Stantec

Field Report

Project:	City of Wasilla WWTP Pilot Study	Field Crew:	Jake Alward, John Marshall, Austin Badger
File:	204700415	Date:	June 16, 2017

Subsurface☒ Surface☒ Vegetation Plot☐

Reference: June Water Sampling Event

1.1 BACKGROUND

June sampling events took place on the 16th, 17th, 23rd and 24th. June 16th and 17th sample events sampled the SW1-SW18 surface water sites as well as an Effluent sample. June 23rd and 24th sample events sampled all monitoring well sites as well as Shaw's property. For surface water sampling, dipping and peristaltic pumping were used depending on the suitability of the method and sample site. For monitoring wells sampling with bailers and peristaltic pumping was used depending on the suitability of the method and monitoring well.

The June 16th and 17th sampling event weather was sunny with temperatures around 64 degrees Fahrenheit. The June 23rd and 24th sampling event weather was partly cloudy with temperatures around 61 degrees Fahrenheit.

The two new diffusers were opened on Monday June 8th, for a total of three diffusers discharging effluent into the wetland. More discussion on this is below.

1.2 SAMPLING EVENT HIGHLIGHTS

SURFACE

Flowing water was observed near SW11, SW12, SW14, and SW15. Said water was not particularly channelized and appeared to be meandering slowly around tussocks.

The stream coming out of the percolation bed bank seemed to be largely unchanged since flow to the percolation beds ceased.

NEW DIFFUSERS

The two new diffusers (6 & 7) were turned on June 8, 2020. The diffusers were observed that day and were revisited 24 hours later. Diffuser 7 spread the effluent as designed and effluent readily flowed into the wetland in a slow manner. Diffuser 6 is located in a slight depression and effluent needed to pool in the surrounding area before flowing into the wetland. After 24 hours, it was flowing into the wetland as designed. Effluent was tracked using conductivity rather than lab tests. This testing indicated that after approximately 24 hours the effluent moved about 200-250 ft into the wetland. It was also observed that the flow does not sheet flow into the wetland, but rather finds small streamlets that meander the wetland around the wetland vegetation.

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Reference: June Water Sampling Event

BERM

The berm has settled as much as 2 feet. However, at its lowest point, the top of the berm remains 2-3 feet above the ditch water level.

IMPROVEMENTS FOR FUTURE SAMPLING:

None

1.3 SAMPLE RESULT

The attached tables summarize detected analytes. All other were below detectable limits. Complete results can be found in the SGS reports.

Detectable Results Summary Table

June - 2020

Site ID	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	SW11	SW12
Date Collected	6/16/2020	6/16/2020	6/16/2020	6/16/2020	6/16/2020	6/16/2020	6/16/2020	6/17/2020	6/17/2020	6/17/2020	6/17/2020	6/17/2020
Time	12:07	12:27	12:44	14:50	15:08	14:33	13:50	12:05	11:55	11:41	12:35	13:01
Sample Type	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Water Temperature (°C)	5.3	10.4	12.2	14.6	9.7	14.8	13.1	9	13.9	13.8	8.3	11.6
Conductivity	275	761	902	723	541	621	527	248	571	512	257.4	337.4
pH	6.9	7.34	7.4	7.28	7.08	7.24	6.92	7.01	7.27	6.96	7.42	7.33
DO	6.95	1.7	8.3	4.82	4.31	1.31	1.36	2.54	2.83	1.11	1.63	1.48
Nitrate	ND(0.100)	ND(0.100)	ND(0.100)	1.43	0.298	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Nitrite	ND(0.100)	ND(0.100)	ND(0.100)	0.302	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Total Nitrate/Nitrite	ND(0.100)	ND(0.100)	ND(0.100)	1.73	0.395	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
TKN	2.72	22.5	26.8	8.66	4.47	6.12	ND(0.500)	ND(0.500)	6:57	22:19	ND(0.500)	ND(0.500)
Ammonia	1.76	23.7	26	7.74	3.1	4.44	ND(0.0500)	ND(0.0500)	3.62	1.26	ND(0.0500)	ND(0.0500)
Total P	0.11	1/2/1900	1/9/1900	1/0/1900	1/0/1900	1/1/1900	ND(0.0200)	ND(0.0200)	0.675	ND(0.0200)	ND(0.0200)	ND(0.0200)
BOD	ND(6.00)	2:09	9:36	ND(2.00)	ND(2.00)	1:55	5:31	ND(2.00)	6.39	3.23	2.02	ND(2.00)
FC	ND(2)	60	5	58	58	ND(2)	ND(2)	ND(2)	63	5	ND(2)	ND(10)
E. Coli	ND(1)	48	8	79	80	ND(1)	1	ND(1)	111	4	ND(1)	2
TC	687	2421	2421	2421	2421	2421	2421	1986	2420	2420	517	2421

Site ID	SW13	SW14	SW15	SW16	SW17	SW17.1	SW18	Eff	Shaw	B1	MW2	B3
Date Collected	6/17/2020	6/17/2020	6/17/2020	6/17/2020	6/17/2020	6/17/2020	6/17/2020	6/17/2020	6/24/2020	6/23/2020	6/23/2020	6/23/2020
Time	13:23	14:05	13:51	13:37	14:55	14:55	15:14	15:19	13:20	11:43	11:54	13:20
Sample Type	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Sub-surface	Sub-surface	Sub-surface
Water Temperature (°C)	13.1	8.9	9.1	3	10.8	10.8	10.9		10.4	6	3.5	5.1
Conductivity	431.2	334.2	266.5	200.9	403.4	403.4	428.2		252.5	167.2	143.9	181.7
pH	7.34	7.35	7.26	7.1	7.41	7.41	7.6		6.67	7.19	7.1	7.3
DO	1.99	2.62	3.2	4.54	5.6	5.6	7.86		0.96		2.66	6
Nitrate	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	0.817	0.821	0.94	18.2	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Nitrite	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	1.3	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Total Nitrate/Nitrite	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	0.842	0.847	0.972	19.5	ND	ND	ND	ND
TKN	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)	23.6	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)
Ammonia	ND(0.0500)	ND(0.0500)	ND(0.0500)	ND(0.0500)	ND(0.0500)	ND(0.0500)	0.138	17.1	ND(0.0500)	0.28	0.12	0.362
Total P	ND(0.0200)	ND(0.0200)	ND(0.0200)	ND(0.0200)	0.13	0.154	0.314	6.38	0.107			
BOD	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	2.22	ND(2.00)	2.85	51.9	ND(2.00)			
FC	69	2	110	ND(1)	12	10	100	217	18	ND(2)	ND(2)	ND(2)
E. Coli	90	ND(10)	102	ND(1)	14	14	20	240	4			
TC	2140	15530	727	172	1733	1553	866	2421	248			

Site ID	B4	MW6	MW8	MW10	B11	MW12	MW13
Date Collected	6/23/2020	6/23/2020	6/23/2020	6/23/2020	6/24/2020	6/24/2020	6/24/2020
Time	12:49	13:05	14:32	11:00	10:45	11:20	11:40
Sample Type	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Sub-surface
Water Temperature (°C)	4.5	3.2	4.1	3.5	3	3.5	3.2
Conductivity	351	141.2	151.5	303.2	282.1	145.1	148.1
pH	7.05	8.04	7.34	7.75	6.35	7.25	7.89
DO	12	0.77	1.8	0.59	1.48	0.5	1.3
Nitrate	1.46	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Nitrite	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Total Nitrate/Nitrite	1.46	ND	ND	ND	ND	ND	ND
TKN	ND(0.500)	ND(0.500)	5.31	ND(0.500)	ND(0.500)	ND(0.500)	ND(0.500)
Ammonia	ND(0.0500)	ND(0.0500)	0.244	ND(0.0500)	0.19	0.11	0.186
FC	ND(2)	ND(2)	ND(25)	ND(9)	ND(2)	ND(2)	ND(1)

Site ID	MW14a	MW15	MW16	MW17	MW20	MW20.1
Date Collected	6/24/2020	6/23/2020	6/24/2020	6/23/2020	6/24/2020	6/24/2020
Time	13:00	11:16	10:50	14:18	13:20	13:20
Sample Type	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Sub-surface	Sub-surface
Water Temperature (°C)		3	3.6	3	10.4	10.4
Conductivity		232.2	144.4	183.7	243.5	243.5
pH		7.07	7.75	7.06	6.46	6.46
DO		2.38	0.9	0.78		
Nitrate	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	0.605	0.583
Nitrite	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)	ND(0.100)
Total Nitrate/Nitrite	ND	ND	ND	ND	0.605	0.583
TKN	ND(0.500)	2.75	1.7	89.5	ND(0.500)	ND(0.500)
Ammonia	0.103	0.208	0.172	4.57	ND(0.0500)	ND(0.0500)
FC	ND(2)	ND(91)	ND(9)	ND(91)	ND(9)	100

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June Photo Log

Photo 1:
SW1 - 06/16/2020

Photo 4:
SW9 – 06/17/2020

Photo 2:
SW2 - 06/16/2020

Photo 5:
SW14 – 06/17/2020

Photo 3:
SW6 – 06/16/2020

Photo 6:
SW18 – 06/17/2020