EXHIBIT E

TETRA TE

November 17, 2021

Edward Fontanin
Brevard County Utility Services Department (BCUD)
2725 Judge Fran Jamieson Way Bldg A-213
Melbourne, Florida 32940-6605
Edward.Fontanin@brevardfl.gov

Reference: BCUD South Central Regional Wastewater Treatment Facility (WWTF)
DW Facility ID # FL0102679
OGC Case #21-0180

Dear Mr. Fontanin:

This letter is an update to the June 15, 2021 letter from Tetra Tech in response to the March 25, 2021 consent order from the Florida Department of Environmental Protection (DEP), and includes the assessment of Cells 1, 2, and 3 (Cell 4 was previously assessed).

On March 25, 2021 a consent order was entered into between DEP and Brevard County. The consent order identified water quality exceedances at the South Central Regional (SC) WWTF (the Site). The following water quality exceedances were identified at the SC WWTF:

- The outfall of the wetlands in the northwest corner of Cell 4 to the canal leading to the St. Johns River (WEP-1)
    - Total Nitrogen (TN)
    - Carbonaceous Biological Oxygen Demand (CBOD)
    - Total Suspended Solids (TSS)
- Discharge from the SC WWTF to the holding ponds (EFB-2)
    - Fecal Coliforms
    - TSS
- Two monitoring wells adjacent to the holding ponds, located to the north of the wetlands (MWC-5-SOD and MWC-6-SOD)
    - Fecal Coliforms

The consent order, in Order 5 a), required Brevard County to complete an evaluation to discover the cause or causes of the violations, and recommend corrective actions including applicable design modifications. Order 5 b) required an application to DEP within 60 days of the evaluation in Order 5 a) for design modifications to address the causes identified in Order 5 a). Order 5 c) required the construction of the permitted system outlined in Order 5 b) within 545 days of receipt of the permit.

Tetra Tech was asked to provide the required assessment outlined in Order 5 a) limited to the following:

- Discover the cause or causes of the violations; and

- Develop a list of recommended corrective actions.

Conversations with BCUD identified a spray event used to control cattails (*Typha* sp.) in the wetlands as a potential source of nitrogen and increased CBOD. The cattails and other vegetation were left in place and created decaying material, particularly within Cells 3 and 4. This conversation also identified that a temporarily failed filter screen caused the exceedances at EFB-2, and investigation of the EFB-2 exceedance was not required.

The June 15, 2021 letter outlined Tetra Tech's understanding of the system and the data collected at that time. Tetra Tech recommended the following remediation and mitigation options:

- Cease spraying of herbicide on cattail stands;
- Remove dead, decaying cattail stands;
- Herbicide spray monotypic areas of torpedo grass, allow to die back, then remove dead vegetation and underlying organic material;
- Adopt a mechanical removal plan for excess filamentous algae, cattails, dead vegetation, and underlying organic material, which may include cutting of plant material and should include removal and disposal of all cut or observed floating or sinking detritus;
- If nutrient exceedances continue, prepare a plan for the removal of muck from Cell 4, and evaluate the presence or absence of muck in Cells 1, 2, and 3, and then replant these areas with planting-zone appropriate and available vegetation from the original "Planting Plan;" and
- There are no recommended actions for fecal coliforms in MWC-5-SOD or MWC-6-SOD, since no human markers for fecal coliforms were identified, and bird markers were confirmed.

Subsequent to the June 15, 2021 letter, Tetra Tech was asked to evaluate all four cells for the presence of muck and invasive and nuisance species. This letter provides an update on this assessment of Cells 1 through 3 and includes the findings for Cell 4.

Survey of Muck Presence

Oceanside Solutions of Satellite Beach, Florida provided surveying and muck probing services to identify the presence or absence of muck in the accessible open water areas. On April 27, 2021, Oceanside Solutions arrived on site to collect muck thickness data from a small shallow draft boat in Cell 4. Cells 1, 2, and 3 were completed from October 13 to October 18, 2021. Survey grade real-time kinematic (RTK) global positioning system (GPS) equipment was used to identify the vertical and horizontal location of the hard bottom. A 1-inch diameter graduated polyvinyl chloride (PVC) push rod was used to identify the top of the muck and was pushed to the hard-bottom depth to determine the muck thickness.

Cells 1, 2, and 3 Muck Presence

Data were collected from a total of 523 points in Cells 1, 2, and 3. Muck thickness ranged from 0 to 0.9 feet thick, with an average thickness of 0.16 feet. A summary of the survey data is provided in Table 1. The maps summarizing the relative thickness of the muck are provided as Attachment 1. Based on the collected data, a total of 3,472; 8,894; and 5,352 cubic yards of muck is present in the open water area in the western portion of Cells 1, 2, and 3, respectively.

Cell 4 Muck Presence

Data were collected from a total of 119 points in Cell 4. Muck thickness ranged from 0.05 to 1.4 feet thick, with an average thickness of 0.32 feet. A summary of the survey data is provided in Table 2. The locations of the survey points, and maps summarizing the relative thickness of the muck are provided as Attachment 1. Based on the collected data, a total of 6,569 cubic yards of muck is present in the open water area in the western portion of Cell 4.

Biological Walkdown

On May 5, 2021, Tetra Tech mobilized to the site to conduct a biological walkdown at Cells 3 and 4 of the SC WWTF. On November 3, 2021, Cells 1 and 2 were completed.

The original planting plan outlined the herbaceous species that were to be installed onsite; however, it is unclear whether those plants were available for use from nurseries during the planting event. The table below details the list from the original planting plan. Those observed during the biological walkdown are denoted by an asterisk.

Scientific Name	Common Name
*Pontederia cordata**	Pickerelweed
*Sagittaria lancifolia**	Duck potato
Sagittaria latifolia	Arrowhead
*Scirpus validus**	Soft-stem bulrush
Cyperus articulatus	Jointed flatsedge
Scirpus olneyi	Olney's three square
*Zizania aquatica**	Wild rice
*Thalia geniculate**	Fire flag
Eleocharis spp.	Spikerush
Cladium jamaicense	Sawgrass
Najas guadalupensis	Bushy pondweed
*Ceratophyllum demersum**	Coontail

Other species in the table may have been present in the deeper water areas but were not observed from the bermed path locations.

Cells 3 and 4 (May 5, 2021)

The Dominant Vegetative Cover for Cells 3 and 4 is provided as Figure 1 and depicts the vegetative composition of the cells based on observations made during the biological walkdown. Cells 3 and 4 were observed from the bermed paths surrounding each of the cells. A total of 24 photo stations were established on the bermed perimeter of the collective cells and documented via GPS. Fourteen photo stations (Dominant Vegetative Cover Map, PS 1–14) were established at Cell 4 and ten (Dominant Vegetative Cover Map, PS 15–24) were established at Cell 3. A vegetative assessment was then conducted at each photo station to determine the approximate percent coverage of each species contributing to the Dominant Vegetative Cover Figure 1 enclosed with this memo. The dominant species observed included cattail (*Typha* sp.), duck potato, and pickerelweed. Cattail dominated both cells, with living and dead plants observed. The dead cattail covered approximately 12% of Cell 3 and 11% of Cell 4. Mixed and monotypic stands of cattail were observed in Cell 4, whereas the cattails in Cell 3

were solely monotypic stands. The green algae-like species was determined to be filamentous algae, observed in mats in the areas of open water in both cells. The increased presence of algae is likely due to the decaying material produced by the dead cattails. One area (approximately 0.7 acres) of torpedo grass (*Panicum repens*) was observed in Cell 4. According to the Florida Exotic Pest Plant Council Invasive Plant List, torpedo grass is considered a Category I invasive species.

During the biological walkdown, evidence of listed species was observed within the site. The tricolored heron (*Egretta tricolor*) and little blue heron (*Egretta caerulea*) were observed onsite, both of which are state-designated as Threatened. The federally-designated Threatened (due to similarity of appearance) American alligator (*Alligator mississippiensis*) was also observed. Other wildlife observed on-site can be found in Table 3.

Photos from the biological walkdown are provided as Attachment 2.

Cells 1 and 2 (November 3, 2021)

The Dominant Vegetative Cover for Cells 1 and 2 is provided as Figure 2 and depicts the results of the species observed during the biological walkdown. Cells 1 and 2 were observed from the bermed paths surrounding each of the cells. A total of 36 photo stations were established on the bermed perimeters of both cells and documented via GPS. Sixteen photo stations were established at Cell 1 and 20 were established at Cell 2. A vegetative assessment was then conducted at each photo station to determine the approximate percent coverage of each species, contributing to the Dominant Vegetative Species Figure 2 enclosed with this memo. The dominant species observed included cattail (*Typha sp.*) and bulrush (*Scirpus validus*). Cattail dominated both cells, with living and dead individuals observed. The cattail covered approximately 41.5% of Cell 1 and 22.23% of Cell 2. Mixed and monotypic stands of cattail were observed in Cell 2, whereas the cattails in Cell 1 were solely monotypic stands. According to the Florida Exotic Pest Plant Council Invasive Plant List, four species that occur on the site are considered a Category I invasive species: Brazilian pepper (*Schinus terebinthifolia*), cogon grass (*Imperata cylindrica*), torpedo grass (*Panicum repens*), and water primrose (*Ludwigia peruviana*). Additional plant species were observed during the biological walkdown but in limited quantities and are included in Table 4.

Photos from the biological walkdown are provided as Attachment 3.

Conclusions

The assumption entering the project was the spraying of the cattails and leaving them in the system to decay was the root cause of the effluent water quality exceedances at WEP-1. The spray event occurred on May 11, 2020.

Review of the historical effluent sampling data identified permit exceedances immediately following the spray event. The highest CBOD result in the sample set was in July and September 2020, with CBOD results exceeding the 3.75 mg/L monthly average permit limit in WEP-1 at concentrations of 5.15 and 4.11 mg/L, respectively. TN results slightly exceeded the 2.0 mg/L monthly average permit limit at a concentration of 2.1 mg/L. These water data indicate an increase in the CBOD and TN two and four months following the herbicide spraying event, and likely were the result of the decaying plant material. The presence or absence of filamentous algae is not known prior to the spray event; however, the presence of this algae is likely a response to the increase in nutrients in the system. The algae grow and take up the excess nutrients. This may be creating the rebalancing of nitrogen after September 2020. As the

plants continue to degrade and input nitrogen, the algae grow and take up that nitrogen. At some point in time, the algae will die off and sink to the bottom creating muck. A history of this practice has resulted in muck forming at the bottom of the open water area of Cell 4, and to a lesser extent in Cells 1, 2, and 3.

When water quality is good, sediments are a sink for nutrients. When water quality degrades, muck will flux nutrients into the water column and may be a source for nutrients. One of the main drivers for this is dissolved oxygen. Generally dissolved oxygen should be maintained at a level above 2 mg/L. Dissolved oxygen in the water column, as measured at WEP-1, remains well above the 2 mg/L threshold; however, dissolved oxygen at the sediment water interface, particularly overnight when oxygen is consumed and photosynthesis is not adding oxygen to the system, may dictate the role of the sediments to be a source for nutrients. While the volume of muck in the system is relatively low, the presence of muck throughout the measured area of Cell 4 is a potential for nutrient flux into the water column under poor water quality conditions.

Proposed Corrective Actions

Based on our understanding of the system and the data collected to date, Tetra Tech recommends the following remediation and mitigation options:

- Cease spraying of herbicide on cattail stands;
- Remove dead, decaying cattail stands;
- Herbicide spray monotypic areas of torpedo grass, allow to die back, then remove dead vegetation and underlying organic material;
- Adopt a mechanical removal plan for excess filamentous algae, cattails, dead vegetation, and underlying organic material, which may include cutting of plant material and should include removal and disposal of all cut or observed floating or sinking detritus; and
- Prepare a plan for the removal of muck from Cells 3 and 4 and replant the disturbed areas with planting-zone appropriate and available vegetation from the original "Planting Plan."

Should you have any questions or require additional information, please contact me at (321) 636-6470.

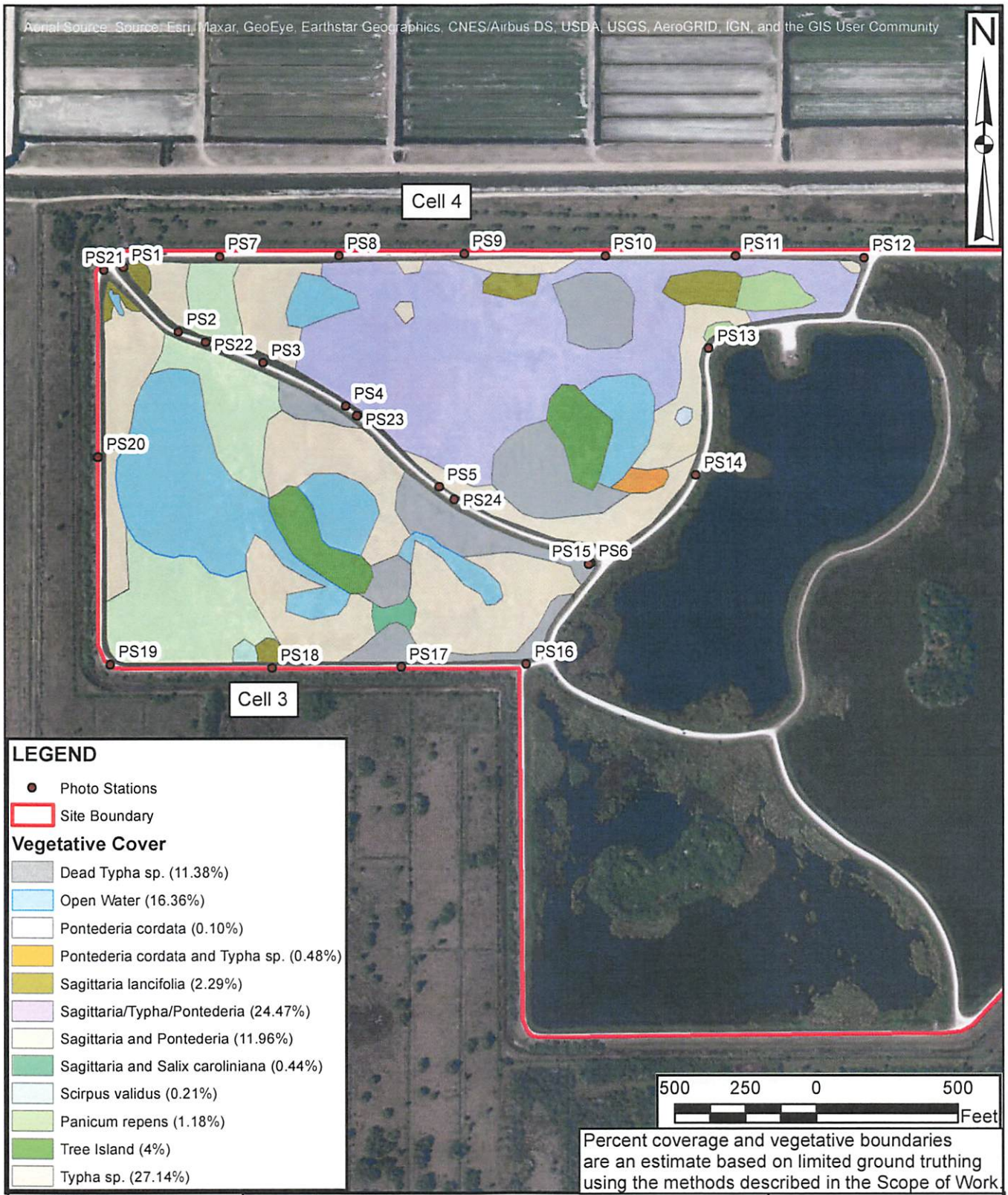
Sincerely,

Matthew Shelton
Project Manager

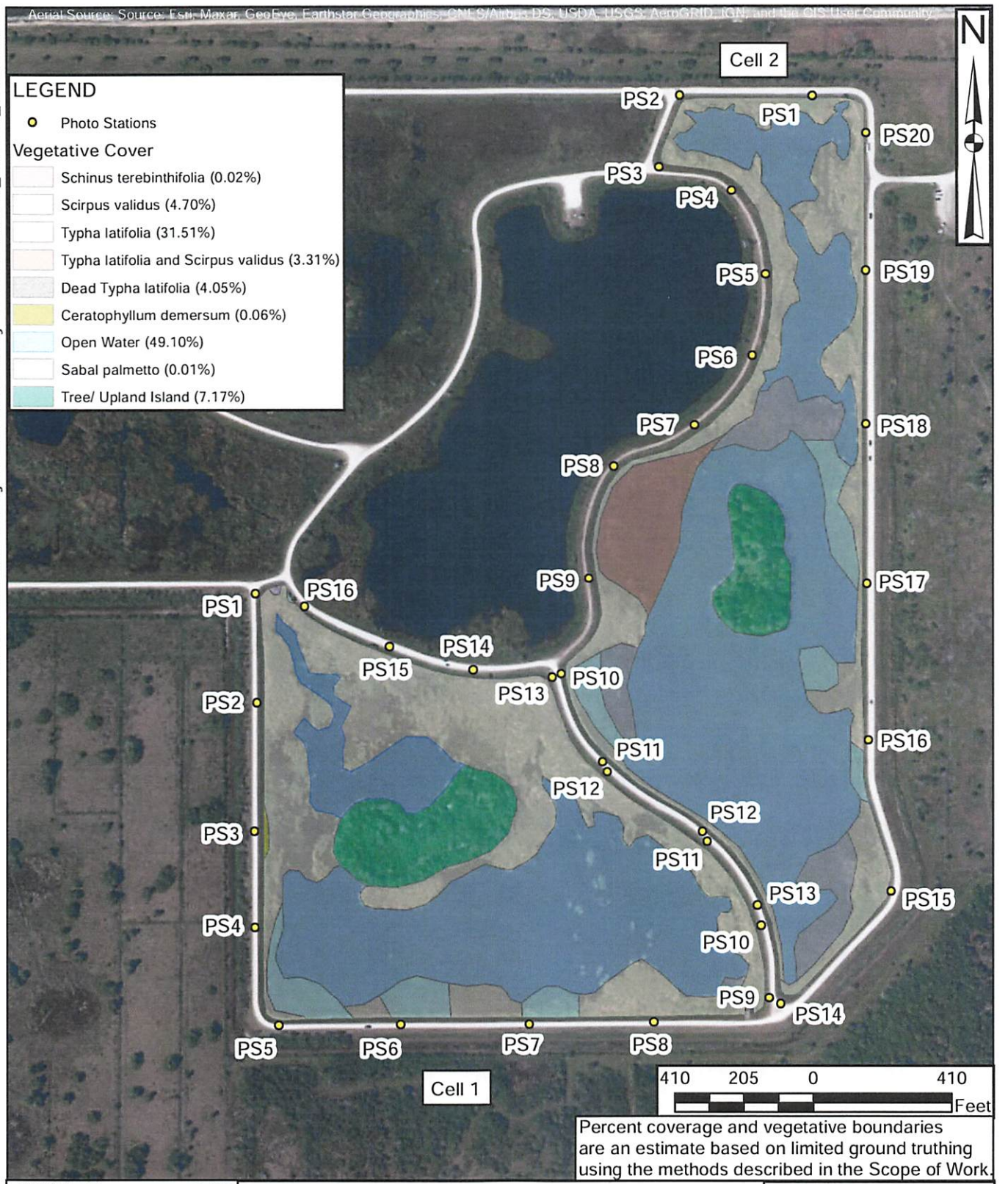
Attachments

FIGURES

Document Path: G:\Projects\Brevard County WWTF\GIS\Final_Brevard_WWTF.mxd



DRAWN BY N. BOTS	DATE 5/18/2021	TETRA TECH	CONTRACT NUMBER 100-WTR-T41397.01
CHECKED BY R. HEILMAN	DATE 5/18/2021	Dominant Vegetative Cover Brevard Wastewater Treatment Facility Brevard County, Florida	APPROVED BY H. CAROLAN DATE 5/18/2021
SCALE AS NOTED			FIGURE NO. 1



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DRAWN BY N. BOTS	DATE 11/9/2021	TETRA TECH	CONTRACT NUMBER 100-WTR-T41397.02
CHECKED BY R. HEILMAN	DATE 11/9/2021	Dominant Vegetative Cover Brevard Wastewater Treatment Facility Brevard County, Florida	APPROVED BY H. CAROLAN DATE 11/9/2021
SCALE AS NOTED			FIGURE NO. 2

TABLES

TABLE 1 - MUCK PROBING AND SURVEYING RESULTS - CELLS 1, 2, AND 3

Brevard County Utility Services - South Central Regional WWTF

Point No.	Easting	Northing	Elevatio (feet NAVD88)		Muck Thickness (feet)
			Top of Muck	Hard Bottome	
1	733239.78	1416093.18	21.86	21.71	0.15
2	733212.04	1416095.94	22.54	22.34	0.2
3	733212.04	1416095.94	22.54	22.44	0.1
4	733123.61	1416093.22	21.96	21.76	0.2
5	733088.78	1416091.09	21.83	21.73	0.1
6	733043.17	1416085.3	21.38	21.28	0.1
7	732971.41	1416088.99	21.93	21.73	0.2
8	732909.59	1416094.39	21.79	21.54	0.25
9	732869.73	1416072.73	21.37	21.07	0.3
10	732828.04	1416098.92	21.66	21.26	0.4
11	732772.48	1416089.93	21.55	21.05	0.5
12	732734.4	1416070.77	21.68	21.48	0.2
13	732717	1416033.33	21.88	21.68	0.2
14	732755.12	1416013.94	21.1	21	0.1
15	732704.23	1416003.31	21.85	21.65	0.2
16	732725.72	1415969.9	21.6	21.2	0.4
17	732726.48	1415939.3	21.96	21.76	0.2
18	732781.36	1415939.3	21.93	21.78	0.15
19	732778.59	1415983.62	21.44	21.34	0.1
20	732789.98	1416027.61	21.57	21.47	0.1
21	732795.26	1416064.18	21.49	21.39	0.1
22	732850.69	1416051.66	21.16	21.06	0.1
23	732863.1	1415999.77	21.36	21.16	0.2
24	732848.8	1415941.54	22	21.8	0.2
25	732889.39	1415907.94	22.44	22.34	0.1
26	732909.51	1415961.86	21.57	21.47	0.1
27	732923.02	1416032.41	21.61	21.51	0.1
28	732973.78	1416060.27	21.42	21.32	0.1
29	732972.62	1416011.6	20.98	20.78	0.2
30	732970.12	1415939.59	20.67	20.47	0.2
31	732952.27	1415832.82	22.23	22.08	0.15
32	733002.68	1415778.79	21.89	21.69	0.2
33	733013.17	1415717.34	22.13	21.98	0.15
34	733014.8	1415848.9	21.31	21.21	0.1
35	733026.3	1415938.26	21.17	21.07	0.1
36	733040.23	1415999.23	21.33	21.23	0.1
37	733031	1416062.04	21.12	21.02	0.1
38	733080.38	1416065.62	21.38	21.28	0.1
39	733090.33	1416004.72	21.27	21.17	0.1
40	733082.52	1415939.79	21.23	21.13	0.1
41	733093	1415848.08	20.75	20.55	0.2
42	733109.63	1415812.26	21.46	21.36	0.1
43	733119.67	1415771.44	21.96	21.71	0.25

Point No.	Easting	Northing	Elevatio (feet NAVD88)		Muck Thickness (feet)
			Top of Muck	Hard Bottome	
44	733124.47	1415712.68	21.49	21.19	0.3
45	733126.08	1415655.51	21.41	21.26	0.15
46	733126.71	1415599.93	21.26	21.06	0.2
47	733129.67	1415546.62	21.48	21.38	0.1
48	733126.18	1415510.52	21.2	21.1	0.1
49	733121.55	1415470.67	21.34	21.14	0.2
50	733121.69	1415394.83	21.17	21.12	0.05
51	733065.54	1415348.56	21.46	21.36	0.1
52	732982.56	1415301.81	21.24	21.14	0.1
53	732919.34	1415245.7	21.6	21.5	0.1
54	732845.17	1415169.45	22.01	21.81	0.2
55	732815.36	1415118.9	22.06	21.86	0.2
56	732742.99	1415086.9	22.07	21.57	0.5
57	732719	1414993.31	20.99	20.89	0.1
58	732734.26	1414909.02	21.23	21.18	0.05
59	732752.52	1414832.72	19.25	19.2	0.05
60	732730.45	1414755.6	20.69	20.59	0.1
61	732708.64	1414689.88	21.63	21.58	0.05
62	732674.04	1414615.71	20.81	20.71	0.1
63	732623.97	1414551.84	20.77	20.62	0.15
64	732542.33	1414593.62	20.99	20.89	0.1
65	732631.2	1414482.04	20.16	20.01	0.15
66	732606.1	1414383.65	20.25	20.1	0.15
67	732614.4	1414272.99	20.55	20.5	0.05
68	732577.44	1414188.87	21.16	21.01	0.15
69	732666.91	1414090.58	20.57	20.57	0
70	732731.65	1414158.27	20.57	20.52	0.05
71	732799.5	1414305.66	20.52	20.42	0.1
72	732819.51	1414421.26	20.52	20.37	0.15
73	732845.26	1414537.26	20.85	20.6	0.25
74	732763.74	1414616	20.98	20.58	0.4
75	732805.99	1414707.74	20.18	19.98	0.2
76	732850.97	1414796.5	19	18.7	0.3
77	732840.61	1414955.81	20.4	20.2	0.2
78	732940.99	1415068.96	20.64	20.54	0.1
79	733041.15	1415086.2	20.28	20.23	0.05
80	733121.61	1415091.93	20.27	20.12	0.15
81	733195.41	1415153.42	21.66	21.61	0.05
82	733219.5	1415247.51	21.29	21.24	0.05
83	733157.8	1415312.95	21.68	21.38	0.3
84	733190.36	1415442.08	21.52	21.42	0.1
85	733203.18	1415497.33	21.52	21.37	0.15
86	733217.26	1415599.36	21.14	20.99	0.15
87	733228.52	1415720.13	21.2	21.05	0.15
88	733236.03	1415794.45	21.77	21.57	0.2

Point No.	Easting	Northing	Elevatio (feet NAVD88)		Muck Thickness (feet)
			Top of Muck	Hard Bottome	
89	733236.79	1415873.08	21.74	21.44	0.3
90	733234.93	1415942.54	21.67	21.52	0.15
91	733225.51	1416017.46	21.23	20.98	0.25
92	733172.8	1415986.52	21.79	21.69	0.1
93	733167.72	1415911.5	21.75	21.5	0.25
94	733157.47	1415827.11	20.72	20.47	0.25
95	730798.61	1414725.68	20.49	20.19	0.3
96	730802.72	1414758.6	19.85	19.7	0.15
97	730840.88	1414773.5	19.59	19.49	0.1
98	730872.4	1414784.09	19.86	19.76	0.1
99	730835.76	1414795.18	19.65	19.25	0.4
100	730841.31	1414820	21.02	20.72	0.3
101	730803.07	1414818.63	20.19	19.89	0.3
102	730783.17	1414847.37	20.49	20.19	0.3
103	730752.54	1414830.67	21.15	20.75	0.4
104	730789.42	1414817.78	20.88	20.78	0.1
105	730780.93	1414793.48	20.08	19.93	0.15
106	730778.03	1414772.3	19.99	19.89	0.1
107	730792.89	1414758.68	20.18	19.98	0.2
108	733224.15	1415432.74	21.94	21.64	0.3
109	733248.87	1415367.88	22.1	22	0.1
110	733244.81	1415250.07	21.57	21.52	0.05
111	733246.97	1415150.29	21.74	21.64	0.1
112	733238.17	1415029.17	21.34	21.24	0.1
113	733236.64	1414924.39	21.29	20.79	0.5
114	733220.41	1414848.79	22.13	21.93	0.2
115	733250.29	1414781.81	21.64	21.14	0.5
116	733202.95	1414782.91	22.16	22.06	0.1
117	733157.36	1414742.63	20.56	20.26	0.3
118	733153.55	1414670	20.7	20.6	0.1
119	733247.86	1414647.84	21.07	20.97	0.1
120	733240.96	1414546.39	21.41	21.36	0.05
121	733138.24	1414582.37	20.27	20.22	0.05
122	733127.65	1414482.96	20.45	20.35	0.1
123	733230.62	1414493.2	21.35	21.25	0.1
124	733236.08	1414411.56	21.15	21.1	0.05
125	733193.44	1414368.22	20.9	20.8	0.1
126	733235.64	1414281.98	21.09	20.99	0.1
127	733147.97	1414285.42	20.96	20.86	0.1
128	733135.04	1414215.6	20.87	20.72	0.15
129	733243.77	1414200.86	21.13	21.03	0.1
130	733107.02	1414158.15	20.88	20.63	0.25
131	733215.25	1414126.91	21.32	21.17	0.15
132	733125.65	1414055.28	21	20.9	0.1
133	733242.54	1414046.05	21.14	21.04	0.1

Point No.	Easting	Northing	Elevatio (feet NAVD88)		Muck Thickness (feet)
			Top of Muck	Hard Bottome	
134	733279.71	1413975.97	20.51	20.31	0.2
135	733234.32	1413963.13	21.12	21.02	0.1
136	733207.48	1413902.53	20.94	20.89	0.05
137	733298.28	1413899.55	20.83	20.78	0.05
138	733309.12	1413852.61	21.25	21.15	0.1
139	733299.36	1413794.27	21.26	21.01	0.25
140	733255.04	1413741.22	21.11	20.81	0.3
141	733214.13	1413685.83	20.88	20.73	0.15
142	733161.08	1413667.53	20.79	20.59	0.2
143	733138.21	1413617.64	21.43	21.33	0.1
144	733205.88	1413743.2	20.47	20.27	0.2
145	733200.25	1413796.69	20.92	20.82	0.1
146	733253.45	1413794.24	21.11	20.96	0.15
147	733165.58	1413825.47	20.75	20.4	0.35
148	733119.93	1413749.25	20.68	20.43	0.25
149	733088.09	1413685.85	21.06	20.66	0.4
150	733064.9	1413664.08	21.11	20.86	0.25
151	733049.64	1413629.72	20.77	20.47	0.3
152	733074.86	1413583.6	21.31	21.11	0.2
153	733077.39	1413511.87	21.51	21.01	0.5
154	733033.08	1413510.18	21.12	20.77	0.35
155	733043.83	1413567.29	20.58	19.93	0.65
156	733019.87	1413620.35	21.17	20.92	0.25
157	733039.94	1413664.59	20.78	20.48	0.3
158	733050.29	1413728.98	20.99	20.74	0.25
159	733053.61	1413816.29	21	20.9	0.1
160	733016.86	1413884.01	20.97	20.87	0.1
161	732957.47	1413949.79	21.1	21.05	0.05
162	732917.83	1413994.39	21.17	20.92	0.25
163	732861.71	1414025.37	21.48	21.33	0.15
164	732826.29	1414063.68	20.8	20.7	0.1
165	732781.04	1414108.18	20.87	20.77	0.1
166	732741.09	1414042.89	20.91	20.46	0.45
167	732787.25	1414005.52	20.77	20.27	0.5
168	732859.35	1413934.78	21.82	21.32	0.5
169	732911.8	1413880.17	21.25	20.75	0.5
170	732944.68	1413827.79	21.34	21.14	0.2
171	732971.71	1413770.97	21.62	21.47	0.15
172	733007.03	1413728.47	20.55	20.25	0.3
173	733097.59	1413880.4	20.81	20.66	0.15
174	733154.52	1413910.76	20.49	20.44	0.05
175	733083.61	1413951.5	20.93	20.78	0.15
176	733077.46	1414051.47	21.18	20.88	0.3
177	733080.9	1414140.21	20.96	20.86	0.1
178	733083.11	1414226.62	20.96	20.86	0.1

Point No.	Easting	Northing	Elevatio (feet NAVD88)		Muck Thickness (feet)
			Top of Muck	Hard Bottome	
179	733085.06	1414349.91	20.95	20.85	0.1
180	733128.37	1414465.53	20.29	20.29	0
181	733134.38	1414590.46	20.23	20.18	0.05
182	733132.77	1414698.81	20.2	19.8	0.4
183	733125.94	1414836.32	19.88	19.58	0.3
184	733147.37	1414883.38	21.16	21.06	0.1
185	733159.72	1414829.03	22.03	21.78	0.25
186	733171.48	1414958.49	21.27	21.17	0.1
187	733178.07	1415003.8	21.34	20.79	0.55
188	733137.19	1415044.57	20.5	20.45	0.05
189	733058.42	1415187.95	20.46	20.46	0
190	733063.42	1415135.53	20.58	20.38	0.2
191	733008.18	1415168.23	20.82	20.82	0
192	732947.79	1415160.79	21.04	20.74	0.3
193	732911.88	1415141.63	20.63	20.53	0.1
194	732895.96	1415022.83	21.09	20.79	0.3
195	732952.63	1415032.91	20.38	20.18	0.2
196	732989.6	1415001.03	21.75	21.65	0.1
197	733008.39	1414964.22	21.67	21.47	0.2
198	733028.57	1414932.21	20.08	19.83	0.25
199	733103.9	1414999.03	20.06	19.91	0.15
200	733056.57	1414861.68	20.42	20.02	0.4
201	733052.38	1414793.04	20.19	19.84	0.35
202	733069.97	1414709.02	20.47	20.37	0.1
203	733076.15	1414642.15	20.21	19.66	0.55
204	733062.37	1414571.19	20.36	20.01	0.35
205	733040.26	1414538.17	20.05	19.75	0.3
206	732986.48	1414527.15	19.6	19.45	0.15
207	732937.49	1414529.41	19.84	19.84	0
208	732884.39	1414528.33	20.08	20.08	0
209	732926.76	1414466.23	19.74	19.69	0.05
210	732809.21	1414129.03	20.16	20.11	0.05
211	732835.99	1414116.88	19.75	19.7	0.05
212	732932.34	1414064.25	20.54	20.44	0.1
213	732934.6	1414133.2	20.97	20.92	0.05
214	732939.99	1414168.85	20.42	20.17	0.25
215	732948.05	1414228.17	20.82	20.72	0.1
216	732887.88	1414250.64	20.9	20.8	0.1
217	732891.2	1414195.72	19.62	19.47	0.15
218	732972.69	1414322.74	20.54	20.44	0.1
219	732972.48	1414396.17	19.84	19.79	0.05
220	732940.52	1414435.96	19.98	19.88	0.1
221	732898.71	1414354.38	21.05	21	0.05
222	732992.76	1414138.15	20.61	20.56	0.05
223	733015.52	1414297.59	20.83	20.73	0.1

Point No.	Easting	Northing	Elevatio (feet NAVD88)		Muck Thickness (feet)
			Top of Muck	Hard Bottome	
224	733030.43	1414396.88	19.97	19.87	0.1
225	733049.32	1414488.81	19.56	19.51	0.05
226	733194.02	1415082.19	21.47	21.37	0.1
227	733156.62	1415254.79	21.24	21.19	0.05
228	733094.96	1415261.38	20.96	20.86	0.1
229	733052.69	1415317.83	21.1	21.1	0
230	732230.16	1413498.87	19.7	19.55	0.15
231	732186.75	1413518.47	19.6	19.6	0
232	732151.01	1413535.74	18.95	18.75	0.2
233	732101.18	1413483.83	19.73	19.63	0.1
234	732095.03	1413530.79	19.27	19.17	0.1
235	732046.1	1413538	20.13	20.13	0
236	731978.48	1413551.36	20.03	19.98	0.05
237	731930.86	1413552.69	20.41	20.36	0.05
238	731869.89	1413537.05	20.53	20.43	0.1
239	731832.28	1413514.75	20.29	20.04	0.25
240	731843.87	1413466.96	19.85	19.6	0.25
241	731801.05	1413440.88	19.21	19.21	0
242	731764.43	1413444.8	19.04	18.84	0.2
243	731719.25	1413467.85	20.19	19.94	0.25
244	731682.35	1413543.66	20.34	20.19	0.15
245	731623.81	1413576.4	20.27	20.22	0.05
246	731570.22	1413550.57	20.19	19.84	0.35
247	731575.98	1413603.9	20.44	20.04	0.4
248	731599.76	1413675.31	19.67	19.57	0.1
249	731507.48	1413552.3	20.72	20.62	0.1
250	731654.11	1413712.64	20.32	20.12	0.2
251	731694.27	1413781.36	20.54	20.49	0.05
252	731729.58	1413826.87	20.12	20.07	0.05
253	731689.79	1413866.17	19.4	19.3	0.1
254	731753.28	1413805.83	20.23	20.08	0.15
255	731740.79	1413751.48	20.34	20.14	0.2
256	731777.76	1413714.5	20.4	20.25	0.15
257	731844.66	1413693	19.83	19.78	0.05
258	731924.27	1413684.82	20.4	20.2	0.2
259	731980.31	1413689.22	20.29	20.14	0.15
260	732031.13	1413749.97	20.03	20.03	0
261	732065.44	1413810.2	19.96	19.71	0.25
262	732125.68	1413797.99	20.26	20.21	0.05
263	732132.73	1413849.99	20.45	20.45	0
264	732200.83	1413793.79	19.71	19.51	0.2
265	732273.47	1413808.48	20.51	20.41	0.1
266	732309.92	1413843.6	20.53	20.28	0.25
267	732344.43	1413890.24	20.07	19.77	0.3
268	732391.7	1413897.52	20.46	20.26	0.2

Point No.	Easting	Northing	Elevatio (feet NAVD88)		Muck Thickness (feet)
			Top of Muck	Hard Bottome	
269	732424.52	1413860.82	20.21	19.96	0.25
270	732452	1413828.9	20.29	20.29	0
271	732419.32	1413791.11	20.27	19.97	0.3
272	732370.54	1413757.68	20.54	20.49	0.05
273	732387.4	1413713.1	19.47	19.07	0.4
274	732412.81	1413685.04	20.16	20.11	0.05
275	732383.72	1413649.22	19.58	19.48	0.1
276	732407.68	1413607.53	20.57	20.37	0.2
277	732408.01	1413570.63	20.49	20.44	0.05
278	732453.06	1413502.36	20.55	20.45	0.1
279	732411.72	1413507.23	20.7	20.5	0.2
280	732370.21	1413530.96	20.64	20.34	0.3
281	732318.1	1413510.41	20.44	20.44	0
282	732273.75	1413491.17	19.99	19.79	0.2
283	732238.96	1413468.42	20.09	19.84	0.25
284	732242.17	1413432.51	20.37	20.17	0.2
285	732304.17	1413564.55	20.34	20.19	0.15
286	732288.03	1413657.21	20.2	20.2	0
287	732307.19	1413773.12	20.46	20.36	0.1
288	732194.59	1413777.99	19.58	19.48	0.1
289	732215.99	1413686.29	19.12	18.97	0.15
290	732273.3	1413572.67	19.95	19.85	0.1
291	732189.14	1413574.44	18.48	18.43	0.05
292	732178.28	1413704.49	19.64	19.64	0
293	732136.9	1413764.51	19.86	19.76	0.1
294	732098.06	1413709.66	19.94	19.69	0.25
295	732142.45	1413601.54	18.52	18.42	0.1
296	732045.25	1413551.76	20.11	20.01	0.1
297	732026.1	1413673.48	20.16	20.01	0.15
298	731986.23	1413603.78	19.95	19.75	0.2
299	731930.01	1413632.04	19.97	19.92	0.05
300	731874.32	1413560.15	20.4	20.3	0.1
301	731793.65	1413537.56	20.38	20.18	0.2
302	731779.22	1413670.93	20.17	20.07	0.1
303	731698.21	1413680.64	20.25	20.2	0.05
304	731706.69	1413579.26	19.97	19.92	0.05
305	731648.8	1413653.92	19.93	19.73	0.2
306	732446.65	1413592.92	20.17	20.07	0.1
307	732476.98	1413626.23	19.99	19.79	0.2
308	732583.96	1413623.07	20.7	20.5	0.2
309	732537.08	1413594.44	20.33	20.23	0.1
310	732479.92	1413693.47	20.05	20	0.05
311	732536.74	1413760.89	19.73	19.63	0.1
312	732503.29	1413766.67	20.63	20.43	0.2
313	732522.31	1413818.77	20	19.9	0.1

Point No.	Easting	Northing	Elevatio (feet NAVD88)		Muck Thickness (feet)
			Top of Muck	Hard Bottome	
314	732496.4	1413854.5	20.1	19.95	0.15
315	732484.03	1413915.41	20.34	20.24	0.1
316	732514.98	1413965.2	20.39	20.34	0.05
317	732545.63	1413892.64	20.05	19.95	0.1
318	732599.61	1413887.69	19.83	19.78	0.05
319	732607.02	1413923.16	20.14	19.99	0.15
320	732639.49	1413905.39	20.24	20.24	0
321	732655.13	1413891.01	20.43	20.38	0.05
322	732707.51	1413854.04	20.37	20.12	0.25
323	732746.74	1413788.61	20.64	20.44	0.2
324	732782.21	1413761.66	20.38	20.28	0.1
325	732835.53	1413741.64	20.8	20.7	0.1
326	732807.03	1413701.89	20.54	20.49	0.05
327	732784.69	1413666.94	20.55	20.35	0.2
328	732815.45	1413613.19	20.76	20.36	0.4
329	732841.31	1413572.41	20.72	20.52	0.2
330	732880.84	1413548.85	21.01	20.81	0.2
331	732822.55	1413520.66	20.94	20.74	0.2
332	732778.31	1413494.1	20.64	20.54	0.1
333	732735.93	1413521.04	20.57	20.52	0.05
334	732708.62	1413569.7	20.62	20.52	0.1
335	732670.89	1413603.97	20.73	20.63	0.1
336	732677.59	1413658.75	20.33	20.18	0.15
337	732658.29	1413711.46	20.36	20.26	0.1
338	732618.85	1413700.39	20.6	20.5	0.1
339	732593.03	1413775.69	19.68	19.63	0.05
340	732648.21	1413814.19	19.62	19.57	0.05
341	732715.35	1413762.07	20.48	20.38	0.1
342	732742.56	1413701.94	20.58	20.38	0.2
343	732770.53	1413619.8	20.88	20.68	0.2
344	732780.03	1413557.53	20.53	20.48	0.05
345	732720.91	1413634.42	20.28	19.68	0.6
346	732662.94	1413728.08	20.25	20.25	0
347	730192.84	1414712.59	22.2	22.1	0.1
348	730186.28	1414728	20.6	20.55	0.05
349	730212.89	1414732.72	19.98	19.88	0.1
350	730252.6	1414735.7	20.11	20.06	0.05
351	730273.06	1414766.75	19.65	19.55	0.1
352	730303.59	1414806.7	20	19.9	0.1
353	730291.71	1414849.78	19.75	19.65	0.1
354	730311.18	1414773.42	19.78	19.48	0.3
355	730299.97	1414739.51	19.8	19.5	0.3
356	730336.87	1414738.73	20.01	19.91	0.1
357	730346.91	1414764.09	20.34	19.84	0.5
358	730365.78	1414767.28	20.32	20.22	0.1

Point No.	Easting	Northing	Elevatio (feet NAVD88)		Muck Thickness (feet)
			Top of Muck	Hard Bottome	
359	730327.88	1414803.41	19.79	19.19	0.6
360	730372.69	1414831.19	20.61	20.41	0.2
361	730405.3	1414865.93	20.38	19.98	0.4
362	730449.06	1414881.64	20.9	20.6	0.3
363	730110.7	1414723.49	20.54	20.34	0.2
364	730088.23	1414724.66	20.4	20.1	0.3
365	730125.86	1414731.15	20.07	19.97	0.1
366	730147.75	1414737.73	20.65	20.55	0.1
367	730152.94	1414769.56	20.22	19.92	0.3
368	730156.68	1414802.17	19.68	19.28	0.4
369	730192.88	1414809.24	19.25	18.65	0.6
370	730217.56	1414800.39	19.4	19.2	0.2
371	730221.84	1414825.67	20.34	20.14	0.2
372	730233.53	1414835.69	19.83	19.53	0.3
373	730212.51	1414866.12	19.39	18.99	0.4
374	730178.82	1414852.02	19.82	19.77	0.05
375	730150.67	1414858.6	19.92	19.67	0.25
376	730117.51	1414825.11	20.23	20.03	0.2
377	730123.63	1414844.98	19.87	19.77	0.1
378	730103.78	1414872.03	20.15	20.05	0.1
379	730070.63	1414879.96	19.68	19.43	0.25
380	730043.08	1414889.85	19.51	19.51	0
381	730046.71	1414909.5	19.56	19.46	0.1
382	730043.1	1414938.12	19.41	19.31	0.1
383	730026.5	1414933.62	19.26	19.16	0.1
384	730012.41	1414957.11	19.46	19.36	0.1
385	730044.69	1414970.05	19.35	19.15	0.2
386	730075.66	1414937.93	19.53	18.93	0.6
387	730104.61	1414944.01	19.69	18.79	0.9
388	730108.87	1414985.86	19.55	19.25	0.3
389	730085.24	1415010.16	20.19	19.99	0.2
390	730074.83	1415059.06	19.71	19.61	0.1
391	730052.07	1415091.1	19.26	19.06	0.2
392	730082.9	1415105.75	19.37	19.37	0
393	730121.12	1415078.12	19.11	18.71	0.4
394	730131.4	1415036.7	18.99	18.89	0.1
395	730159.71	1415052.78	19.53	19.43	0.1
396	730183.23	1415046.57	19.39	19.19	0.2
397	730202.85	1415021.42	19.24	19.04	0.2
398	730196.97	1414979.84	19.43	19.13	0.3
399	730201.8	1414945.94	19.37	18.87	0.5
400	730233.97	1414962.65	19.54	19.34	0.2
401	730248.43	1415008.51	19.1	18.9	0.2
402	730261.2	1415043.02	18.87	18.77	0.1
403	730233.98	1415073.2	20.06	19.76	0.3

Point No.	Easting	Northing	Elevatio (feet NAVD88)		Muck Thickness (feet)
			Top of Muck	Hard Bottome	
404	730284.3	1415068.03	19.47	19.37	0.1
405	730312.59	1415115.09	19.19	18.89	0.3
406	730324.32	1415152.38	19.16	19.06	0.1
407	730365.52	1415155.72	19.72	19.42	0.3
408	730400.13	1415136.33	20.31	19.81	0.5
409	730427.29	1415099.37	19.45	19.25	0.2
410	730448.9	1415045.52	20.16	19.96	0.2
411	730486.4	1415015.15	19.63	19.43	0.2
412	730465.29	1415001.69	19.78	19.58	0.2
413	730419.98	1414995.8	20	19.7	0.3
414	730398.9	1415008.08	20.03	19.63	0.4
415	730376.81	1415019.82	19.35	19.15	0.2
416	730368.62	1414981.04	19.66	19.36	0.3
417	730389.25	1414945.22	20.13	19.93	0.2
418	730356.44	1414924.48	19.84	19.64	0.2
419	730351.82	1414965.05	19.27	19.02	0.25
420	730334.53	1415007.11	19.28	19.23	0.05
421	730326.45	1415043.94	19.79	19.69	0.1
422	730310.7	1415096.24	19.1	18.95	0.15
423	730281.36	1415148.63	19.01	18.91	0.1
424	730207.18	1415144.04	18.37	18.32	0.05
425	730147.62	1415151.58	19.29	19.19	0.1
426	730142.16	1415191.89	18.92	18.67	0.25
427	730122.14	1415232.39	19.22	19.07	0.15
428	730096.1	1415253.99	18.89	18.59	0.3
429	730074.65	1415300.32	18.91	18.71	0.2
430	730061.82	1415311.58	19.5	19.3	0.2
431	730047.74	1415317.23	19.3	19	0.3
432	730032.87	1415300.77	19.65	19.3	0.35
433	730036.76	1415355.09	19.55	19.35	0.2
434	730048.51	1415407.44	19.01	18.86	0.15
435	730047.15	1415440.47	19.17	19.07	0.1
436	730021.69	1415446.84	19.82	19.77	0.05
437	730089.52	1415383.17	19.12	19.12	0
438	730116.76	1415428.41	19.12	19.07	0.05
439	730117.8	1415484.56	19.38	19.33	0.05
440	730130.22	1415537.33	19.41	19.11	0.3
441	730146.46	1415586.42	19.79	19.74	0.05
442	730145.37	1415635.24	19.59	19.59	0
443	730148.87	1415680.01	20.26	20.16	0.1
444	730135.2	1415712.94	19.59	19.49	0.1
445	730135.22	1415742.6	19.28	19.18	0.1
446	730136.58	1415780.04	19.29	19.14	0.15
447	730106.7	1415721.7	20.01	19.91	0.1
448	730102.09	1415696.87	19.85	19.55	0.3

Point No.	Easting	Northing	Elevatio (feet NAVD88)		Muck Thickness (feet)
			Top of Muck	Hard Bottome	
449	730098.59	1415667.59	19.87	19.87	0
450	730097.73	1415622.63	19.66	19.56	0.1
451	730092.75	1415588.48	19.75	19.7	0.05
452	730089.44	1415562.01	20.14	20.09	0.05
453	730084.3	1415515.78	19.39	19.39	0
454	730088.45	1415454.5	19.47	19.47	0
455	730083.83	1415409.17	18.99	18.89	0.1
456	730081.56	1415354.99	20.4	20.35	0.05
457	730071.9	1415322.44	19.57	19.57	0
458	730107.22	1415283.94	19.33	19.23	0.1
459	730170.4	1415300.44	19.83	19.73	0.1
460	730213.72	1415294.83	18.68	18.38	0.3
461	730253.67	1415291.19	18.88	18.68	0.2
462	730307.07	1415284.73	20.01	19.81	0.2
463	730338.18	1415258.06	20.61	20.61	0
464	730345.96	1415332.97	20.15	20.15	0
465	730390.29	1415360.68	20.19	20.14	0.05
466	730294.5	1415342.94	19.27	19.17	0.1
467	730246.62	1415361.23	18.66	18.66	0
468	730195.49	1415380.5	18.93	18.83	0.1
469	730160.8	1415421.22	19.27	19.22	0.05
470	730197.03	1415428.51	18.91	18.81	0.1
471	730229.89	1415423.09	19.01	18.81	0.2
472	730284.15	1415406.22	19.34	19.14	0.2
473	730332.63	1415409.56	19.7	19.3	0.4
474	730384.03	1415406.88	20	19.6	0.4
475	730430.26	1415417.75	19.99	19.59	0.4
476	730467.79	1415423.12	19.9	19.7	0.2
477	730520.47	1415436.64	20.17	20.07	0.1
478	730563.26	1415446	20.23	20.13	0.1
479	730607.23	1415453.45	20.21	20.06	0.15
480	730510.15	1415459.8	19.3	19.25	0.05
481	730508.92	1415492.09	20.1	19.95	0.15
482	730488.56	1415477.5	20.27	20.17	0.1
483	730470.9	1415510.21	19.56	19.36	0.2
484	730488.6	1415544.76	20.07	19.97	0.1
485	730514.3	1415573.15	19.59	19.49	0.1
486	730550.86	1415596	20.06	19.86	0.2
487	730436.1	1415531.06	20.04	19.84	0.2
488	730421.84	1415566.84	19.8	19.65	0.15
489	730380.67	1415590.81	19.81	19.51	0.3
490	730372.8	1415629.62	19.91	19.81	0.1
491	730397.67	1415674.95	19.89	19.79	0.1
492	730407.76	1415711.27	20.12	20.07	0.05
493	730346.33	1415702.1	19.92	19.82	0.1

Point No.	Easting	Northing	Elevatio (feet NAVD88)		Muck Thickness (feet)
			Top of Muck	Hard Bottome	
494	730334.81	1415669.49	19.69	19.69	0
495	730324.93	1415619.31	18.71	18.71	0
496	730341.75	1415564.53	19.8	19.8	0
497	730344.14	1415494.59	19.22	19.22	0
498	730281.97	1415466.77	18.8	18.7	0.1
499	730229.72	1415475.2	18.94	18.84	0.1
500	730181.22	1415529.9	19.48	19.48	0
501	730236.81	1415560.71	19.43	19.38	0.05
502	730282.13	1415570.27	19.01	18.91	0.1
503	730304.89	1415606.16	18.53	18.33	0.2
504	730293.95	1415673.02	18.85	18.65	0.2
505	730330.03	1415724.96	19.76	19.66	0.1
506	730364.31	1415747.51	20.05	20.05	0
507	730336.6	1415776.83	20.12	20.02	0.1
508	730289.02	1415718.5	19.22	19.07	0.15
509	730238.21	1415728.52	19.14	19.09	0.05
510	730260.12	1415775.59	19.42	19.32	0.1
511	730199.17	1415731.49	19.87	19.77	0.1
512	730164.88	1415770.06	19.71	19.61	0.1
513	730187.26	1415680.77	18.8	18.75	0.05
514	730240.53	1415680.36	19	18.95	0.05
515	730246.64	1415630.33	19.45	19.4	0.05
516	730236.44	1415581.08	19.35	19.3	0.05
517	730029.39	1415491.97	19.83	19.78	0.05
518	730029.31	1415533.04	19.81	19.71	0.1
519	730028.23	1415559.11	19.66	19.61	0.05
520	730026.66	1415595.25	19.65	19.6	0.05
521	730018.77	1415638.47	20.09	19.99	0.1
522	730022.17	1415669.01	19.8	19.75	0.05
523	730018.52	1415720.46	19.77	19.72	0.05
					0.162141491

TABLE 2 - MUCK PROBING AND SURVEY RESULTS - CELL 4
Brevard County Utility Services - South Central Regional WWTF

Point No.	Easting	Northing	Elevation of Hard-Bottom (feet NAVD88)	Muck Thickness (Feet)
P1	730891.11	1416095.16	20.03	0.35
P2	730983.4	1416066.41	20.14	0.15
P3	731038.12	1416073.48	20.31	0.2
P4	731081.06	1416035.92	19.75	0.25
P5	731154.21	1416006.05	20.57	0.45
P6	731202.92	1415981.8	20.49	0.1
P7	731222.42	1415955.51	20.59	0.1
P8	731239.55	1415932.9	20.37	0.3
P9	731227.71	1415912.02	20.26	0.1
P10	731193.53	1415886.01	20.4	0.1
P11	731179.05	1415860.16	20.28	0.1
P12	731154.24	1415819.99	20.15	0.2
P13	731144.15	1415790.01	21.36	0.5
P14	731161.55	1415764.85	20.16	0.35
P15	731176.18	1415770.45	19.27	0.8
P16	731218.08	1415773.41	19.7	0.45
P17	731257.66	1415777.95	20.55	0.2
P18	731265.89	1415816.33	20.89	0.25
P19	731287.68	1415847.17	20.39	0.2
P20	731301.83	1415856.74	20.69	0.1
P21	731317.34	1415841.31	20.97	0.15
P22	731351.79	1415816.65	20.78	0.4
P23	731395.56	1415776.18	20.68	0.1
P24	731414.45	1415751.84	20.95	0.35
P25	731338.89	1415772.93	20.38	0.25
P26	731256.79	1415779.59	20.09	0.4
P27	731211.31	1415774.82	19.76	0.25
P28	731145.64	1415768.21	20.36	0.2
P29	731096.5	1415765.94	19.72	0.65
P30	731085.03	1415651.34	20.41	1
P31	731072.68	1415698.3	20.15	0.55
P32	731072.43	1415734.87	20.3	0.4
P33	731060.32	1415770.87	19.64	0.75
P34	731023.79	1415771.81	19.31	0.55
P35	730976.11	1415783.39	20.09	0.2
P36	730948.61	1415778.07	20.27	0.15
P37	730951.16	1415730.14	19.98	0.15
P38	730992.39	1415734.68	20.47	0.05
P39	730973.27	1415707.71	20.13	0.2
P40	730958.4	1415680.51	20.23	0.6
P41	730990.27	1415662.36	20.32	0.25
P42	730961.53	1415635.24	20.17	0.35
P43	730968.96	1415559.74	19.66	0.3
P44	730953.91	1415585.5	19.35	0.15
P45	730931.07	1415665.48	20.08	0.1

Point No.	Easting	Northing	Elevation of Hard-Bottom (feet NAVD88)	Muck Thickness (Feet)
P46	730926.6	1415781.97	20.33	0.6
P47	730892.02	1415781.91	19.84	0.75
P48	730893.86	1415742.61	19.89	0.3
P49	730922.55	1415716.71	19.97	0.25
P50	730887.62	1415693.23	19.89	0.25
P51	730886.74	1415629.65	19.64	0.30 {0.75 ALGAE MAT)
P52	730855.96	1415664.85	19.82	0.20 {0.50 ALGAE MAT}
P53	730813.95	1415679.08	19.79	0.40 {0.55 ALGAE MAT}
P54	730826.09	1415714.79	20.23	0.5
P55	730781.37	1415696.26	19.82	0.15
P56	730730.71	1415727.6	19.61	0.2
P58	730703.51	1415741.01	20.06	0.15 {0.50 ALGAE MAT}
P59	730655.08	1415759.51	19.89	0.35
P60	730616.94	1415777.44	19.89	0.15
P61	730577.07	1415798.73	19.58	0.1
P62	730584.58	1415825.37	20.59	0.3
P63	730524.19	1415812.59	20.4	0.15
P64	730589.77	1415868.47	20.17	0.2
P65	730559.75	1415904.62	20.15	0.55
P66	730553.58	1415936.07	20.25	0.2
P67	730549.5	1415972.74	20.13	0.2
P68	730521.11	1415999.66	20.15	0.7
P69	730513.09	1415962.54	20.81	0.8
P70	730473.16	1415956.89	20.63	0.3
P71	730440.57	1415905.81	20.19	0.4
P72	730445.41	1415860.95	20.18	0.1
P73	730474.48	1415835.45	20.12	0.15
P74	730413.99	1415867.32	20.02	0.25
P75	730380.33	1415873.98	19.95	0.2
P76	730346.16	1415892.53	19.75	0.15
P77	730391.1	1415902.79	20.39	0.4
P78	730439.5	1415940.24	20.5	0.9
P79	730428.84	1415992.09	20.43	1
P80	730406.09	1416038	19.88	0.2
P81	730380.66	1416074.81	19.5	0.1
P82	730325.04	1416075.17	19.41	0.4
P83	730435.47	1416086.45	20.28	0.25
P84	730502.48	1416092.09	19.63	1.4
P86	730544.31	1416079.11	20.45	0.65
P87	730607.21	1416054.59	19.81	0.3
P88	730655.52	1416066.26	20.01	0.4
P89	730698.71	1416079.9	19.61	0.1
P90	730755.77	1416074.32	20.17	0.35
P91	730811.09	1416095.01	20.2	0.1

Point No.	Easting	Northing	Elevation of Hard-Bottom (feet NAVD88)	Muck Thickness (Feet)
P92	730853.67	1416091.69	19.79	0.05
P93	730899.11	1416043.77	19.58	0.05
P94	730899.54	1416000.34	20.13	0.15
P95	730897.9	1415998.53	19.83	0.2
P96	730860.85	1415992.62	20.1	0.25
P97	730900.1	1415946.62	19.71	0.1
P98	730859.83	1415937.4	20.24	0.15
P100	730828.77	1415973.56	19.94	0.2
P101	730808.18	1416007.99	20.04	0.2
P102	730781.88	1416004.98	20.49	0.25
P103	730776.84	1415970.63	20.3	0.15
P104	730768.18	1415922.43	20.23	0.25
P105	730724.8	1415887.03	20.35	0.2
P106	730722.46	1415954.91	20.03	0.3
P107	730727.26	1415999.87	19.56	0.5
P108	730662.7	1416023.33	19.96	0.2
P109	730642.91	1415968.57	19.89	0.25
P110	730660.82	1415912.18	20.06	0.15
P111	730578.68	1416002.49	19.41	0.2
P112	730520.22	1416001.42	20.58	0.45
P113	730480.92	1416027	20.78	0.55
P114	730153.12	1416004.7	20.49	0.4
P115	730134.35	1416040.52	19.45	0.4
P116	730101.04	1416090.85	19.65	0.55
P117	730117.75	1416067.95	19.43	0.35
P118	730146.47	1416063.65	19.8	0.2
P119	730154.33	1416075.26	19.58	0.3
			Average	**0.32**

Notes:

Average muck thickness does not include apparent algal mat, which was only identified by sight.

Data collected by:

OCEANSIDE SOLUTIONS LLC

Professional Hydrographic Survey Consultants

Surveyed - April 27, 2021

Datum - NAD83-FL East 0901 and NAVD88- G12B

NAD83-FL East 0901 - North American Datum of 1983, State Plane Florida East

NAVD88 - North American Vertical Datum of 1988

TABLE 3 - OBSERVED WILDLIFE SPECIES TABLE - MAY 5, 2021

Brevard County Utility Services - South Central Regional WWTF

Birds	
Anhinga	*Anhinga anhinga*
Boat-tailed Grackle	*Quiscalus major*
Glossy Ibis	*Plegadis falcinellus*
Great Blue Heron	*Ardea herodias*
Great Egret	*Ardea alba*
Little Blue Heron (ST)	*Egretta caerulea*
Osprey	*Pandion haliaetus*
Red-shouldered Hawk	*Buteo lineatus*
Red-wing Blackbird	*Agelaius phoeniceus*
Tricolored Heron (ST)	*Egretta tricolor*
White Ibis	*Eudocimus albus*
Mammals	
Marsh Rabbit	*Sylvilagus palustris*
Reptiles	
American Alligator (FT)	*Alligator mississippiensis*

Notes:

ST - State Threatened

FT - Federally Threatened (similar appearance)

TABLE 4 - OBSERVED WILDLIFE SPECIES TABLE - November 3, 2021

Brevard County Utility Services - South Central Regional WWTF

Birds	
American Coot	*Fulica americana*
Anhinga	*Anhinga anhinga*
Boat-tailed Grackle	*Quiscalus major*
Great Blue Heron	*Ardea herodias*
Great Egret	*Ardea alba*
Osprey	*Pandion haliaetus*
Red-shouldered Hawk	*Buteo lineatus*
Sandhill Crane (ST)	*Grus canadensis*
Tricolored Heron (ST)	*Egretta tricolor*
White Ibis	*Eudocimus albus*
Reptiles	
American Alligator (FT)	*Alligator mississippiensis*

Notes:

ST - State Threatened

FT - Federally Threatened (similar appearance)

ATTACHMENT 1
Muck Thickness Maps

CELL 1 TOP MUCK VS. HARD BOTTOM THICKNESS MAP

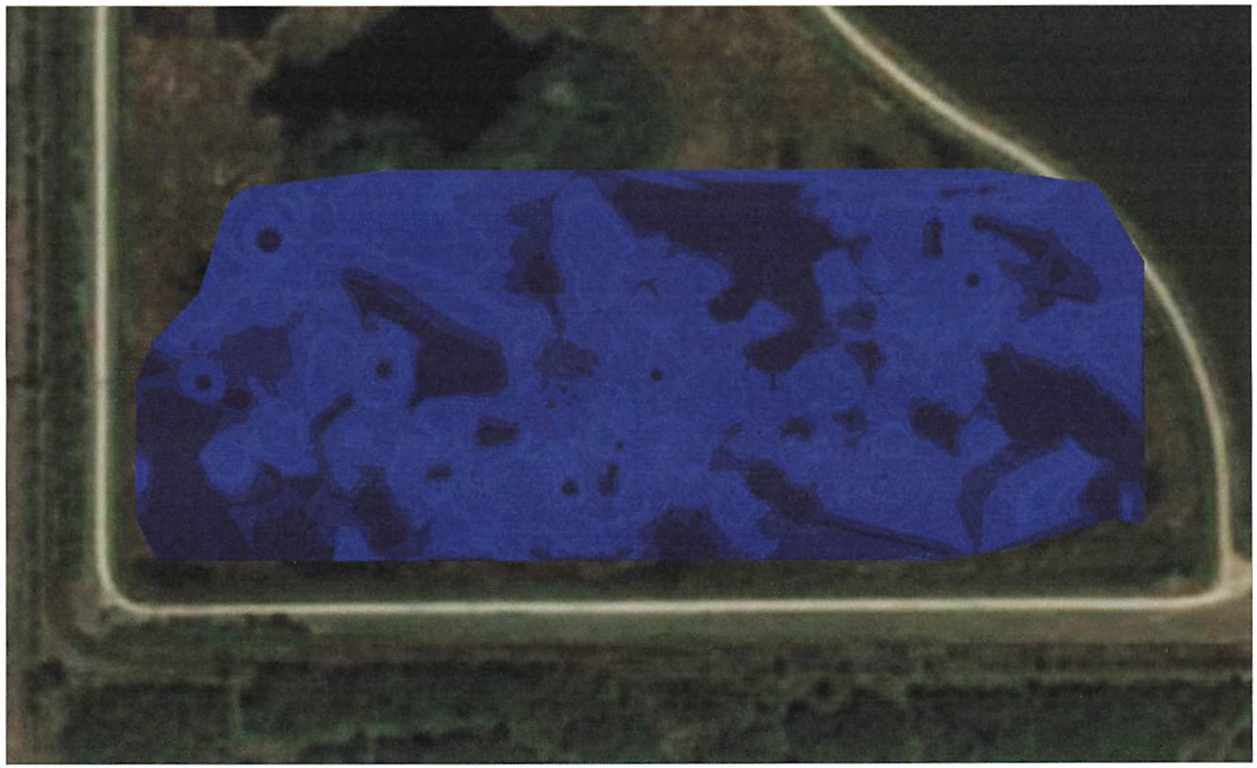
A

B

C

D

MAP LEGEND	
0.25'-0.60'	
0.20'-0.25'	
0.15'-0.20'	
0.10'-0.15'	
0.00'-0.10'	
Min. Elevation	0.00'
Max. Elevation	0.60'



REV | DESCRIPTION | CHK | APP | DATE

Designed By: R. CZLAPINSKI
Drawn By: L. ERTON
Checked By: R. CZLAPINSKI
Reviewed By: R. CZLAPINSKI
Design File No. HARD BOTTOM VS TOP MUCK 2.DWG
Scale: As Shown

TETRA TECH
11 RIVERSIDE DRIVE
SUITE 204
COCOA, FL 32940
TEL: 321.636.6470 EXT. 5376099

VIERA WASTE TREATMENT
CELL 4

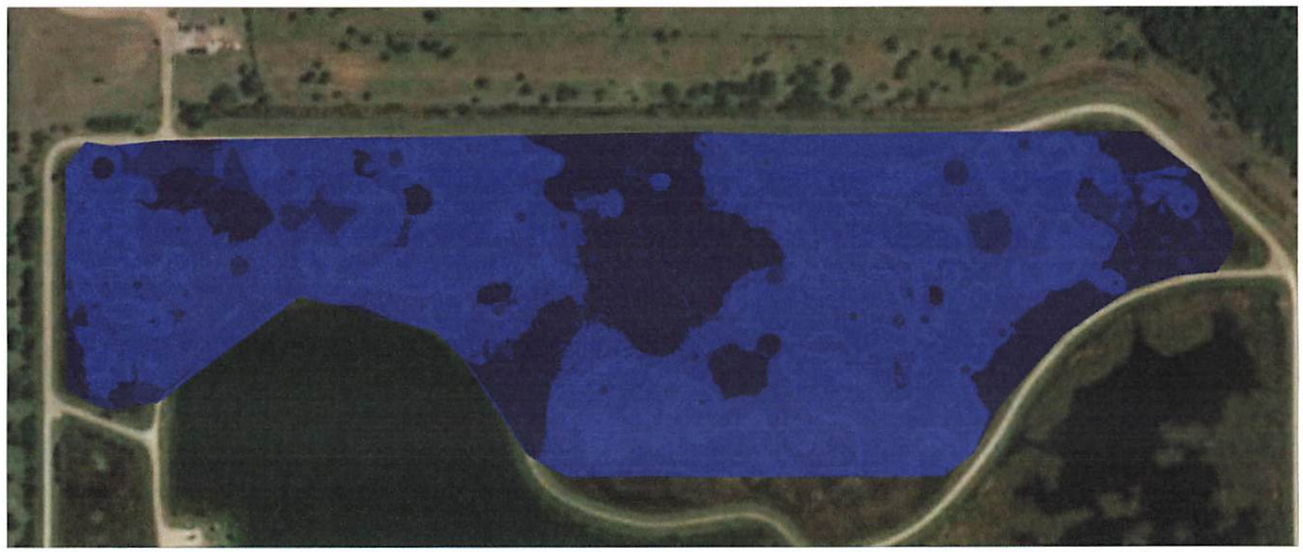
VIERA, FL

Sheet Reference:

Sheet of 5

CELL 2 TOP MUCK VS. HARD BOTTOM THICKNESS MAP

MAP LEGEND	
0.25'-0.65'	
0.20'-0.25'	
0.15'-0.20'	
0.10'-0.15'	
-0.05'-0.10'	
Min. Elevation	-0.05'
Max. Elevation	.65'



REV	DESCRIPTION	CHK	APP	DATE

Designed By: R. CZLAPINSKI
Drawn By: E. ERTON
Checked By: R. CZLAPINSKI
Reviewed By: R. CZLAPINSKI
Design File No.: HARD BOTTOM VS TOP MUCK 2.DWG
Scale: As Shown

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VIERA WASTE TREATMENT
CELL 4

VIERA, FL

Sheet Reference:
Sheet of 5

CELL 3 TOP MUCK VS. HARD BOTTOM THICKNESS MAP

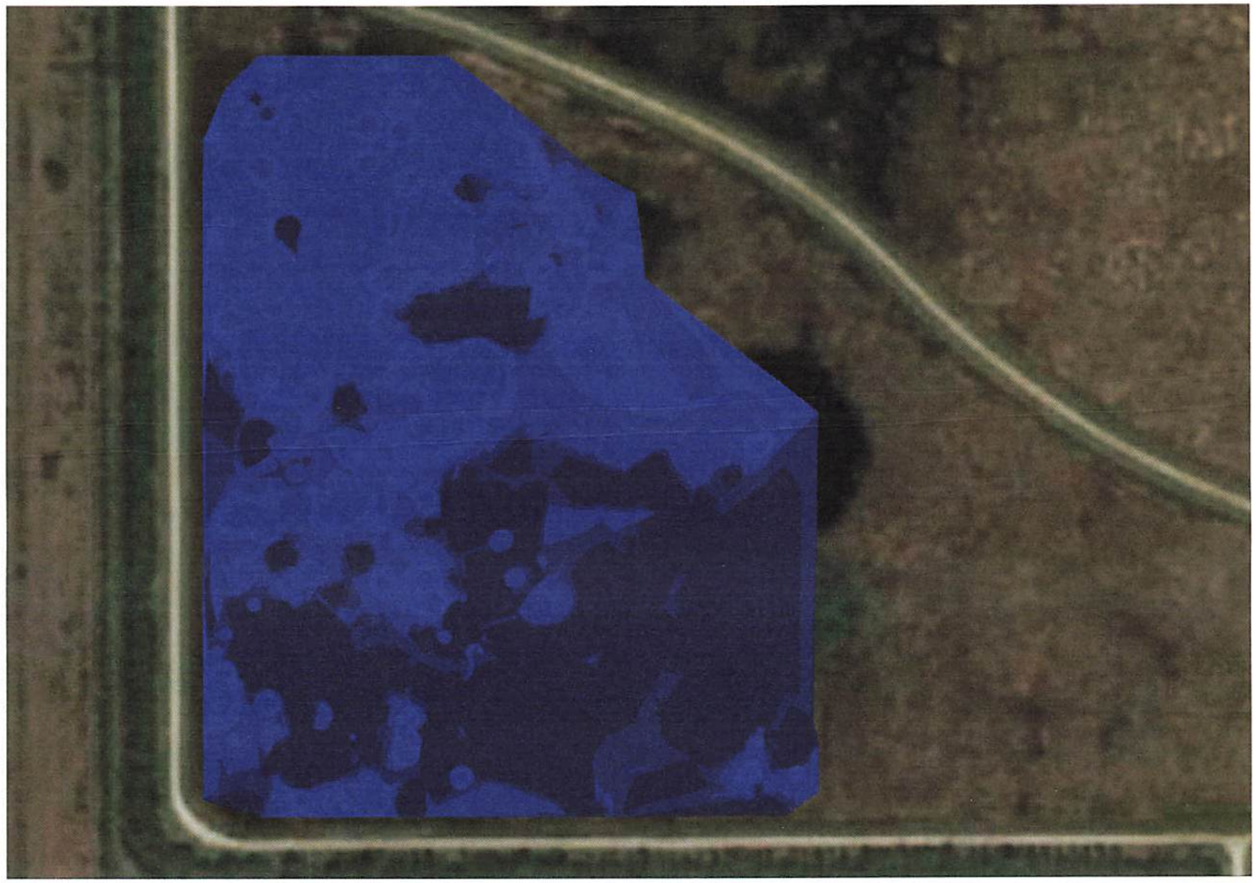
A

B

C

D

MAP LEGEND	
0.25'-0.81'	
0.20'-0.25'	
0.15'-0.20'	
0.10'-0.15'	
0.00'-0.10'	
Min. Elevation	0.00'
Max. Elevation	0.81'



REV	DESCRIPTION	CHK	APP	DATE

Designed By: R. CZLAPINSKI
Drawn By: E. ERTON
Checked By: R. CZLAPINSKI
Reviewed By: R. CZLAPINSKI
Design File No. HRD BOTTOM VS TOP MUCK 2.DWG
Scale: As Shown

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VIERA WASTE TREATMENT
CELL 4

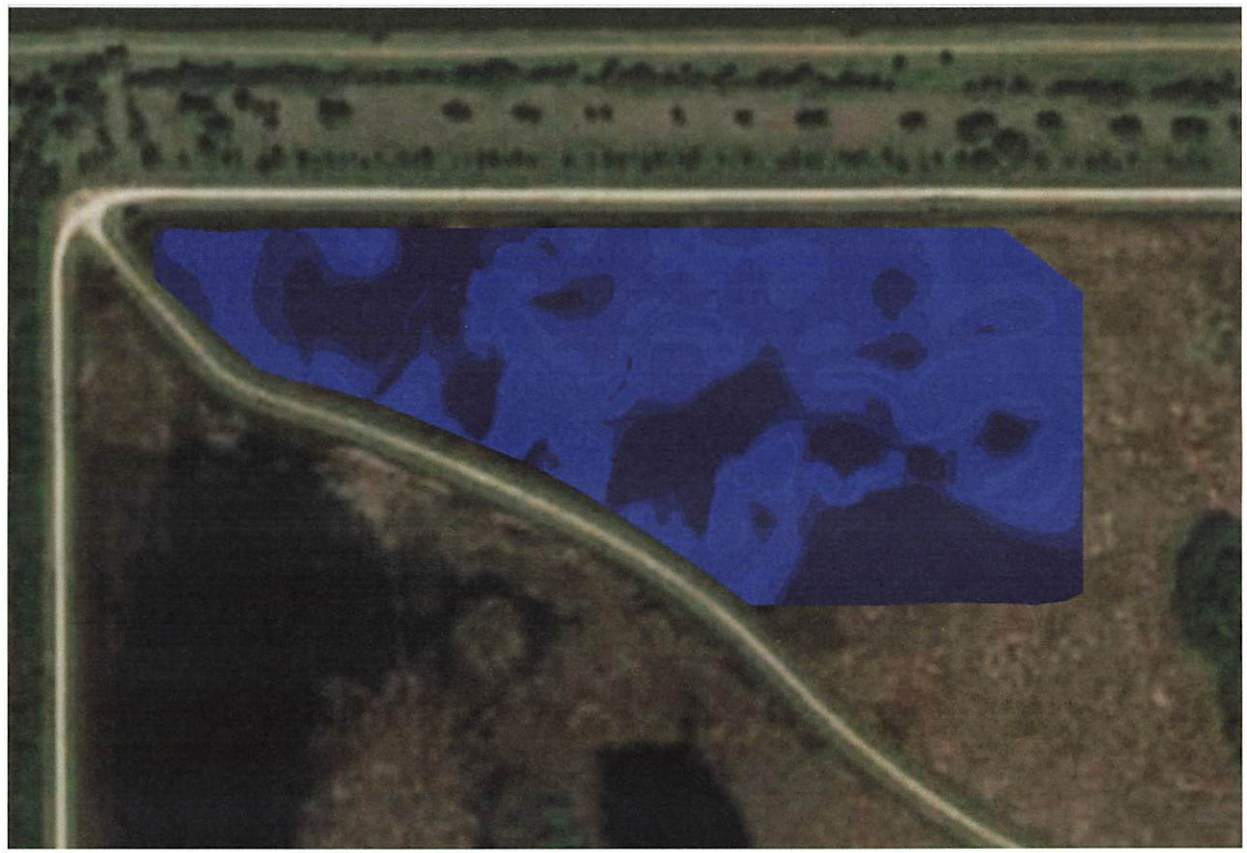
VIERA, FL

Sheet Reference:

Sheet of 5

CELL 4 TOP MUCK VS. HARD BOTTOM THICKNESS MAP

MAP LEGEND	
0.50'-1.71'	
0.38'-0.50'	
0.20'-0.38'	
0.5'-0.20'	
-0.94'-0.5'	
Min. Elevation	-0.94'
Max. Elevation	1.71'



VIERA WASTE TREATMENT
CELL 4

VIERA, FL

Sheet Reference:

Sheet of 5

VOLUME SUMMARY

Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
CELL 3	1.000	1.000	781078.02 Sq. Ft.	0.03 Cu. Yd.	5352.17 Cu. Yd.	5352.14 Cu. Yd.<Fill>
CELL 1	1.000	1.000	691157.10 Sq. Ft.	0.00 Cu. Yd.	3427.46 Cu. Yd.	3427.46 Cu. Yd.<Fill>
CELL 2	1.000	1.000	1476011.53 Sq. Ft.	0.98 Cu. Yd.	8895.00 Cu. Yd.	8894.02 Cu. Yd.<Fill>
CELL 4	1.000	1.000	495757.79 Sq. Ft.	653.94 Cu. Yd.	7223.12 Cu. Yd.	6569.17 Cu. Yd.<Fill>
Totals			3444004.44 Sq. Ft.	654.96 Cu. Yd.	24897.75 Cu. Yd.	24242.79 Cu. Yd.<Fill>

VIERA WASTE TREATMENT
CELL 4
VIERA, FL

Sheet Reference:

Sheet of 5

ATTACHMENT 2
Biological Walkdown Photo Log (May 5, 2021)

Photo Page Exhibit

Pickerelweed and duck potato in equal distribution at Cell 4, Photo Station 2; facing north.

Open water and algal mats at Cell 4, Photo Station 3; facing northwest.

Living and dead cattails (from the spraying event) at Cell 4, Photo Station 5; facing northwest.

Living and dead cattails (from the spraying event) at Cell 4, Photo Station 9; facing south.

Invasive torpedo grass at Cell 4, Photo Station 11; facing south.

Dead and decaying cattails at Cell 3, Photo Station 24; facing south.

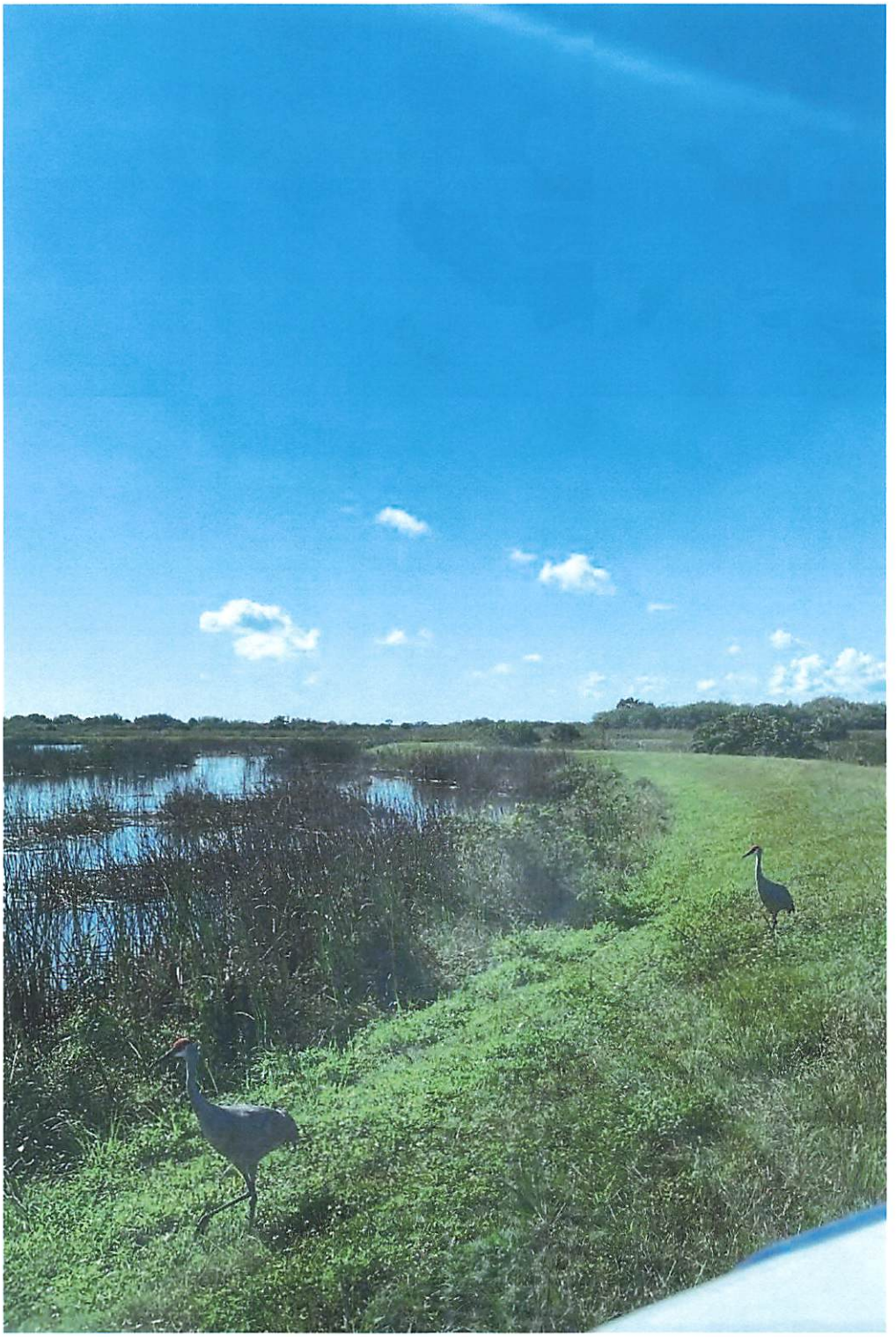
ATTACHMENT 3
Biological Walkdown Photo Log (November 3, 2021)

Photo Page Exhibit

Cattails and bulrush with open water at Cell 1, Photo Station 4; facing east.

Living and dead cattails at Cell 1, Photo Station 9; facing west.

Cattails and cogon grass at Cell 1, Photo Station 13; facing west.



Sandhill cranes observed traveling between Cells 2 and 1; facing south.

Cattails and bulrush at Cell 2, Photo Station 9; facing northeast.

Living and dead cattails at Cell 2, Photo Station 14; facing north.

Bulrush and cattails at Cell 2, Photo Station 18; facing west.