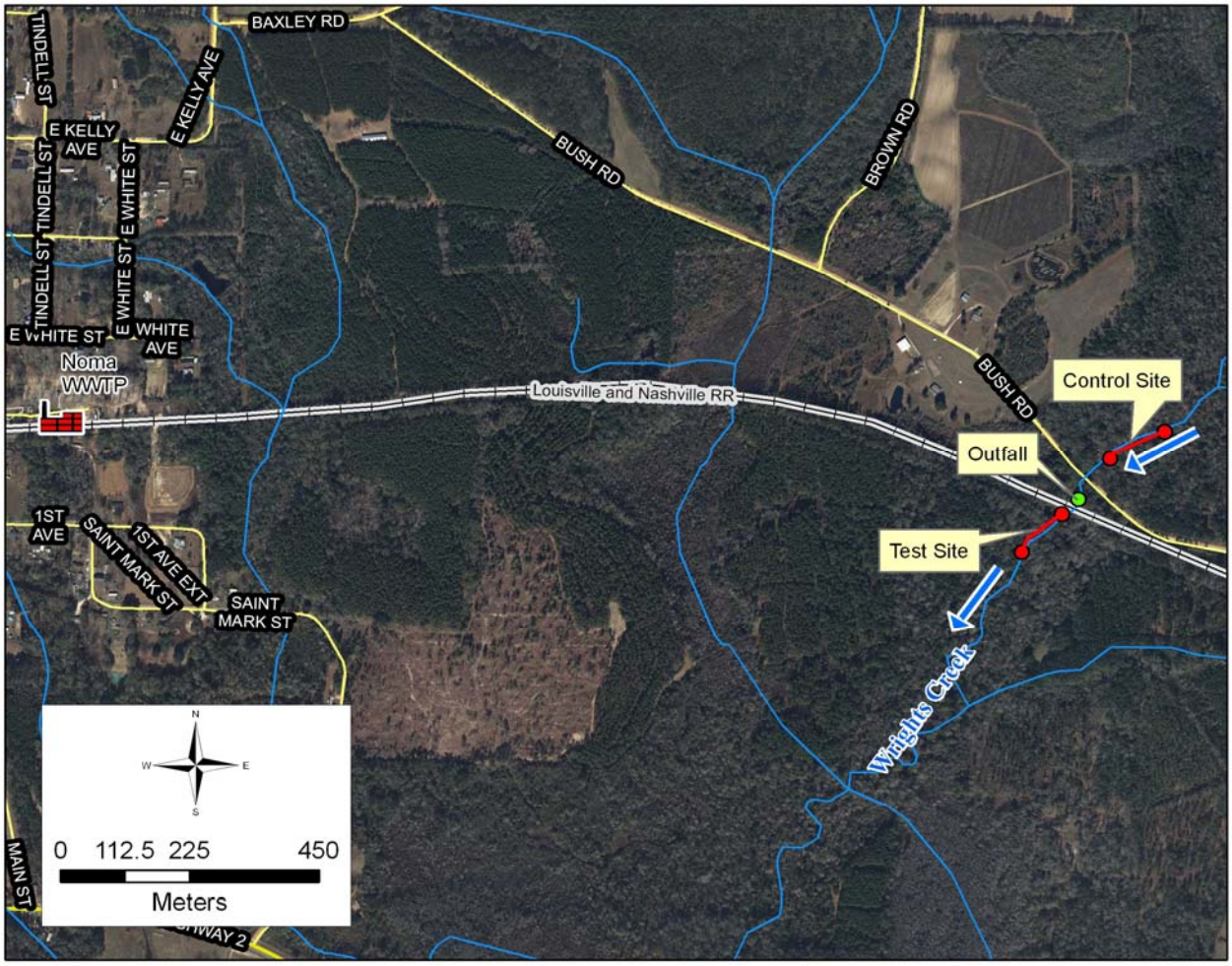
A - Value reported is the mean of two determinations

* SCI_2007 categories from Table LT 7200-2 of DEP-SOP-002/01 as referenced in Quality Assurance Rule (62-160, F.A.C.), December 3, 2008: Values 0 ≤ 34 are Category 3; Values 35 < 67 are Category 2; Values 68 ≤ 100 are Category 1

Appendix A

Map of Facility





Appendix B

Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: Kim Allen	**Contact Number:** (850)595-0553
Facility Name (as it appears on permit): Noma WWTP	**Former Names:**
NPDES Permit Number: FL0040207	**Permit Expiration Date:** July 22, 2013
Physical Address: 3488 Smalley Lane (off County Road 175), Noma, FL 32452	
District: NWD	**County:** Holmes
Function of Facility: Municipal wastewater treatment facility	
Facility Type: Domestic	**Permitted Capacity (MGD):** 0.025 MGD annual average daily flow
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): **.0143 mgd annual average (2/11 – 1/12)**	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months): ---	
Description of type of Discharge: ☐ **Continuous** ☒ **Intermittent*** ☐ **Seasonal** ☐ **Rainfall Dependent** ☐ **Other, please specify** *This is a Sequencing Batch Reactor (SBR) type facility that discharges in batches	

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

EFA-01 Chlorine Contact Chamber next to Effluent Weir
EFD-01 Effluent Sampling Manhole at Exit Pipe
EFF-01 Chlorine Contact Chamber next to Effluent Weir
EFF-02 Effluent Manhole at Exit Pipe
FLW-01 Magnetic Flow Meter and Totalizer in line prior to Chlorine Contact Chamber
OTH-01 Calculation

** Effluent samples for pH and temperature shall be monitored at the same time and location as the total ammonia grab sample which is used to calculate the unionized ammonia value. *[62-302.530(3)]*

Description of Permitted Outfall(s):

Effluent is discharged to Wrights Creek, a Class III waters of the State, at Outfall D-001 approximately 1.1 miles east of the WWTP, just north of the old railroad right-of-way. The point of discharge is located approximately at latitude 30 o 58' 46" N, longitude 85 o 35' 57" W. Outfall D-001 is approximately 3 feet in length and discharges at the surface.

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

An existing 0.025 MGD AADF permitted capacity, 0.030 MGD AADF design capacity, extended aeration biological sequencing batch reactor type (SBR) package plant. The treatment system consists of a trash trap/sludge holding tank, a surge anoxic mix (SAM) tank, a selective batch reactor (SBR), a flow equalization tank, an effluent meter, a tablet chlorinator, dual chlorine contact chambers, a tablet dechlorinator, tertiary filters, and an effluent sampling manhole and a flow control basin

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)

I. RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. **Surface Water Discharges**

1. During the period beginning on the issuance date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from Outfall D-001 to Wrights Creek. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with condition I.B.7:

			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**
Flow	MGD	Maximum	0.025	Report	-	-	6 Days/Week	Meter	FLW-01	See Cond.I.A.3
BOD, Carbonaceous 5 day, 20C	MG/L	Maximum	20.0	25.0	40.0	60.0	Monthly	Grab	EFF-01	
CBOD, % Removal, 5-day [(Influent - Effluent)/Influent]x100	PERCENT	Minimum	-	85.0	-	-	Monthly	Grab	OTH-01	See Cond.I.A.7
Solids, Total Suspended	MG/L	Maximum	20.0	30.0	45.0	60.0	Monthly	Grab	EFF-01	
Solids, Suspended, % Removal [(Influent - Effluent)/Influent]x100	PERCENT	Minimum	-	85.0	-	-	Monthly	Grab	OTH-01	See Cond.I.A.7
pH	SU	Range	-	-	-	6.0 to 8.5	6 Days/Week	Grab	EFF-02	
Total Residual Chlorine (For Disinfection)	MG/L	Minimum	-	-	-	0.5	6 Days/Week	Grab	EFA-01	See Cond.I.A.6
Total Residual Chlorine (For Dechlorination)	MG/L	Maximum	-	-	-	0.01	Monthly	Grab	EFD-01	
Coliform, Fecal	#/100ML	Maximum	See Permit Condition I.A.5.				Monthly	Grab	EFF-01	
Nitrogen, Kjeldahl, Total (as N)	MG/L	Maximum	5.0	6.25	7.5	10.0	Monthly	Grab	-	
Nitrogen , Ammonia, Total (as N)	MG/L	Maximum	-	-	-	Report	Monthly	Grab	-	See Cond.I.A.4
Temperature (F), Water	DEG F	Maximum	-	-	-	Report	Monthly	Grab	-	
Ammonia, Unionized (as NH3)	MG/L	Maximum	-	-	-	Report	Monthly	Grab	-	See Cond.I.A.4

**I.A.4. Effluent samples for pH and temperature shall be monitored at the same time and location as the total ammonia grab sample which is used to calculate the unionized ammonia value. *[62-302.530(3)]*

PART I: Continued

Receiving Waters:	Classification (indicate whether fresh or marine):
Wrights Creek	Class III Fresh

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

Not required.

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

None

Facility Mixing Zone Details (if applicable):

None

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

Monitoring Date	Parameter Code	Parameter Description	Data	Limit	Statistical Base	Units
3/31/2011	P 00625	NITROGEN, KJELDAHL, TOTAL (AS N)	13.55	6.25	MO AVG	mg/L
3/31/2011	P 00625	NITROGEN, KJELDAHL, TOTAL (AS N)	13.55	7.5	WKLY AVG	mg/L
3/31/2011	P 00625	NITROGEN, KJELDAHL, TOTAL (AS N)	25.74	10	MXSINSAM	mg/L
4/30/2011	P 74055	COLIFORM, FECAL	1600	800	MAXIMUM	#/100mL
6/30/2011	P 00625	NITROGEN, KJELDAHL, TOTAL (AS N)	9.5	6.25	MO AVG	mg/L
6/30/2011	P 00625	NITROGEN, KJELDAHL, TOTAL (AS N)	9.5	7.5	WKLY AVG	mg/L
10/31/2011	P 00625	NITROGEN, KJELDAHL, TOTAL (AS N)	7.8	6.25	MO AVG	mg/L
10/31/2011	P 00625	NITROGEN, KJELDAHL, TOTAL (AS N)	7.8	7.5	WKLY AVG	mg/L
10/31/2011	P 00625	NITROGEN, KJELDAHL, TOTAL (AS N)	7.8	10	MXSINSAM	mg/L

Describe previous or current Enforcement Actions (including WLs):

Warning Letter #30-1781 sent 7/8/11 for excess amount of solids present in the facility's effluent holding pond and at the end of the final discharge pipe into Wrights Creek.

Describe any violations or problems noted in previous inspection:

The problems noted during the 12/10/10 were the solids in the facility's effluent hodling pond and at the end of the final discharge pipe into Wright's Creek and a TKN violation in 10/10.

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

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

PART II: Sampling Event Information

Date(s) sample collected: 3/7/12	Sampler(s): Nathan Mulkey
Temperature (Deg C): 19.32	pH (SU): 7.20
Dissolved Oxygen (mg/L): 7.00	Conductivity (umhos/cm): 215
Total Residual Chlorine (mg/L): .01	Total Residual Chlorine - after Disinfection (mg/L): >2.2
Method of Chlorination: Chlorine tablets	Method of De-chlorination: Sodium meta-bisulfate
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):	
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 C
Explanation of Measurements

(1) Quality Assurance and Quality Control

FDEP's quality assurance requirements for analytical laboratories and field activities are codified in Chapter 62-160, F.A.C., Quality Assurance (QA Rule) and in internal Standard Operating Procedures (FDEP SOPs). Methods for all analyses are on file at the FDEP Central Laboratory in Tallahassee and may be viewed on the web at http://www.floridadep.org/labs/sop/index.htm and/or http://www.floridadep.org/labs/qa/index.htm .

(2) Chemical Analyses of the Effluent

The effluent was analyzed for nutrients, metals, organic constituents (base, neutral, and acid extractables) and pesticides following FDEP SOPs. The results from these analyses were compared with Water Quality Criteria (62-302, F.A.C.) and facility permit limits. Exceedances of Water Quality Criteria may constitute violations of specific provisions of Chapter 62-302 (F.A.C.) and/ or facility permit limits.

(3) Bacteriological Testing

High levels of fecal coliform bacteria may constitute an exceedance of 62-302.530(6) and/or a violation of facility permit limits. Fecal coliform and enterococci 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.

(5) 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).

(6) 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. Raschke and Shultz (1987) found that an AGP above 5.0 mg dry weight/L represents a "problem" threshold for fresh receiving waters, implying nutrient enrichment. High AGP values may constitute exceedances of 62-302.530(46), F.A.C., 62-302.530(47)(a), F.A.C. and/or 62-302.530(47)(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 $\pm$ 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 62-302.530(61), F.A.C.

(7) Chlorophyll *a* Content

Chlorophyll *a* content is an estimate of algal biomass. High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and may be constitute exceedances of 62-302.530(46), F.A.C., 62-302.530(47)(a), F. A.C. and/or 62-302.530(47)(b), F.A.C..

(8) Benthic Macroinvertebrate Assemblages

Qualitative collections are made using 20 dipnet sweeps (QA Rule SOP FS7420). 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 62-302.530(46), F.A.C., 62-302.530(47)(a), F.A.C., 62-302.530(47)(b), F.A.C. and/or 62-302.530(61), 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 62-302.530(46), F.A.C., 62-302.530(47)(a), F.A.C. and/or 62-302.530(47)(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 62-302.530(46), F.A.C., 62-302.530(47)(a), F.A.C., 62-302.530(47)(b), F.A.C. and/or 62-302.530(61), 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 62-302.530(46), F.A.C., 62-302.530(47)(a), F.A.C., 62-302.530(47)(b), F.A.C. and/or 62-302.530(61), F.A.C..

The Stream Condition Index (SCI): The SCI is a composite macroinvertebrate metric developed for Florida (Fore et. al. 2007). This Index was revised in 2007 using data from qualitative dipnet samples. The SCI now assigns points to ten parameters; depending on how closely each parameter approaches an expected value (QA Rule SOP LT 7200). Points are assigned according to in which bioregion (Panhandle, Northeast, or Peninsula) the sampling location exists -and summed to yield a final SCI score (range 0-100). Included in the calculation of SCI are taxa richness, number of Ephemeroptera taxa, number of Trichoptera taxa, percent contribution of the dominant taxon, number of sensitive taxa, number of clinger taxa, number of long-lived taxa, percent contribution of Tanytarsini, percent contribution of very tolerant, and the percent contribution of suspension and filter feeders. As human disturbance increases, it is expected that taxa richness, the number of Ephemeroptera taxa, Trichoptera taxa, sensitive taxa, clinger taxa, long-lived taxa, and the percent contribution of Tanytarsini and suspension and filter feeders will decrease while percent contribution of dominant taxon, and percent contribution of very tolerant taxa will increase.

Scores are broken into three categories (1, 2, and 3). Sites in Category 1 are described as having higher diversity than Category 2 sites, particularly for Ephemeroptera and Trichoptera. A Category 1 site may have several more clinger and sensitive taxa, a higher proportion of Tanytarsini, and a lower percent of a dominant taxon than a site in Category 2. The site will also have a very small percentage of very tolerant individuals, if any.

Sites in Category 2 are described as having an average of 30 species with several different taxa of Ephemeroptera and Trichoptera. A Category 2 site also has several different long-lived taxa and, on average, 5 clinger and 6 sensitive taxa. There is a slight increase in dominance by a single taxon relative to sites in Category 1. Very tolerant taxa represent a small percentage of individuals but are noticeably increased as compared to sites in Category 1.

Sites in Category 3 are described as having a notable loss in taxonomic diversity, and Ephemeroptera, Trichoptera, long-lived, clinger and sensitive taxa are uncommon or rare. Filter feeders are reduced by at least 50%. The site is dominated by a tolerant taxon, and very tolerant individuals represent a large proportion of the individuals collected.

SCI 2007 categories are from Table LT 7200-2 of DEP-SOP-002/01 as referenced in Draft Quality Assurance Rule (62-160, F.A.C.), December 3, 2008. A decrease in ordinal SCI score from the Control to the Test site may be evidence of degradation related to a facility's effluent. An SCI score in Category 3, if it is shown to be related to a facility's effluent, may constitute exceedances of 62-302.530(46), F.A.C., 62-302.530(47)(a), F.A.C., 62-302.530(47)(b), F.A.C. and/or a violation of 62-302.530(61), F.A.C.

Appendix D

Chain of Custody

Florida Department of Environmental Protection

Event ID *

Request Number: RQ-2012-03-05-35
FYI5 Noma WWTP Sampling Inspection

Central Laboratory Sample Submittal Form

Requester: Michelle Fish
Field Report Prepared By: N. Milky
Collected By: Nathan Milky / Rick Mack
Send Final Report To: Toni Edwards
Sampling Agency: FDEP

Customer: NW-DIST
Project ID: FYI5
PMAS: 1143

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Noma WWTP	☐ Comp ☑ Grab Date 3/7/12 Time 1115 Eastern Central	Date Time Eastern Central	
	Field ID: Effluent	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 7.00	Storet Station Number:
	Matrix (include type e.g. Salt, Fresh, etc): Waste water	Temp (C): 19.32	pH: 7.20	Sample Depth ☑ m ☐ ft:
		Salinity (PPTh) ☐ Sp Conductance (umho/cm) ☑: 2.15	NPDES Number:	A
	Latitude: 30.98043 ☑ dd ☐ dms	Longitude: 85.61652 ☑ dd ☐ dms	Comments:	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Wrights Creek — Noma WWTP	☐ Comp ☐ Grab Date 3/7/12 Time 1140 Eastern Central	Date Time Eastern Central	
	Field ID: Field Blank	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L):	Storet Station Number:
	Matrix (include type e.g. Salt, Fresh, etc):	Temp (C):	pH:	Sample Depth ☐ m ☐ ft:
		Salinity (PPTh) ☐ Sp Conductance (umho/cm) ☐:	NPDES Number:	D
	Latitude: 30.98043 ☑ dd ☐ dms	Longitude: 85.61652 ☐ dd ☐ dms	Comments:	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	~~Noma WWTP~~ Wrights Creek	☐ Comp ☑ Grab Date 3/7/12 Time 1140 (1220) Eastern Central	Date Time Eastern Central	
	Field ID: ~~Field Blank~~ Test	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 8.46	Storet Station Number:
	Matrix (include type e.g. Salt, Fresh, etc): Fresh	Temp (C): 15.97	pH: 7.54	Sample Depth ☑ m ☐ ft: .15
		Salinity (PPTh) ☐ Sp Conductance (umho/cm) ☑: 67	NPDES Number:	B/C
(100m)	Latitude: 30.97938 ☑ dd ☐ dms	Longitude: 85.59911 ☑ dd ☐ dms	Comments: HD's on bank out of H_2O (no sample)	

Lab ID *	Location	Collection (begin)	Collection (end)	Bottle Group(s)**
	Wrights Creek	☐ Comp ☑ Grab Date 3/7/12 Time 1200 Eastern Central	Date Time Eastern Central	
	Field ID: Control	Tot Res Chlorine (mg/L):	Diss Oxygen (mg/L): 8.42	Storet Station Number:
	Matrix (include type e.g. Salt, Fresh, etc): Fresh	Temp (C): 16.43	pH: 7.21	Sample Depth ☑ m ☐ ft: .15
		Salinity (PPTh) ☐ Sp Conductance (umho/cm) ☑: 67	NPDES Number:	B/C
(100m)	Latitude: 30.98029 ☑ dd ☐ dms	Longitude: 85.59764 ☑ dd ☐ dms	Comments: HD's collected	

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	3/7/12	HAND						3/7/12

* Shaded Areas for Lab use only. 0528

** Please see reverse side for Bottle Group information.

last revised October 1, 2003

Page 1 of 4 0528

3/7/12 1731 3 micros gf

Appendix E

Physical/Chemical and Habitat Assessment field sheets

DEP-SOP-001/01: Form FD 9000-3

PHYSICAL/CHEMICAL CHARACTERIZATION ELECTRONIC FIELD SHEET

ELES

SAMPLE ID : _____ ORG ID : _____

COUNTY : Holmes STORET # : _____

DATE : 3/7/12 TIME : 1300

Latitude : 30 (degrees) 980 (minutes) 29 (seconds) 100m mark DP

Longitude : 85 (degrees) 597 (minutes) 64 (seconds) DP

SITE NAME : Noma WWTP Wrights Creek SAMPLE COMPLETE ? Y

FIELD ID/NAME : Control RECEIVING BODY OF WATER : Choctawhatchee River

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)

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

High Water Mark: 1.4 (m) + 1.2 (above present water level) = 2.4 (present depth) (above bed)

Artificially Impounded ☐ Yes ☐ No

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

C O 10 m wide

0.3 m/s 0.4 m/s 0.3 m/s

9.2 m deep 0.8 m deep 0.6 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) :

Sediment Deposition ☐ Sludge Sand Smothering : None (Slight) Moderate Severe; Silt Smothering : None (Slight) Moderate Severe ☐ Other (Specify) :

SUBSTRATE TYPE

Assessment Tool: ☑ SCI ☐ BioRecon ☐ LCI ☐ LVI

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	5		
Undercut Banks / Roots	2.3		
Leaf Packs or Mat	>1		
Aquatic Vegetation	>1		
Rock or Shell Rubble..			
Sand.....	92		
Mud / Muck / Silt			
Other			
Other			

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top :							
Mid-Depth :	0.410	16.43	7.21	8.42	67	0.03	☐ VOB
Bottom :				86.1%			

Water Surface Oils : ☐ None ☑ Sheen ☐ Globs ☐ Slick

Water Odors : ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Other (Specify) :

Water Sample Taken ? ☑ Yes ☐ No

Algae Sample Taken ? ☑ Yes ☐ No

SYSTEM TYPE ☐ Stream ☐ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) :

Clarity ☐ Clear ☐ Slightly Turbid ☑ Turbid ☐ Opaque

Color ☑ Tannic ☐ Green (Algae) ☐ Clear ☐ Other (Specify) :

WEATHER CONDITIONS / NOTES :

ABUNDANCE

	Absent	Rare	Common	Abundant
Periphyton :	☐	☐	☑	☐
Fish :	☐	☐	☐	☐
Aquatic Macrophytes :	☐	☑	☐	☐
Iron/Sulfur Bacteria :	☑	☐	☐	☐

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

Water samples preserved ? ☑ Yes ☑ pH<2 ☐ No Algae samples preserved ? ☐ Yes ☐ No

SAMPLING TEAM : SIGNATURE : DATE : 3-7-12

Revision Date: September 5, 2008

DEP-SOP-001/01: Form FD 9000-5

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: FDEP	STORET STATION NUMBER:	DATE (MM/DD/YY): 3/7/12	RECEIVING BODY OF WATER: Choctawhatchee River
REMARKS:	COUNTY: Holmes	LOCATION: Wrights Creek	FIELD ID/NAME: Control

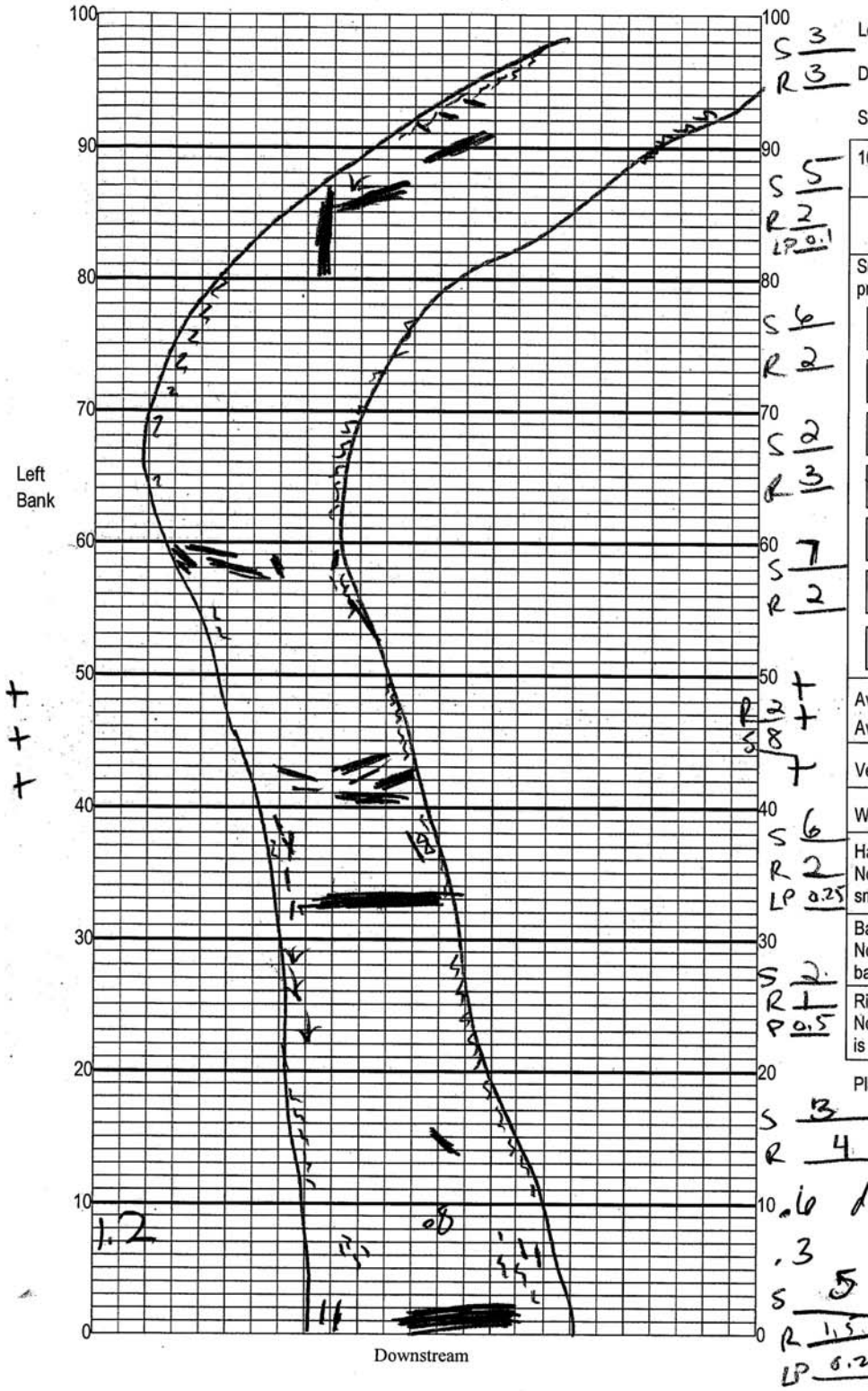
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 8	Four or more productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock] 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 (8) 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 7	Greater than 30% productive habitat present at site 20 19 18 17 16	16% to 30% productive habitat, by aerial extent 15 14 13 12 11	6% to 15% productive habitat 10 9 8 (7) 6	Less than 5% productive habitat 5 4 3 2 1
Water Velocity 19	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 (19) 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 13 Primary Score 47	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand or silt accumulation. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand or silt accumulation. 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 or silt accumulation. 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 20	Good sinuosity. No evidence of dredging or artificial straightening. No spoil banks. Diversity of depths. (20) 19 18 17 16	Good sinuosity within old channelized area and a diversity of depths. Evidence of dredging in the past (>10 yrs) but mostly recovered. 15 14 13 12 11	Some sinuosity developed within channelized area or some diversity of depth, but typically no pools (>2 times prevailing depth) present. 10 9 8 7 6	Straightened with spoil banks. Box-cut, monotypic depth. 5 4 3 2 1
Bank Stability Right Bank 10 Left Bank 10	Bankfull > 60% of bank height. Slope of bank ≤ 60°. 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 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 still 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 7 Secondary Score 78	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants, trees, understory shrubs, or non-woody macrophytes). 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

125 **TOTAL SCORE**

Date: 3/7/12	Analyst: Mike King	Signature:

Form FD 9000-5 Revision Date: September 21, 2011

DEP-SOP-001/01 Form FD 9000-4
Stream/River Habitat Sketch Sheet



Location: Wrights Creek Control
Date: 3/7/12
Sampler: _____

100 m: Latitude 30.98029
Longitude 85.59764
0 m: Latitude 30.98014
Longitude 85.59502

Substrates: Code key, draw proportionate habitat abundance. %

//	Snags	49/1000	4.9%
SS	Roots/undercut banks	22.5/1000	2.3%
◇	Leaf Packs (or mats)		>1
✓	Aquatic Macrophytes	1000	>1
	Pools	total # observed = ____	
		# range expected = ____	

Average width 10 m .6%
Average depth 0.16 m

Velocity measured at 10 meter mark.

WQ & chemistry taken at 0 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:

Flow 4 & 3

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

Revision Date: June 2, 2011

DEP-SOP-001/01: Form FD 9000-3

PHYSICAL/CHEMICAL CHARACTERIZATION ELECTRONIC FIELD SHEET

ELES

SAMPLE ID : _____ ORG ID : _____

COUNTY : Holmes STORET # : _____

DATE : 3/7/12 TIME : 1020 CST

Latitude : DD 100 meter mark — 30. (degrees) 979 (minutes) 38 (seconds)

Longitude : DD — 85. (degrees) 59 (minutes) 11 (seconds)

SITE NAME : Noma WWTP Wrights Creek SAMPLE COMPLETE ? Yes

FIELD ID/NAME : Test RECEIVING BODY OF WATER : Choctawhatchee River

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)
✓		✓	✓	✓			

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

High Water Mark: 0.5 (m) + 0.9 (above present water level) = 1.4 (present depth) (above bed)

Artificially Impounded ☐ Yes ☒ No

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

@ 70m 13 m wide

0.5 m/s	0.5 m/s	0.5 m/s
0.9 m deep	0.9 m deep	0.6 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) :

Sediment Deposition ☐ Sludge Sand Smothering : None Slight (Moderate) Severe

Silt Smothering : (None) (Slight) Moderate Severe

☐ Other (Specify) :

SUBSTRATE TYPE

Assessment Tool: ☑ SCI ☐ BioRecon ☐ LCI ☐ LVI

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	4		
Undercut Banks / Roots	1.25		
Leaf Packs or Mat	>1		
Aquatic Vegetation	>1		
Rock or Shell Rubble..	>1		
Sand.....	95		
Mud / Muck / Silt			
Other			
Other			

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top :							
Mid-Depth :	0.460	15.97	7.54	8.46	67	0.03	☐ VOB
Bottom :				85.7			

Water Surface Oils : ☑ None ☐ Sheen ☐ Globs ☐ Slick

Water Odors : ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Other (Specify) :

Water Sample Taken ? ☑ Yes ☐ No

Algae Sample Taken ? ☑ Yes ☐ No

SYSTEM TYPE ☑ Stream ☐ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) :

Clarity ☐ Clear ☐ Slightly Turbid ☑ Turbid ☑ Opaque

Color ☑ Tannic ☐ Green (Algae) ☐ Clear ☐ Other (Specify) :

WEATHER CONDITIONS / NOTES :

ABUNDANCE

	Absent	Rare	Common	Abundant
Periphyton :	☐	☐	☑	☐
Fish :	☐	☐	☐	☐ to run
Aquatic Macrophytes :	☐	☑	☐	☐
Iron/Sulfur Bacteria :	☑	☐	☐	☐

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

Water samples preserved ? ☑ Yes ☑ pH<2 ☐ No Algae samples preserved ? ☐ Yes ☐ No

SAMPLING TEAM : Frank Button, Rick Hall, Mike Kay, Nathan Mills SIGNATURE : _____ DATE : 3/7/12

Revision Date: September 5, 2008

DEP-SOP-001/01: Form FD 9000-5

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION

STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME: FDEP	STORET STATION NUMBER:	DATE (MM/DD/YY): 3/7/12	RECEIVING BODY OF WATER: Choct River
REMARKS:	COUNTY: Holmes	LOCATION: Wrights Creek	FIELD ID/NAME: Test

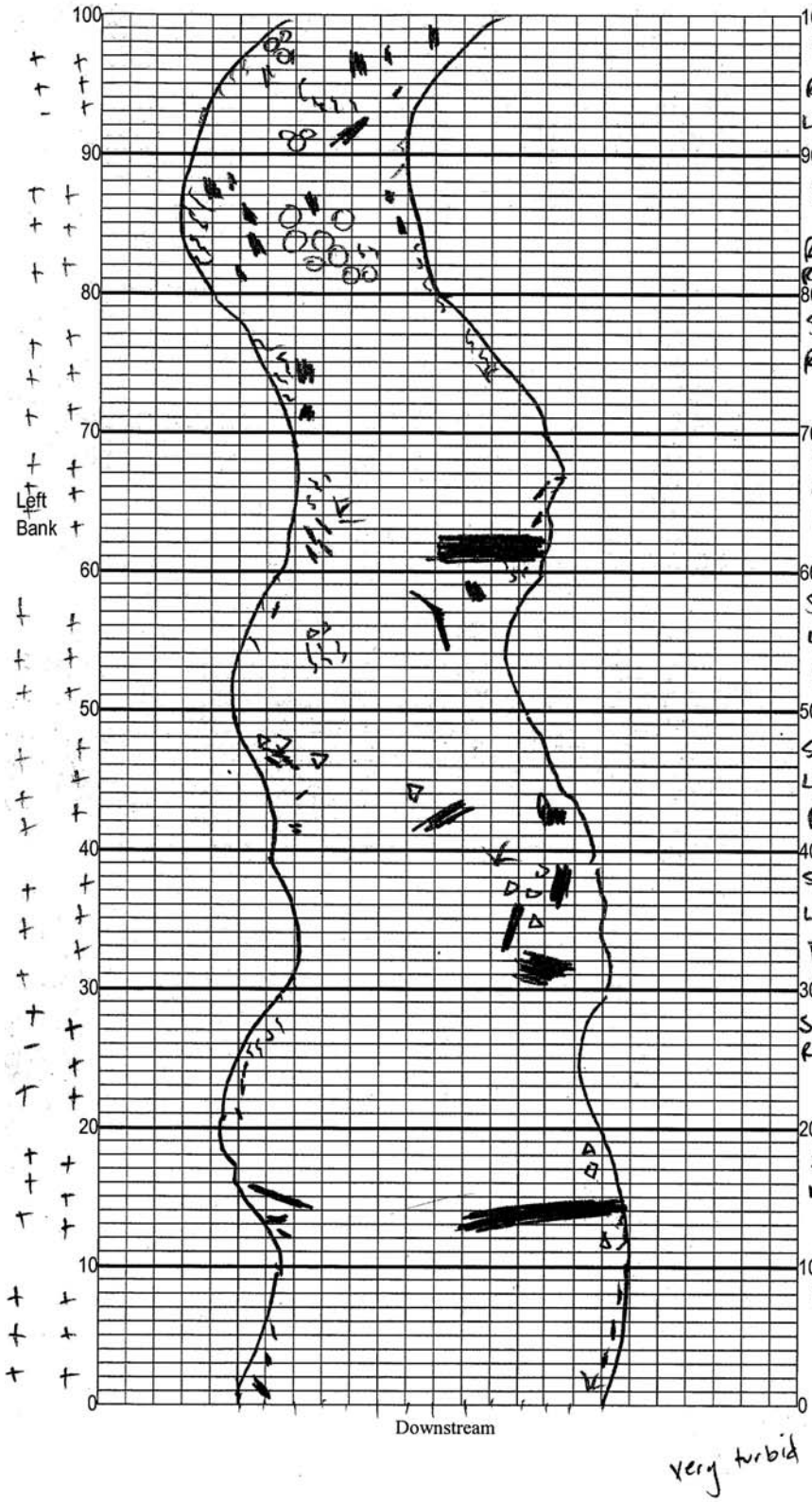
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 12	Four or more productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock] 20 19 18 17 16	Three productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 (12) 11	Two productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 7 6	One or less productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 6	Greater than 30% productive habitat present at site 20 19 18 17 16	16% to 30% productive habitat, by aerial extent 15 14 13 12 11	6% to 15% productive habitat 10 9 8 7 (6)	Less than 5% productive habitat 5 4 3 2 1
Water Velocity 19	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec 20 (19) 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec 5 4 3 2 1
Habitat Smothering 14 Primary Score 51	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand or silt accumulation. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand or silt accumulation. 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 or silt accumulation. 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 20	Good sinuosity. No evidence of dredging or artificial straightening. No spoil banks. Diversity of depths. (20) 19 18 17 16	Good sinuosity within old channelized area and a diversity of depths. Evidence of dredging in the past (>10 yrs) but mostly recovered. 15 14 13 12 11	Some sinuosity developed within channelized area or some diversity of depth, but typically no pools (>2 times prevailing depth) present. 10 9 8 7 6	Straightened with spoil banks. Box-cut, monotypic depth. 5 4 3 2 1
Bank Stability Right Bank 9 Left Bank 10	Bankfull > 60% of bank height. Slope of bank ≤ 60°. 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 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 still 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 9 Secondary Score 77	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants, trees, understory shrubs, or non-woody macrophytes). 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

128 **TOTAL SCORE**

Date: 3/7/12	Analyst: M. King	Signature:

Form FD 9000-5 Revision Date: September 21, 2011

DEP-SOP-001/01 Form FD 9000-4
Stream/River Habitat Sketch Sheet



Location: Wrights Creek Test
Date: 3/7/12
Sampler: Rick Abad / Frank Intra

100 m: Latitude 30.97938
Longitude 85.59911
0 m: Latitude 30.97843
Longitude 85.59864

Substrates: Code key, draw proportionate habitat abundance.

			%
Snags	52/1360		4%
SS	Roots/undercut banks	16.25/1300	1.25%
Leaf Packs (or mats)	1.35		
Aquatic Macrophytes	—		
Rock	6/1,300		0.5%
Pools	total # observed =		
	# range expected =		

Average width 13 m
Average depth 0.9 m

Velocity measured at 70 meter mark.

WQ & chemistry taken at ____ 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:
chinese privet

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

Revision Date: June 2, 2011

Appendix F
Chemical analysis of effluent and receiving water

Date Sampled	UDL	SCH Group	Component	Value	Qualifier	Units Word Result	MDL	PQL
3/7/2012 12:15	Effluent	AGP/LN	Algal Growth Potential	25.3	A	mg DryWt/L	0.3	0.9
3/7/2012 12:15	Effluent	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
3/7/2012 12:15	Effluent	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	0.55	U	ug/L	0.55	1.7
3/7/2012 12:15	Effluent	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	15		mg/L	0.2	2
3/7/2012 12:15	Effluent	Microbiology	Fecal Coliforms-Membrane Filter	2	U	cfu/100 mL	2	2
3/7/2012 12:15	Effluent	Metals	Aluminum	46		ug/L	5	20
3/7/2012 12:15	Effluent	Metals	Nickel	0.44	I	ug/L	0.25	1
3/7/2012 12:15	Effluent	Metals	Iron	33	I	ug/L	30	120
3/7/2012 12:15	Effluent	Metals	Magnesium	3.29		mg/L	0.04	0.16
3/7/2012 12:15	Effluent	Metals	Copper	0.69	I	ug/L	0.5	1
3/7/2012 12:15	Effluent	Metals	Sodium	130		mg/L	0.5	2
3/7/2012 12:15	Effluent	Metals	Calcium	24.4		mg/L	0.075	0.3
3/7/2012 12:15	Effluent	Metals	Zinc	19	I	ug/L	5	20
3/7/2012 12:15	Effluent	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
3/7/2012 12:15	Effluent	Metals	Selenium	0.2	U	ug/L	0.2	0.8
3/7/2012 12:15	Effluent	Metals	Chromium	0.3	U	ug/L	0.3	1.2
3/7/2012 12:15	Effluent	Metals	Arsenic	0.25	U	ug/L	0.25	1
3/7/2012 12:15	Effluent	Metals	Silver	0.025	U	ug/L	0.025	0.1
3/7/2012 12:15	Effluent	Metals	Lead	0.37	I	ug/L	0.2	0.8
3/7/2012 12:15	Effluent	Nutrients	Organic Carbon	4.7	I	mg C/L	1	5
3/7/2012 12:15	Effluent	Nutrients	Sulfate	240		mg SO4/L	2	5
3/7/2012 12:15	Effluent	Nutrients	Total-P	0.059		mg P/L	0.004	0.01
3/7/2012 12:15	Effluent	Nutrients	O-Phosphate-P	0.035		mg P/L	0.004	0.01
3/7/2012 12:15	Effluent	Nutrients	NO2NO3-N	2.4		mg N/L	0.04	0.1
3/7/2012 12:15	Effluent	Nutrients	Fluoride	0.058	I	mg F/L	0.035	0.1
3/7/2012 12:15	Effluent	Nutrients	Turbidity	0.5		NTU	0.1	0.1
3/7/2012 12:15	Effluent	Nutrients	Kjeldahl Nitrogen	0.46		mg N/L	0.08	0.2
3/7/2012 12:15	Effluent	Nutrients	Color (true)	3.7	I	PCU	2.5	6
3/7/2012 12:15	Effluent	Nutrients	Chloride	21		mg Cl/L	0.2	0.5
3/7/2012 12:15	Effluent	Nutrients	Ammonia-N	0.032		mg N/L	0.01	0.02
3/7/2012 12:15	Effluent	Nutrients	Alkalinity	58		mg CaCO3/L	0.65	2.5
3/7/2012 12:15	Effluent	Nutrients	TSS	2	U	mg/L	2	10
3/7/2012 12:15	Effluent	Pesticides	Alachlor	0.6	U	ug/L	0.6	2.4
3/7/2012 12:15	Effluent	Pesticides	Malathion	0.15	U	ug/L	0.15	0.6
3/7/2012 12:15	Effluent	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.6

Date Sampled	UDL	SCH Group	Component	Value	Qualifier	Units	Word Result	MDL	PQL
3/7/2012 12:15	Effluent	Pesticides	Alpha-BHC	0.01	U	ug/L		0.01	0.04
3/7/2012 12:15	Effluent	Pesticides	Beta-BHC	0.01	U	ug/L		0.01	0.04
3/7/2012 12:15	Effluent	Pesticides	Dieldrin	0.01	U	ug/L		0.01	0.04
3/7/2012 12:15	Effluent	Pesticides	Fonofos	0.1	U	ug/L		0.1	0.4
3/7/2012 12:15	Effluent	Pesticides	Ametryn	0.05	U	ug/L		0.05	0.2
3/7/2012 12:15	Effluent	Pesticides	Parathion Methyl	0.1	UJ	ug/L		0.1	0.4
3/7/2012 12:15	Effluent	Pesticides	Endrin	0.032	U	ug/L		0.032	0.13
3/7/2012 12:15	Effluent	Pesticides	Heptachlor	0.01	U	ug/L		0.01	0.04
3/7/2012 12:15	Effluent	Pesticides	Heptachlor Epoxide	0.01	U	ug/L		0.01	0.04
3/7/2012 12:15	Effluent	Pesticides	Butylate	0.2	U	ug/L		0.2	0.8
3/7/2012 12:15	Effluent	Pesticides	Metalaxyl	0.25	UJ	ug/L		0.25	1
3/7/2012 12:15	Effluent	Pesticides	Bromacil	0.2	U	ug/L		0.2	0.8
3/7/2012 12:15	Effluent	Pesticides	Diazinon	0.05	UJ	ug/L		0.05	0.2
3/7/2012 12:15	Effluent	Pesticides	Ethoprop	0.1	U	ug/L		0.1	0.4
3/7/2012 12:15	Effluent	Pesticides	Metolachlor	0.5	U	ug/L		0.5	2
3/7/2012 12:15	Effluent	Pesticides	Mevinphos	0.2	U	ug/L		0.2	0.8
3/7/2012 12:15	Effluent	Pesticides	Parathion Ethyl	0.15	U	ug/L		0.15	0.6
3/7/2012 12:15	Effluent	Pesticides	Prometryn	0.15	UJ	ug/L		0.15	0.6
3/7/2012 12:15	Effluent	Pesticides	Simazine	0.05	U	ug/L		0.05	0.2
3/7/2012 12:15	Effluent	Pesticides	Chlordane	0.1	U	ug/L		0.1	0.4
3/7/2012 12:15	Effluent	Pesticides	DDD-p,p'	0.02	U	ug/L		0.02	0.08
3/7/2012 12:15	Effluent	Pesticides	Azinphos Methyl	0.2	UJ	ug/L		0.2	0.8
3/7/2012 12:15	Effluent	Pesticides	Ethion	0.05	U	ug/L		0.05	0.2
3/7/2012 12:15	Effluent	Pesticides	Metribuzin	0.1	U	ug/L		0.1	0.4
3/7/2012 12:15	Effluent	Pesticides	Phorate	0.05	U	ug/L		0.05	0.2
3/7/2012 12:15	Effluent	Pesticides	DDT-p,p'	0.02	U	ug/L		0.02	0.08
3/7/2012 12:15	Effluent	Pesticides	Delta-BHC	0.01	U	ug/L		0.01	0.04
3/7/2012 12:15	Effluent	Pesticides	Endosulfan Sulfate	0.02	U	ug/L		0.02	0.08
3/7/2012 12:15	Effluent	Pesticides	Gamma-BHC	0.01	U	ug/L		0.01	0.04
3/7/2012 12:15	Effluent	Pesticides	Toxaphene	0.5	U	ug/L		0.5	2
3/7/2012 12:15	Effluent	Pesticides	Chlorpyrifos Ethyl	0.05	U	ug/L		0.05	0.2
3/7/2012 12:15	Effluent	Pesticides	Chlorpyrifos Methyl	0.1	U	ug/L		0.1	0.4
3/7/2012 12:15	Effluent	Pesticides	Fenamiphos	0.2	U	ug/L		0.2	0.8
3/7/2012 12:15	Effluent	Pesticides	Aldrin	0.01	U	ug/L		0.01	0.04
3/7/2012 12:15	Effluent	Pesticides	Endosulfan II	0.01	U	ug/L		0.01	0.04
3/7/2012 12:15	Effluent	Pesticides	Methoxychlor	0.05	U	ug/L		0.05	0.2
3/7/2012 12:15	Effluent	Pesticides	Atrazine	0.05	U	ug/L		0.05	0.2
3/7/2012 12:15	Effluent	Pesticides	Hexazinone	0.1	U	ug/L		0.1	0.4
3/7/2012 12:15	Effluent	Pesticides	Naled	0.8	UJ	ug/L		0.8	3.2

Date Sampled	UDL	SCH Group	Component	Value	Qualifier	Units	Word Result	MDL	PQL
3/7/2012 12:15	Effluent	Pesticides	DDE-p,p'	0.02	U	ug/L		0.02	0.08
3/7/2012 12:15	Effluent	Pesticides	Endosulfan I	0.01	U	ug/L		0.01	0.04
3/7/2012 12:15	Effluent	Pesticides	Endrin Aldehyde	0.02	U	ug/L		0.02	0.08
3/7/2012 12:15	Effluent	Priority Organic Pollutants	2,4,6-Trichlorophenol	1	U	ug/L		1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Phenanthrene	0.21	UJ	ug/L		0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Acenaphthene	0.21	U	ug/L		0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.1	U	ug/L		3.1	12
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Isophorone	1	U	ug/L		1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	N-Nitrosodimethylamine	2.1	U	ug/L		2.1	8.3
3/7/2012 12:15	Effluent	Priority Organic Pollutants	2-Chlorophenol	1	U	ug/L		1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	3,3'-Dichlorobenzidine	42	U	ug/L		42	170
3/7/2012 12:15	Effluent	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1	U	ug/L		1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	4-Nitrophenol	16	U	ug/L		16	62
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Di-n-butyl phthalate	5.2	UJ	ug/L		5.2	21
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.21	U	ug/L		0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Pyrene	0.21	UJ	ug/L		0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	2,6-Dinitrotoluene	1	U	ug/L		1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	16	U	ug/L		16	62
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Chrysene	0.21	U	ug/L		0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Fluoranthene	0.21	U	ug/L		0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Phenol	1	U	ug/L		1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	2,4-Dinitrotoluene	1	U	ug/L		1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.21	U	ug/L		0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Benzidine	100	U	ug/L		100	420
3/7/2012 12:15	Effluent	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.1	U	ug/L		3.1	12
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Naphthalene	0.21	U	ug/L		0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Hexachloroethane	3.1	U	ug/L		3.1	12
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Diethyl phthalate	1	UJ	ug/L		1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	2-Chloronaphthalene	1	U	ug/L		1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	4-Chloro-3-methylphenol	1	U	ug/L		1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Benzo(a)anthracene	0.21	U	ug/L		0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1	U	ug/L		1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Hexachlorobenzene	1	U	ug/L		1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Nitrobenzene	2.1	U	ug/L		2.1	8.3
3/7/2012 12:15	Effluent	Priority Organic Pollutants	2-Nitrophenol	1	U	ug/L		1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Anthracene	0.21	U	ug/L		0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Benzo(b)fluoranthene	0.21	U	ug/L		0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Benzo(k)fluoranthene	0.21	U	ug/L		0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1	U	ug/L		1	4.2

Date Sampled	UDL	SCH Group	Component	Value	Qualifier	Units Word Result	MDL	PQL
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Butyl benzyl phthalate	5.2	U	ug/L	5.2	21
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Hexachlorobutadiene	3.1	U	ug/L	3.1	12
3/7/2012 12:15	Effluent	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.1	U	ug/L	2.1	8.3
3/7/2012 12:15	Effluent	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.1	U	ug/L	3.1	12
3/7/2012 12:15	Effluent	Priority Organic Pollutants	2,4-Dimethylphenol	10	U	ug/L	10	42
3/7/2012 12:15	Effluent	Priority Organic Pollutants	2,4-Dichlorophenol	1	U	ug/L	1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.1	U	ug/L	2.1	8.3
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Benzo(a)pyrene	0.21	U	ug/L	0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.1	U	ug/L	3.1	12
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Di-n-octyl phthalate	1	U	ug/L	1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Dimethyl phthalate	10	UJ	ug/L	10	42
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Fluorene	0.21	UJ	ug/L	0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Pentachlorophenol	3.1	U	ug/L	3.1	12
3/7/2012 12:15	Effluent	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1	U	ug/L	1	4.2
3/7/2012 12:15	Effluent	Priority Organic Pollutants	2,4-Dinitrophenol	16	U	ug/L	16	62
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Acenaphthylene	0.21	U	ug/L	0.21	0.83
3/7/2012 12:15	Effluent	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.21	U	ug/L	0.21	0.83
3/7/2012 12:15	Effluent	Field Parameter	Temperature	19.32		C		
3/7/2012 12:15	Effluent	Field Parameter	Dissolved Oxygen	7		mg/L		
3/7/2012 12:15	Effluent	Field Parameter	pH	7.2				
3/7/2012 12:15	Effluent	Field Parameter	Specific Conductance	215		umhos/cm		
3/7/2012 14:00	Control Site	AGP/LN	Algal Growth Potential	2.34		mg DryWt/L	0.3	0.9
3/7/2012 14:00	Control Site	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	1.2	I	mg/L	0.2	2
3/7/2012 14:00	Control Site	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
3/7/2012 14:00	Control Site	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.3	I	ug/L	0.55	1.7
3/7/2012 14:00	Control Site	Microbiology	Fecal Coliforms-Membrane Filter	110		cfu/100 mL	2	2
3/7/2012 14:00	Control Site	Metals	Sodium	2.7		mg/L	0.5	2
3/7/2012 14:00	Control Site	Metals	Selenium	0.2	U	ug/L	0.2	0.8
3/7/2012 14:00	Control Site	Metals	Nickel	0.53	I	ug/L	0.25	1
3/7/2012 14:00	Control Site	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
3/7/2012 14:00	Control Site	Metals	Chromium	1.5		ug/L	0.3	1.2
3/7/2012 14:00	Control Site	Metals	Zinc	5	U	ug/L	5	20
3/7/2012 14:00	Control Site	Metals	Calcium	7.63		mg/L	0.075	0.3
3/7/2012 14:00	Control Site	Metals	Aluminum	618		ug/L	5	20
3/7/2012 14:00	Control Site	Metals	Magnesium	1.37		mg/L	0.04	0.16
3/7/2012 14:00	Control Site	Metals	Copper	0.91	I	ug/L	0.5	1
3/7/2012 14:00	Control Site	Metals	Iron	1060		ug/L	30	120
3/7/2012 14:00	Control Site	Metals	Silver	0.025	U	ug/L	0.025	0.1
3/7/2012 14:00	Control Site	Metals	Lead	0.52	I	ug/L	0.2	0.8

Date_Sampled	UDL	SCH_Group	Component	Value	Qualifier	Units_Word_Result	MDL	PQL
3/7/2012 14:00	Control Site	Metals	Arsenic	0.58	I	ug/L	0.25	1
3/7/2012 14:00	Control Site	Nutrients	Color (true)	86	A	PCU	2.5	6
3/7/2012 14:00	Control Site	Nutrients	Ammonia-N	0.045		mg N/L	0.01	0.02
3/7/2012 14:00	Control Site	Nutrients	Alkalinity	15		mg CaCO3/L	0.65	2.5
3/7/2012 14:00	Control Site	Nutrients	NO2NO3-N	0.13		mg N/L	0.004	0.01
3/7/2012 14:00	Control Site	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
3/7/2012 14:00	Control Site	Nutrients	Turbidity	14	A	NTU	0.1	0.1
3/7/2012 14:00	Control Site	Nutrients	Organic Carbon	11		mg C/L	1	5
3/7/2012 14:00	Control Site	Nutrients	Sulfate	4		mg SO4/L	0.2	0.5
3/7/2012 14:00	Control Site	Nutrients	Kjeldahl Nitrogen	0.59		mg N/L	0.08	0.2
3/7/2012 14:00	Control Site	Nutrients	TSS	9	I	mg/L	2	10
3/7/2012 14:00	Control Site	Nutrients	Total-P	0.041		mg P/L	0.004	0.01
3/7/2012 14:00	Control Site	Nutrients	Chloride	5.5		mg Cl/L	0.2	0.5
3/7/2012 14:00	Control Site	Nutrients	O-Phosphate-P	0.008	I	mg P/L	0.004	0.01
3/7/2012 14:00	Control Site	Field Parameter	Sample Depth	0.15		m		
3/7/2012 14:00	Control Site	Field Parameter	pH	7.21				
3/7/2012 14:00	Control Site	Field Parameter	Specific Conductance	67		umhos/cm		
3/7/2012 14:00	Control Site	Field Parameter	Dissolved Oxygen	8.42		mg/L		
3/7/2012 14:00	Control Site	Field Parameter	Specific Conductance	67		umhos/cm		
3/7/2012 14:00	Control Site	Field Parameter	Dissolved Oxygen	8.42		mg/L		
3/7/2012 14:00	Control Site	Field Parameter	Temperature	16.43		C		
3/7/2012 14:00	Control Site	Field Parameter	Sample Depth	0.15		m		
3/7/2012 14:00	Control Site	Field Parameter	pH	7.21				
3/7/2012 14:00	Control Site	Field Parameter	Temperature	16.43		C		
3/7/2012 14:00	Control Site	Field Parameter	pH	7.21				
3/7/2012 14:00	Control Site	Field Parameter	Temperature	16.43		C		
3/7/2012 14:00	Control Site	Field Parameter	Dissolved Oxygen	8.42		mg/L		
3/7/2012 14:00	Control Site	Field Parameter	Specific Conductance	67		umhos/cm		
3/7/2012 14:00	Control Site	Field Parameter	Sample Depth	0.15		m		
3/7/2012 13:20	Test Site	AGP/LN	Algal Growth Potential	2.98		mg DryWt/L	0.3	0.9
3/7/2012 13:20	Test Site	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhib	0.86	I	mg/L	0.2	2
3/7/2012 13:20	Test Site	Chlorophyll/Grain Size/BOD	Chlorophyll-a, Corrected	1.3	I	ug/L	0.55	1.7
3/7/2012 13:20	Test Site	Chlorophyll/Grain Size/BOD	Phaeophytin-a	0.4	U	ug/L	0.4	1.2
3/7/2012 13:20	Test Site	Microbiology	Fecal Coliforms-Membrane Filter	110		cfu/100 mL	2	2
3/7/2012 13:20	Test Site	Metals	Sodium	2.7		mg/L	0.5	2
3/7/2012 13:20	Test Site	Metals	Arsenic	0.48	I	ug/L	0.25	1
3/7/2012 13:20	Test Site	Metals	Chromium	1.4		ug/L	0.3	1.2
3/7/2012 13:20	Test Site	Metals	Copper	0.87	I	ug/L	0.5	1
3/7/2012 13:20	Test Site	Metals	Cadmium	0.05	U	ug/L	0.05	0.2

Date Sampled	UDL	SCH Group	Component	Value	Qualifier	Units Word Result	MDL	PQL
3/7/2012 13:20	Test Site	Metals	Calcium	7.62		mg/L	0.075	0.3
3/7/2012 13:20	Test Site	Metals	Lead	0.51	I	ug/L	0.2	0.8
3/7/2012 13:20	Test Site	Metals	Iron	1050		ug/L	30	120
3/7/2012 13:20	Test Site	Metals	Silver	0.025	U	ug/L	0.025	0.1
3/7/2012 13:20	Test Site	Metals	Nickel	0.49	I	ug/L	0.25	1
3/7/2012 13:20	Test Site	Metals	Magnesium	1.36		mg/L	0.04	0.16
3/7/2012 13:20	Test Site	Metals	Selenium	0.2	U	ug/L	0.2	0.8
3/7/2012 13:20	Test Site	Metals	Aluminum	584		ug/L	5	20
3/7/2012 13:20	Test Site	Metals	Zinc	5	U	ug/L	5	20
3/7/2012 13:20	Test Site	Nutrients	Organic Carbon	11		mg C/L	1	5
3/7/2012 13:20	Test Site	Nutrients	Kjeldahl Nitrogen	0.59		mg N/L	0.08	0.2
3/7/2012 13:20	Test Site	Nutrients	NO2NO3-N	0.13		mg N/L	0.004	0.01
3/7/2012 13:20	Test Site	Nutrients	TSS	8	I	mg/L	2	10
3/7/2012 13:20	Test Site	Nutrients	Color (true)	87		PCU	2.5	6
3/7/2012 13:20	Test Site	Nutrients	Alkalinity	15		mg CaCO3/L	0.65	2.5
3/7/2012 13:20	Test Site	Nutrients	Chloride	5.5		mg Cl/L	0.2	0.5
3/7/2012 13:20	Test Site	Nutrients	Turbidity	14		NTU	0.1	0.1
3/7/2012 13:20	Test Site	Nutrients	Fluoride	0.037	I	mg F/L	0.035	0.1
3/7/2012 13:20	Test Site	Nutrients	Ammonia-N	0.048		mg N/L	0.01	0.02
3/7/2012 13:20	Test Site	Nutrients	O-Phosphate-P	0.008	I	mg P/L	0.004	0.01
3/7/2012 13:20	Test Site	Nutrients	Total-P	0.042		mg P/L	0.004	0.01
3/7/2012 13:20	Test Site	Nutrients	Sulfate	4.1		mg SO4/L	0.2	0.5
3/7/2012 13:20	Test Site	Field Parameter	Temperature	15.97		C		
3/7/2012 13:20	Test Site	Field Parameter	Specific Conductance	67		umhos/cm		
3/7/2012 13:20	Test Site	Field Parameter	Specific Conductance	67		umhos/cm		
3/7/2012 13:20	Test Site	Field Parameter	Dissolved Oxygen	8.46		mg/L		
3/7/2012 13:20	Test Site	Field Parameter	pH	7.54				
3/7/2012 13:20	Test Site	Field Parameter	Dissolved Oxygen	8.46		mg/L		
3/7/2012 13:20	Test Site	Field Parameter	Sample Depth	0.15		m		
3/7/2012 13:20	Test Site	Field Parameter	Sample Depth	0.15		m		
3/7/2012 13:20	Test Site	Field Parameter	pH	7.54				
3/7/2012 13:20	Test Site	Field Parameter	Temperature	15.97		C		
3/7/2012 12:40	Field Blank	Metals	Lead	0.2	U	ug/L	0.2	0.8
3/7/2012 12:40	Field Blank	Metals	Aluminum	5	U	ug/L	5	20
3/7/2012 12:40	Field Blank	Metals	Iron	30	U	ug/L	30	120
3/7/2012 12:40	Field Blank	Metals	Chromium	0.3	U	ug/L	0.3	1.2
3/7/2012 12:40	Field Blank	Metals	Arsenic	0.25	U	ug/L	0.25	1
3/7/2012 12:40	Field Blank	Metals	Calcium	0.075	U	mg/L	0.075	0.3
3/7/2012 12:40	Field Blank	Metals	Nickel	0.25	U	ug/L	0.25	1

Date Sampled	UDL	SCH Group	Component	Value	Qualifier	Units Word Result	MDL	PQL
3/7/2012 12:40	Field Blank	Metals	Cadmium	0.05	U	ug/L	0.05	0.2
3/7/2012 12:40	Field Blank	Metals	Sodium	0.5	U	mg/L	0.5	2
3/7/2012 12:40	Field Blank	Metals	Selenium	0.2	U	ug/L	0.2	0.8
3/7/2012 12:40	Field Blank	Metals	Silver	0.025	U	ug/L	0.025	0.1
3/7/2012 12:40	Field Blank	Metals	Magnesium	0.04	U	mg/L	0.04	0.16
3/7/2012 12:40	Field Blank	Metals	Zinc	5	U	ug/L	5	20
3/7/2012 12:40	Field Blank	Metals	Copper	0.5	U	ug/L	0.5	1
3/7/2012 12:40	Field Blank	Nutrients	O-Phosphate-P	0.004	U	mg P/L	0.004	0.01
3/7/2012 12:40	Field Blank	Nutrients	Organic Carbon	1	U	mg C/L	1	5
3/7/2012 12:40	Field Blank	Nutrients	Total-P	0.004	U	mg P/L	0.004	0.01
3/7/2012 12:40	Field Blank	Nutrients	Color (true)	2.5	U	PCU	2.5	6
3/7/2012 12:40	Field Blank	Nutrients	Ammonia-N	0.01	U	mg N/L	0.01	0.02
3/7/2012 12:40	Field Blank	Nutrients	Sulfate	0.2	U	mg SO4/L	0.2	0.5
3/7/2012 12:40	Field Blank	Nutrients	Chloride	0.2	U	mg Cl/L	0.2	0.5
3/7/2012 12:40	Field Blank	Nutrients	Alkalinity	0.65	U	mg CaCO3/L	0.65	2.5
3/7/2012 12:40	Field Blank	Nutrients	NO2NO3-N	0.004	U	mg N/L	0.004	0.01
3/7/2012 12:40	Field Blank	Nutrients	Kjeldahl Nitrogen	0.08	U	mg N/L	0.08	0.2
3/7/2012 12:40	Field Blank	Nutrients	Turbidity	0.1	U	NTU	0.1	0.1
3/7/2012 12:40	Field Blank	Nutrients	Fluoride	0.035	U	mg F/L	0.035	0.1
3/7/2012 12:40	Field Blank	Pesticides	Bromacil	0.2	U	ug/L	0.2	0.79
3/7/2012 12:40	Field Blank	Pesticides	Metolachlor	0.49	U	ug/L	0.49	2
3/7/2012 12:40	Field Blank	Pesticides	Heptachlor	0.0098	U	ug/L	0.0098	0.039
3/7/2012 12:40	Field Blank	Pesticides	Diazinon	0.049	UJ	ug/L	0.049	0.2
3/7/2012 12:40	Field Blank	Pesticides	Parathion Methyl	0.098	UJ	ug/L	0.098	0.39
3/7/2012 12:40	Field Blank	Pesticides	Prometryn	0.15	UJ	ug/L	0.15	0.59
3/7/2012 12:40	Field Blank	Pesticides	Beta-BHC	0.0098	U	ug/L	0.0098	0.039
3/7/2012 12:40	Field Blank	Pesticides	DDD-p,p'	0.02	U	ug/L	0.02	0.079
3/7/2012 12:40	Field Blank	Pesticides	DDT-p,p'	0.02	U	ug/L	0.02	0.079
3/7/2012 12:40	Field Blank	Pesticides	Endrin Aldehyde	0.02	U	ug/L	0.02	0.079
3/7/2012 12:40	Field Blank	Pesticides	Butylate	0.2	U	ug/L	0.2	0.79
3/7/2012 12:40	Field Blank	Pesticides	Phorate	0.049	U	ug/L	0.049	0.2
3/7/2012 12:40	Field Blank	Pesticides	Alpha-BHC	0.0098	U	ug/L	0.0098	0.039
3/7/2012 12:40	Field Blank	Pesticides	Endosulfan Sulfate	0.02	U	ug/L	0.02	0.079
3/7/2012 12:40	Field Blank	Pesticides	Endrin	0.031	U	ug/L	0.031	0.13
3/7/2012 12:40	Field Blank	Pesticides	Gamma-BHC	0.0098	U	ug/L	0.0098	0.039
3/7/2012 12:40	Field Blank	Pesticides	Toxaphene	0.49	U	ug/L	0.49	2
3/7/2012 12:40	Field Blank	Pesticides	Chlorpyrifos Methyl	0.098	U	ug/L	0.098	0.39
3/7/2012 12:40	Field Blank	Pesticides	Ethion	0.049	U	ug/L	0.049	0.2
3/7/2012 12:40	Field Blank	Pesticides	Norflurazon	0.15	U	ug/L	0.15	0.59

Date Sampled	UDL	SCH Group	Component	Value	Qualifier	Units	Word Result	MDL	PQL
3/7/2012 12:40	Field Blank	Pesticides	Simazine	0.049	U	ug/L		0.049	0.2
3/7/2012 12:40	Field Blank	Pesticides	Dieldrin	0.0098	U	ug/L		0.0098	0.039
3/7/2012 12:40	Field Blank	Pesticides	Endosulfan I	0.0098	U	ug/L		0.0098	0.039
3/7/2012 12:40	Field Blank	Pesticides	Ametryn	0.049	U	ug/L		0.049	0.2
3/7/2012 12:40	Field Blank	Pesticides	Ethoprop	0.098	U	ug/L		0.098	0.39
3/7/2012 12:40	Field Blank	Pesticides	Fonofos	0.098	U	ug/L		0.098	0.39
3/7/2012 12:40	Field Blank	Pesticides	Hexazinone	0.098	U	ug/L		0.098	0.39
3/7/2012 12:40	Field Blank	Pesticides	Aldrin	0.0098	U	ug/L		0.0098	0.039
3/7/2012 12:40	Field Blank	Pesticides	Endosulfan II	0.0098	U	ug/L		0.0098	0.039
3/7/2012 12:40	Field Blank	Pesticides	Alachlor	0.59	U	ug/L		0.59	2.4
3/7/2012 12:40	Field Blank	Pesticides	Chlorpyrifos Ethyl	0.049	U	ug/L		0.049	0.2
3/7/2012 12:40	Field Blank	Pesticides	Parathion Ethyl	0.15	U	ug/L		0.15	0.59
3/7/2012 12:40	Field Blank	Pesticides	Heptachlor Epoxide	0.0098	U	ug/L		0.0098	0.039
3/7/2012 12:40	Field Blank	Pesticides	Methoxychlor	0.049	U	ug/L		0.049	0.2
3/7/2012 12:40	Field Blank	Pesticides	Atrazine	0.049	U	ug/L		0.049	0.2
3/7/2012 12:40	Field Blank	Pesticides	Metalaxyl	0.25	UJ	ug/L		0.25	0.98
3/7/2012 12:40	Field Blank	Pesticides	Metribuzin	0.098	U	ug/L		0.098	0.39
3/7/2012 12:40	Field Blank	Pesticides	Mevinphos	0.2	U	ug/L		0.2	0.79
3/7/2012 12:40	Field Blank	Pesticides	Chlordane	0.098	U	ug/L		0.098	0.39
3/7/2012 12:40	Field Blank	Pesticides	Azinphos Methyl	0.2	UJ	ug/L		0.2	0.79
3/7/2012 12:40	Field Blank	Pesticides	Fenamiphos	0.2	U	ug/L		0.2	0.79
3/7/2012 12:40	Field Blank	Pesticides	Malathion	0.15	U	ug/L		0.15	0.59
3/7/2012 12:40	Field Blank	Pesticides	Naled	0.79	UJ	ug/L		0.79	3.1
3/7/2012 12:40	Field Blank	Pesticides	DDE-p,p'	0.02	U	ug/L		0.02	0.079
3/7/2012 12:40	Field Blank	Pesticides	Delta-BHC	0.0098	U	ug/L		0.0098	0.039
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	2,4-Dinitrotoluene	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Acenaphthylene	0.23	U	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	3.5	U	ug/L		3.5	14
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	2.3	U	ug/L		2.3	9.3
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.23	U	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	17	U	ug/L		17	70
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.23	U	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Pyrene	0.23	UJ	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Benzidine	120	U	ug/L		120	470
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Benzo(a)pyrene	0.23	U	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Chrysene	0.23	U	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Fluoranthene	0.23	U	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	1,2,4-Trichlorobenzene	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	4-Chloro-3-methylphenol	1.2	U	ug/L		1.2	4.7

Date Sampled	UDL	SCH Group	Component	Value	Qualifier	Units	Word Result	MDL	PQL
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	2.3	U	ug/L		2.3	9.3
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Benzo(a)anthracene	0.23	U	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Bis(2-chloroethyl)ether	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Hexachlorocyclopentadiene	3.5	U	ug/L		3.5	14
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	2,4-Dinitrophenol	17	U	ug/L		17	70
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	4-Nitrophenol	17	U	ug/L		17	70
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	3.5	U	ug/L		3.5	14
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Butyl benzyl phthalate	5.8	U	ug/L		5.8	23
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Di-n-octyl phthalate	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Diethyl phthalate	1.2	UJ	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Dimethyl phthalate	12	UJ	ug/L		12	47
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Hexachlorobenzene	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Isophorone	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Naphthalene	0.23	U	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Pentachlorophenol	3.5	U	ug/L		3.5	14
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	3.5	U	ug/L		3.5	14
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Acenaphthene	0.23	U	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Phenol	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	2,6-Dinitrotoluene	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	2-Chloronaphthalene	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Benzo(k)fluoranthene	0.23	U	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Hexachlorobutadiene	3.5	U	ug/L		3.5	14
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	N-Nitrosodimethylamine	2.3	U	ug/L		2.3	9.3
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	2,4-Dichlorophenol	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	3,3'-Dichlorobenzidine	47	U	ug/L		47	190
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	4-Bromophenyl phenyl ether	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Anthracene	0.23	U	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Benzo(b)fluoranthene	0.23	U	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Nitrobenzene	2.3	U	ug/L		2.3	9.3
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Phenanthrene	0.23	UJ	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	2,4,6-Trichlorophenol	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	2,4-Dimethylphenol	12	U	ug/L		12	47
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	2-Chlorophenol	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	2-Nitrophenol	1.2	U	ug/L		1.2	4.7
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Di-n-butyl phthalate	5.8	UJ	ug/L		5.8	23
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Fluorene	0.23	UJ	ug/L		0.23	0.93
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Hexachloroethane	3.5	U	ug/L		3.5	14
3/7/2012 12:40	Field Blank	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.23	U	ug/L		0.23	0.93

Appendix G-1

Qualitative benthic macroinvertebrate collapsed taxa list and number of individuals counted from 20-discrete-dipnet sweeps conducted upstream and downstream of Noma WWTP on 3/27/12. See SOP LT 7100 sect. 4.2.1 for method on collapsing taxa.

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Annelida				
Oligochaeta				
Branchiobdella	-	1	-	-
Eclipidrilus sp.	-	-	3	1
Enchytraeidae	2	1	-	6
Lumbriculidae	1	-	-	-
Lumbriculus sp.	-	1	-	-
Megascolecidae	-	-	-	2
Tubificidae	1	-	1	-
Arthropoda				
Arachnida				
Acariformes				
Arrenurus sp.	1	-	-	-
Geayia sp.	-	-	2	-
Lebertia sp.	-	-	1	3
Mideopsis sp.	-	-	-	2
Sperchonopsis sp.	-	1	1	-
Crustacea				
Amphipoda				
Undetermined Amphipoda	1	-	-	-
Decapoda				
Cambaridae	-	3	-	-
Isopoda				
Caecidotea sp.	2	-	-	-
Lirceus sp.	19	16	3	1
Insecta				
Coleoptera				
Ancyronyx variegatus	1	1	1	4
Cantharidae	-	-	-	1
Dineutus sp.	2	-	-	-
Dubiraphia vittata	-	2	1	5
Helichus fastigiatus	2	1	-	-
Hydrophilidae	-	-	1	-
Macronychus glabratus	2	4	3	5
Microcylloepus pusillus	-	1	2	-
Sperchopsis tessellatus	-	2	-	-
Stenelmis sp.	-	1	2	-
Tenebrionidae	-	1	-	-
Diptera				
Ablabesmyia mallochi	4	-	-	1
Ablabesmyia rhamphe grp.	-	-	-	1
Atrichopogon sp.	1	-	-	-
Cecidomyiidae	-	-	1	1
Ceratopogonidae	-	1	-	-

Appendix G-1 (continued)

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Dicrotendipes neomodestus	-	-	1	1
Djalmabatista pulcher	-	-	2	-
Hemerodromia sp.	3	3	-	1
Labrundinia pilosella	2	2	-	3
Micropsectra sp. D Epler	2	3	-	1
Microtendipes pedellus grp.	1	-	2	-
Nanocladius sp.	-	1	-	-
Palpomyia/bezzia grp.	-	-	1	-
Paramerina sp.	-	1	4	2
Parametriocnemus sp.	-	1	-	-
Phaenopsectra punctipes grp.	2	-	2	-
Platypeza sp.	-	-	1	-
Polypedilum aviceps	10	12	9	10
Polypedilum flavum	1	1	-	1
Polypedilum halterale grp.	-	1	-	-
Polypedilum illinoense grp.	-	-	1	-
Polypedilum scalaenum grp.	-	1	-	1
Rheotanytarsus exiguus grp.	2	2	1	1
Rheotanytarsus pellucidus	2	1	-	1
Sciaridae	-	1	-	-
Simulium sp.	7	5	6	7
Stelechomyia perpulchra	1	-	-	-
Stenochironomus sp.	1	-	1	-
Tanytarsus sp. A Epler	-	1	-	-
Tanytarsus sp. C Epler	1	-	-	-
Tanytarsus sp. L Epler	1	-	-	-
Tanytarsus sp. M Epler	-	2	-	-
Thienemannimyia grp.	2	-	2	3
Tipula sp.	-	1	-	-
Ephemeroptera				
Acentrella sp.	5	6	-	3
Baetis intercalaris	7	5	-	4
Dannella simplex	4	4	-	-
Isonychia sp.	-	1	1	2
Leptophlebiidae	-	-	4	3
Maccaffertium exiguum	2	1	3	1
Maccaffertium smithae	9	6	5	5
Pseudocloeon propinquum	6	11	14	3
Stenacron sp.	-	1	-	-
Teloganopsis deficiens	2	3	7	7
Megaloptera				
Climacia areolaris	-	-	-	1
Corydalus cornutus	-	-	-	2
Odonata				
Argia sp.	-	-	-	2
Plecoptera				
Acroneuria abnormis	-	2	2	1
Amphinemura nigritta	-	-	-	2

Appendix G-1 (continued)

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Isoperla sp.	6	5	5	1
Neoperla clymene	-	-	1	-
Perlesta placida complex	2	9	1	3
Taeniopteryx sp.	2	-	2	1
Trichoptera				
Anisocentropus pyraloides	-	1	1	1
Ceraclea sp.	-	-	5	4
Cernotina sp.	-	-	-	1
Cheumatopsyche sp.	6	1	6	-
Hydroptila sp.	5	-	1	-
Nectopsyche pavida	-	-	-	1
Oecetis sphyra/morsei	1	1	2	-
Triaenodes perna/helo	-	-	1	-
Mollusca				
Bivalvia				
Corbicula fluminea	3	6	10	14
Sphaeriidae	1	-	-	-
Gastropoda				
Ancylidae	2	1	2	4
Elimia sp.	1	-	15	13
Lymnaeidae	-	1	-	-
Micromenetus sp.	-	-	1	-
Physa sp.	2	1	2	-

Appendix G-2

Qualitative benthic macroinvertebrate taxa list and number of individuals counted from 20-discrete-dipnet sweeps conducted upstream and downstream of Noma WWTP on 3/7/12.

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Annelida				
Oligochaeta				
Branchiobdella	-	1	-	-
Eclipidrilus sp.	-	-	3	1
Enchytraeidae	2	1	-	6
Lumbriculidae	1	-	-	-
Lumbriculus sp.	-	1	-	-
Megascolecidae	-	-	-	2
Tubificidae	1	-	1	-
Arthropoda				
Arachnida				
Acariformes				
Arrenurus sp.	1	-	-	-
Geayia sp.	-	-	2	-
Lebertia sp.	-	-	1	3
Mideopsis sp.	-	-	-	2
Sperchonopsis sp.	-	1	1	-
Crustacea				
Amphipoda				
Amphipoda	1	-	-	-
Decapoda				
Cambaridae	-	3	-	-
Isopoda				
Caecidotea sp.	2	-	-	-
Isopoda	2	-	-	-
Lirceus sp.	17	16	3	1
Insecta				
Coleoptera				
Ancyronyx variegatus	1	1	1	3
Cantharidae	-	-	-	1
Dineutus sp.	2	-	-	-
Dubiraphia vittata	-	2	1	4
Elmidae	-	-	-	2
Helichus fastigiatus	2	1	-	-
Hydrophilidae	-	-	1	-
Macronychus glabratus	2	4	3	5
Microcylloepus pusillus	-	1	2	-
Sperchopsis tessellatus	-	2	-	-
Stenelmis sp.	-	1	2	-
Tenebrionidae	-	1	-	-
Diptera				
Ablabesmyia sp.	1	-	-	-
Ablabesmyia mallochi	3	-	-	1
Ablabesmyia rhamphe grp.	-	-	-	1
Atrichopogon sp.	1	-	-	-

Appendix G-2 (continued)

	Control Site		Test Site	
	Rep 1	Rep 2	Rep 1	Rep 2
Cecidomyiidae	-	-	1	1
Ceratopogonidae	-	1	-	-
Chironomidae	2	4	1	-
Dicrotendipes neomodestus	-	-	1	1
Djalmabatista pulcher	-	-	2	-
Hemerodromia sp.	3	3	-	1
Labrundinia sp.	1	-	-	2
Labrundinia pilosella	1	2	-	1
Micropsectra sp. D Epler	2	3	-	1
Microtendipes pedellus grp.	1	-	2	-
Nanocladius sp.	-	1	-	-
Palpomyia/bezzia grp.	-	-	1	-
Paramerina sp.	-	1	4	2
Parametriocnemus sp.	-	1	-	-
Phaenopsectra punctipes grp.	2	-	2	-
Platypeza sp.	-	-	1	-
Polypedilum sp.	-	-	-	1
Polypedilum aviceps	8	8	8	9
Polypedilum flavum	1	1	-	1
Polypedilum halterale grp.	-	1	-	-
Polypedilum illinoense grp.	-	-	1	-
Polypedilum scalaenum grp.	-	1	-	1
Rheotanytarsus exiguus grp.	2	2	1	1
Rheotanytarsus pellucidus	2	1	-	1
Sciaridae	-	1	-	-
Simulium sp.	7	5	6	7
Stelechomyia perpulchra	1	-	-	-
Stenochironomus sp.	1	-	1	-
Tanytarsus sp. A Epler	-	1	-	-
Tanytarsus sp. C Epler	1	-	-	-
Tanytarsus sp. L Epler	1	-	-	-
Tanytarsus sp. M Epler	-	2	-	-
Thienemannimyia grp.	2	-	2	3
*Tipula*sp.	-	1	-	-
Ephemeroptera				
Acentrella sp.	3	4	-	1
Baetidae	6	7	13	7
Baetis intercalaris	5	3	-	1
Dannella simplex	4	4	-	-
Ephemerellidae	-	-	4	6
Ephemeroptera	-	1	-	-
Isonychia sp.	-	1	1	2
Leptophlebiidae	-	-	4	3
Maccaffertium exiguum	2	1	3	1
Maccaffertium smithae	9	6	5	5
Pseudocloeon propinquum	4	7	1	1
Stenacron sp.	-	1	-	-
Teloganopsis deficiens	2	3	3	1

Appendix G-2 (continued)

		Control Site		Test Site	
		Rep 1	Rep 2	Rep 1	Rep 2
	Megaloptera				
	Climacia areolaris	-	-	-	1
	Corydalus cornutus	-	-	-	2
	Odonata				
	Argia sp.	-	-	-	2
	Plecoptera				
	Acroneuria abnormis	-	2	2	1
	Amphinemura nigritta	-	-	-	2
	Isoperla sp.	6	5	5	1
	Neoperla clymene	-	-	1	-
	Perlesta placida complex	2	9	1	3
	Taeniopteryx sp.	2	-	2	1
	Trichoptera				
	Anisocentropus pyraloides	-	1	1	1
	Cernotina sp.	-	-	-	1
	Ceraclea sp.	-	-	5	4
	Cheumatopsyche sp.	6	1	6	-
	Hydroptila sp.	5	-	1	-
	Nectopsyche pavida	-	-	-	1
	Oecetis sphyra/morsei	1	1	2	-
	Triaenodes perna/helo	-	-	1	-
Mollusca					
Bivalvia					
	Corbicula fluminea	3	6	10	14
	Sphaeriidae	1	-	-	-
Gastropoda					
	Ancylidae	2	1	2	4
	Elimia sp.	1	-	13	13
	Gastropoda	-	-	2	-
	Lymnaeidae	-	1	-	-
	Micromenetus sp.	-	-	1	-
	Physa sp.	2	1	2	-

The Priority Pollutants Analysis of the Noma WWTP effluent sampled on March 7, 2012, NPDES #FL0040207

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 4 0 2 0 7 11	12 1 2 0 3 0 7	# X	# S	# 1

Remarks

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Biological Analyses of the Noma WWTP effluent sampled on March 7, 2012, NPDES #FL0040207

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)

Transaction Code	NPDES NUMBER	YR/MO/DA	Insp Type	Inspector	Fac Type
1 N 2 5	3 F L 0 0 4 0 2 0 7 11	12 1 2 0 3 0 7	# S	# S	# 1

Remarks

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