ORANGE COUNTY GOVERNMENT FLORIDA

Interoffice Memorandum

November 4, 2020

TO: Mayor Jerry L. Demings
-AND-
Board of County Commissioners

FROM: Jon V. Weiss, P.E., Director
Planning, Environmental, and Development
Services Department

CONTACT PERSON: **David D. Jones, P.E., CEP, Manager**
Environmental Protection Division
(407) 836-1406

SUBJECT: December 1, 2020 – Public Hearing
Hamlin Retail Partners East, LLC Shoreline Alteration/Dredge and Fill Permit Application SADF-19-04-007

The applicant, Hamlin Retail Partners East, LLC, is requesting a Shoreline Alteration/Dredge and Fill (SADF) permit to authorize navigational dredging in Lake Hancock in association with a retail and dining area known as the Hamlin Town Center located at 14111 Shoreside Way, Winter Garden, FL 34787 in District 1. The Parcel ID Nos. are 20-23-27-2713-03-000 and 20-23-27-2713-04-000.

Lake Hancock is 475 acres in size and can be described as a sandhill lake. This lake fluctuates greatly as its water levels are closely tied to rainfall amounts and the water table. The lake contains a series of lobes that at times of low water become isolated from the main lake. The littoral zone of the lake is mainly comprised of normal healthy native emergent vegetation, with moderate occurrences of nuisance exotic species.

The applicant is requesting to dredge 6.88 acres within Lake Hancock in order to provide better accessibility to the Hamlin Town Center. The proposed dredging is intended to achieve and maintain navigational access to the retail area during times of drought and low water levels.

The dredging activities can be divided up into three distinct locations: the area along the northern lobe shoreline, the area between the main lake and the western lobe, and the southern dredge area:

- Northern lobe shoreline: The majority of the proposed dredging (4.79 acres) will be along the northern lobe shoreline and within the two areas proposed for mooring. The near-shore areas will be dredged in order to allow for boats to maneuver and moor to the docks. The habitat affected by the dredging in this area consists of open water areas with scarce submerged vegetation and a littoral zone containing emergent vegetation, including fragrant water lily (*Nymphaea odorata*), primrose willow (*Ludwigia peruviana*), Carolina willow (*Salix caroliniana*), and submerged aquatic vegetation, including bladderwort (*Utricularia foliosa*), stonewort (*Nitella* sp.), and southern naiad (*najas guadalupensis*).

- Area between the main lake and the western lobe: The second area of dredging (0.32 acres) is between the main lake and the western lobe. Under normal water conditions, these two waterbodies are connected hydrologically. However, during times of drought and low water conditions, the connection becomes very shallow and can even become dry. Review of historic aerials indicates that the prior property owners ditched the connection between the two lobes to ensure that a water source was available for the irrigation of the adjacent groves. The habitat affected by the dredging in this area also includes some open water, and adjacent shoreline areas with emergent and submerged aquatic vegetation. This area has a higher occurrence of nuisance/exotic species than the other areas of dredging.

- Southern dredge area: The third proposed dredging location is in a narrow portion of the lake just south of the northern lobe. The applicant proposes to dredge this area to create a navigational channel (1.77 acres) from the main part of the lake to the northern lobe. Review of historic aerials indicate that the lake periodically dries up completely in this area. The habitat affected by the dredging in this area is mainly submerged aquatic vegetation.

The applicant has provided a plan for hydraulic dredging and removal of organic sediment, muck and vegetation to restore and maintain access and boat navigation to the portion of the lake adjacent to the retail area. In the applicant's plan, the hydraulic dredge will remove bottom material, which will be pumped by pipeline to a series of three containment ponds. The solids will settle in the ponds and the polished effluent water will be discharged back into the work area via a control structure and pipe extending from the final pond into the work area. The solid dredged material will be stored in a self-contained upland area until utilized onsite. The applicant will provide the Environmental Protection Division (EPD) with a final engineering plan with additional details for review prior to initiation of dredging activities.

EPD engaged the services of Amec Foster Wheeler Environmental & Infrastructure, Inc. (Amec) to perform a third-party review. As part of their review, they addressed eight criteria in Orange County Code, Chapter 15, Article VI, Section 15-218(e):

(1) The effect of the proposed plan or development on the use of said waters in said county for transportation and recreational or other public purposes and public conveniences.

➢ Determination: The lake has no public access and the proposed dredging and shoreline stabilization is not likely to impact recreation, transportation, or other public purposes negatively.

(2) The effect of the proposed plan or development on the free use of waters and waterways within the county.

➢ Determination:

The lake has no public access and is not likely to have public access in the future. The dredging project would potentially allow future improved recreational access to residents including access during low water elevation.

(3) The effect of the proposed plan or development upon erosion control in the said county.

➢ Determination:

Erosion control measures and plans are provided for the upland areas in the permit application. Shoreline stabilization and 5:1 or 3:1 slopes are proposed and would likely address potential erosion and sloughing issues within the lake when submerged. However, these slopes may be exposed during low water and geotextile fabric should be installed to minimize erosion and provide structure for emergent vegetation.

(4) The effect of the proposed plan or development upon the flow of waters in said county.

➢ Determination:

The project is not likely to impact the flow of water within the County, although it would potentially prolong the hydrologic connection between the main portion of the lake and the northern lobe during low water.

(5) The effect of the proposed plan or development upon formation of stagnant pockets likely to collect debris.

➢ Determination:

The project proposes to deepen a natural portion of the northern lake lobe and connection between two areas of the northern lobe of the lake which occasionally separate during low water. Unlike a dead-end canal, dredging these areas is not likely to cause formation of stagnant pockets which would collect debris because open circulation will still exist during normal water level conditions. However, removal of material from the canal will likely reduce the natural frequency of lake bottom exposure in the dredge area and subsequent oxidation and compaction of organic sediment. Under the current condition, occasional periods of lake bottom exposure likely provide water quality benefits to the lake.

(6) The effect of the proposed plan or development upon the natural beauty and recreational advantage within said county.

➢ Determination:

The project will have a significant temporary impact because all the vegetative and benthic community currently present within the construction footprint will be removed. The current plan suggests that natural recruitment will be suitable for revegetation within the disturbed areas. However, revegetation of near-shore areas with desirable emergent vegetation is recommended to reduce the likelihood of colonization by invasive species which are currently present within the project footprint. The project would potentially improve the recreational conditions of the lake to residents with access to Lake Hancock during low water; however, access can never be guaranteed and is likely to be more restrictive to vessels with deeper drafts. Furthermore, vessels with deep drafts that generate significant wakes would likely be deleterious to both water quality and ecology due to the small size of the area and wave reflection caused by the proposed seawalls. A no wake zone is recommended for the dredged area if a means to enforce the no wake zone is identified. In addition, geotextile fabric should be installed to reduce erosion from wave action.

(7) The effect of the proposed plan or development upon the conservation of wildlife, marine life, and other natural resources.

➢ Determination:

Based on a review of available aerial imagery, the connection between the main portion of the lake and the northern lobe is frequently dry and supports dense areas of vegetation. This does not appear to be the result of sediment deposition from upstream erosion and is not likely to have been caused by human impacts. Like any dredge project, the proposed dredging will impact the vegetation, benthic organisms, and the natural lake bottom within the construction footprint. Most wildlife would likely leave the project area during construction, but should return once construction is complete.

The applicant identified numerous emergent plant species within the dredge footprint and EPD identified additional plant species not described by the applicant. All rooted vegetation within the construction footprint will be removed during dredging. Although some littoral areas would be available for natural recruitment or replanting of emergent vegetation following dredging, a loss of some littoral habitat will likely result. This is primarily because the lake bottom in the deepened areas will lack sufficient light penetration and will no longer be exposed as often (if at all) during low water. The newly created open water areas may still provide habitat for certain species.

(8) The effect of the proposed plan or development upon the upland surrounding or necessarily affected by said plan or development.

➢ Determination:

The uplands surrounding the project area would likely be residential properties that would benefit from increased navigational access. However, a temporary upland treatment system will be necessary to dewater dredged sediment and clarify decant water prior to returning to Lake Hancock.

While the Amec report was based on a previous site plan that proposed almost 20 acres of dredging within Lake Hancock, the finding of the study was that "the project should provide increased navigational access and, with proper project management and erosion control, is not expected to result in significant deleterious impacts to water quality or water level as a direct result of the project." The project has since been reduced from the original 20 acres to 6.88 acres of dredging. Additionally, the report states that habitat quality and quantity is likely to have the greatest impact from dredging. To address this, the applicant has proposed to enhance and replant the southern portion of the western cove to help offset the impacts to the northern littoral zones affected by the dredging.

EPD required the applicant implement a water quality assurance plan with five components:

- Conducting annual lake vegetation indices within the dredge footprint to determine if the aquatic plant communities lost to dredging are able to re-establish themselves.

- Conducting annual surveys of benthic invertebrate communities to determine if the communities lost to dredging are able to re-establish themselves or are displaced by less than desirable invertebrate communities.
- Collection of water quality samples for analysis from dedicated locations within the dredge footprint and downstream of the dredge footprint on an initial semi-annual basis, with quarterly, monthly, or confirmatory sampling conducted should water impairments be detected. The sampling should be conducted in the wet and dry seasons.
- Measuring discharges and collecting water quality samples from outfalls to the lake to determine the magnitude of nutrient loads entering the dredged area.
- Collecting field data including rainfall amounts and lake stage elevations from a dedicated real-time station to establish the hydrologic behavior of the northern lobe.

Upon initiation of the project, the applicant will implement a 10-year water quality monitoring program to include:

- Quarterly water quality sampling.
- Annual submerged aquatic vegetation sampling.
- Bi-annual benthic macroinvertebrate sampling.
- Muck depth sampling and maintenance dredging as needed to remove accumulations of muck greater than one foot in thickness and to maintain the dredged areas for navigation.
- Planting and enhancement of 1.8 acres of the southern portion of the northwest cove with native herbaceous species. The enhancement area maintenance plan will include control of nuisance and exotic vegetation and will be monitored for 10 years.

In accordance with Orange County Code, Chapter 15, Article VI, Section 218(d), notification of the public hearing was sent to property owners within 500 feet of the project site. EPD has received no objections to the request.

Staff Findings and Recommendation

Pursuant to Orange County Code, Chapter 15, Article VI, EPD staff has evaluated the proposed SADF permit application and required documents and has made a finding that the request is consistent with Section 15-218 and recommends approval of SADF Permit No. SADF-19-04-007, subject to the conditions listed below.

Specific Conditions:

1. This permit shall become final and effective upon expiration of the 30-calendar-day appeal period following the date of issuance, unless an appeal has been filed within this timeframe. Any appeal shall stay the effective date of this permit until all appeals are resolved.

2. The operational phase of this permit is effective upon the completion of the construction and continues in perpetuity.

3. Construction activities shall be completed in accordance with the 'Dredging Plan' submitted by Kelly, Collins, & Gentry, Inc., and the 'Dredge Areas vs. Enhancement Area' figure submitted by Bio-Tech Consulting, Inc., received by the Environmental Protection Division (EPD) on October 30, 2020. The permitted activity must commence within six months and be completed within one year from the date of issuance of the permit. In the event that the project has not commenced within six months or has not been completed within one year, this permit shall be void and a new permit application with fee will be required.

4. Dredged material shall be pumped, treated, handled and stored in accordance with Sheet C-1.0, received by EPD on October 1, 2019 until utilized in uplands onsite.

5. Water quality sampling shall be completed in accordance with the 'Water Quality Monitoring Program' provided by Bio-Tech Consulting, Inc. received by EPD on November 2, 2020. The sampling stations should be located per 'Figure 2' received by EPD on November 4, 2019.

6. The permittee will monitor the dredged areas for sediment and muck accumulation and perform maintenance dredging as appropriate to maintain the post-construction condition in accordance with the 'Water Quality Monitoring Program' provided by Bio-Tech Consulting, Inc. received by EPD on November 2, 2020.

7. With 60 days of completion of the dredging, the permittee shall provide EPD with an as-built survey of the project area depicting the elevation of the lake bottom to ensure compliance with the permit.

8. Final engineering plans and construction plans shall be submitted to EPD for review prior to initiating any dredging activities.

9. The permittee shall notify EPD, in writing, within 30 days of any sale, conveyance, or other transfer of ownership or control of the real property subject to this permit. The permittee shall remain liable for all permit conditions and corrective actions that may be required as a result of any permit violations which occur prior to the transfer of the permit by Orange County to a subsequent owner. If applicable, no permit shall be transferred unless and until adequate financial assurance has been provided and approved by Orange County.

10. For projects which disturb one acre or more of land, or which are less than one acre but are part of a larger common plan of development of sale that is greater than one acre, coverage under a National Pollutant Discharge Elimination System (NPDES) Construction Generic Permit (CGP) is required. Prior to the start of land disturbing activities, which includes demolition, earthwork and/or construction, the operator shall prepare a Stormwater Pollution Prevention Plan (SWPPP) and submit to the Florida Department of Environmental Protection (FDEP) a Notice of Intent (NOI) to obtain coverage under the NPDES CGP, pursuant to the requirements of 62-621.300(4)(a), Florida Administrative Code (F.A.C.) As the Operator of the MS4, copy of the NOI shall also be submitted to the Orange County NPDES Environmental Program Supervisor prior to the start of activities. Copies of the SWPPP, NOI, and FDEP Acknowledgement Letter are to be kept on the project site and made available upon

request. Upon completion of all land disturbing activities and after final stabilization of the site is complete, the developer/contractor shall submit to FDEP a Notice of Termination (NOT) to end their coverage under the CGP and provide a copy of the NOT to the Operator(s) of the MS4. A copy of the CGP, NOI and additional information can be found at the following website: http://dep.state.fl.us/water/stormwater/npdes/construction3.html.

11. Turbidity and sediment shall be controlled to prevent off-site, unpermitted impacts and violations of water quality standards pursuant to Rules 62-302.500, 62-302.530, and 62-4.242, F.A.C. Best Management Practices (BMPs), as specified in the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (2013, or most current version), shall be installed and maintained at all locations where there is the possibility of transferring sediment, turbidity, or other pollutants into wetlands and/or surfaces waters due to the permitted activities. BMPs are performance based; if selected BMPs are ineffective or if site-specific conditions require additional measures, then the permittee shall implement additional or alternative measures as necessary to prevent adverse impacts to wetlands and/or surface waters. Turbidity discharging from a site must not exceed 29 Nephelometric Turbidity Units (NTU) over background for Class III waters and their tributaries or 0 NTU over background for those surface waters and tributaries designated as Outstanding Florida Waters (OFW).

12. Turbidity and erosion control measures shall remain in place until EPD has verified that the post-activity water quality monitoring results indicate the project area meets the baseline monitoring results.

13. Discharge of groundwater from dewatering operations requires approval from FDEP and the applicable Water Management District. The operator/contractor shall obtain an FDEP Generic Permit for the Discharge of Ground Water from Dewatering Operations pursuant to the requirements of Chapters 62-621.300(2)(a) and 62-620, F.A.C., and Chapter 403 FS. Discharges directed to the County's MS4 require an Orange County Right-of-Way Utilization Permit for Dewatering prior to the start of any discharges.

14. No filling is approved with this permit.

General Conditions:

15. Subject to the terms and conditions herein, the permittee is hereby authorized to perform or cause to be performed, the impacts shown on the application and approved drawings, plans, and other documents attached hereto or on file with EPD.

16. The permittee binds themselves and their successors to comply with the provisions and conditions of this permit. If EPD determines at any time that activities are not in accordance with the conditions of the permit, work shall cease and the permit may be revoked immediately by the Environmental Protection Officer. Notice of the revocation shall be provided to the permit holder and/or agent promptly thereafter.

17. Prior to construction, the permittee shall clearly designate the limits of construction on-site. The permittee shall advise the contractor that any work outside the limits of construction, including clearing, may be a violation of this permit.

18. Issuance of this permit does not warrant in any way that the permittee has riparian or property rights to construct any structure permitted herein and any such construction is done at the sole risk of the permittee. In the event that any part of the structure permitted herein is determined by a final adjudication issued by a court of competent jurisdiction to encroach on or interfere with adjacent property owner's riparian or other property rights, the permittee agrees to either obtain written consent or to remove the offending structure or encroachment within 60 days from the date of the adjudication. Failure to comply shall constitute a material breach of this permit and shall be grounds for its immediate revocation.

19. This permit does not release the permittee from complying with all other federal, state, and local laws, ordinances, rules and regulations. Specifically, this permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property rights, or any interest in real property, nor does it authorize any entrance upon or activities upon property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 15, Article VI of the Orange County Code.

20. If these permit conditions conflict with those of any other regulatory agency, the permittee shall comply with the most stringent conditions. The permittee shall immediately notify EPD of any conflict between the conditions of this permit and any other permit or approval.

21. The permittee is hereby advised that Section 253.77 Florida Statutes (FS), states that a person may not commence any excavation, construction, or other activity involving the use of sovereignty or other lands of the state, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, without obtaining the required lease, license, easement or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees of the Internal Improvement Trust Fund prior to commencing activity on sovereignty lands or other state-owned lands.

22. Should any other regulatory agency require changes to the property or permitted activities, the permittee shall provide written notification to EPD of the change prior to implementation so that a determination can be made whether a permit modification is required.

23. EPD shall have final construction plan approval to ensure that no modification has been made during the construction plan process.

24. The permittee shall immediately notify EPD in writing of any previously submitted information that is later discovered to be inaccurate.

25. EPD staff shall have permission to enter the site at any reasonable time to inspect the project for conformity with the plans and specifications approved by the permit.

26. The permittee shall hold and save the County harmless from all damages, claims or liabilities, which may arise because of the activities authorized by the permit.

27. All costs, including attorney's fees, incurred by the County in enforcing the terms and conditions of this permit shall be required to be paid by the permittee.

28. The permittee agrees that any dispute arising from matters relating to this permit shall be governed by the laws of Florida, and initiated only in Orange County.

29. Pursuant to Section 125.022 FS, issuance of this permit by the County does not in any way create any rights on the part of the applicant to obtain a permit from a state or federal agency and does not create any liability on the part of the County for issuance of the permit if the applicant fails to obtain requisite approvals or fulfill the obligations imposed by a state or federal agency or undertakes actions that result in a violation of state or federal law.

30. Pursuant to Section 125.022 FS, the applicant shall obtain all other applicable state or federal permits before commencement of the activity authorized herein.

ACTION REQUESTED: **Acceptance of the findings and recommendation of the Environmental Protection Division and approval of Shoreline Alteration/Dredge and Fill Permit SADF-19-04-007 for Hamlin Retail Partners East, LLC subject to the conditions listed in the staff report. District 1**

JW/DDJ: mg

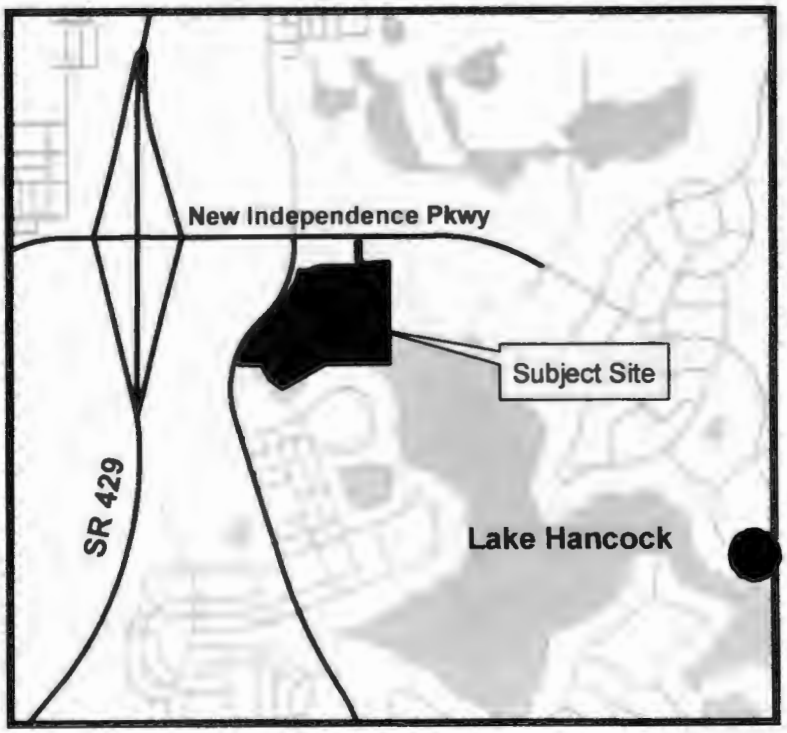
Attachments

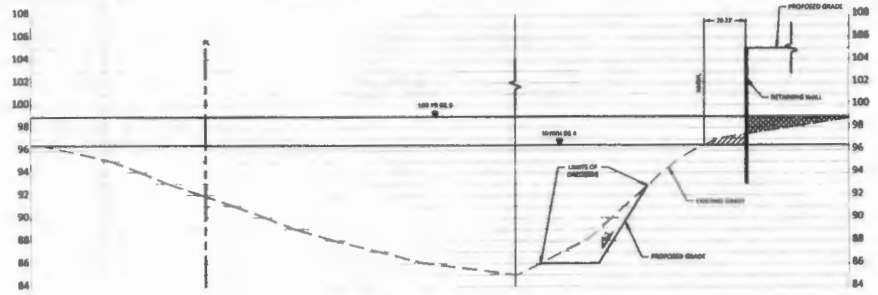
Shoreline Alteration/Dredge and Fill Permit Request

Shoreline Alteration/
Dredge and Fill Permit Request
SADF-19-04-007
District #1

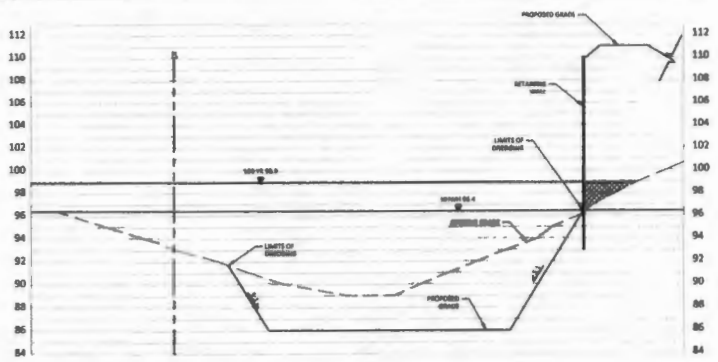
Applicant: Hamlin Retail Partners East LLC
Address: 14111 Shoreside Way
Parcel IDs: 20-23-27-2713-03-000
20-23-27-2713-04-000

Project Site
Property Location





A WALL CROSS SECTION
C-5.1



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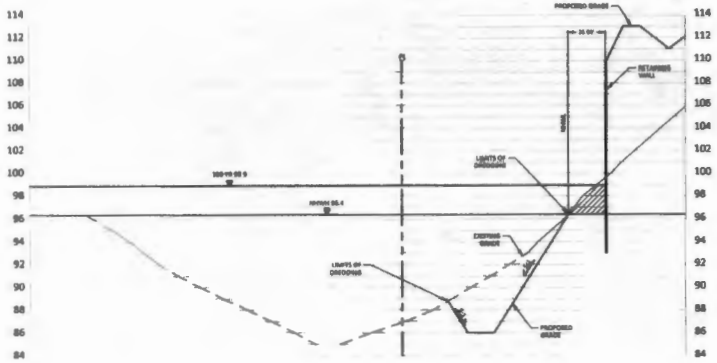
C-5.1



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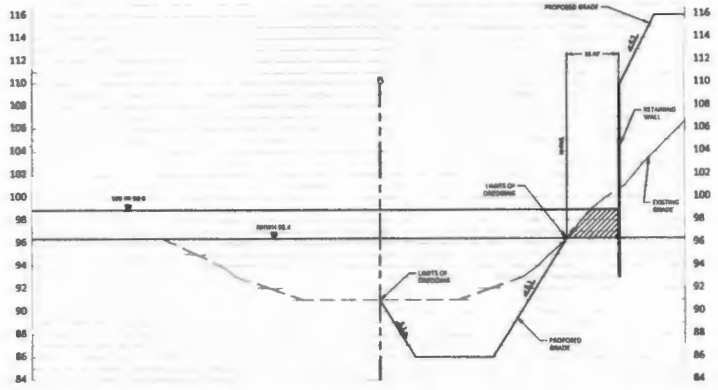

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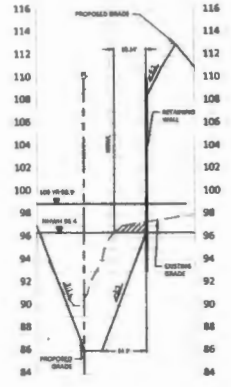

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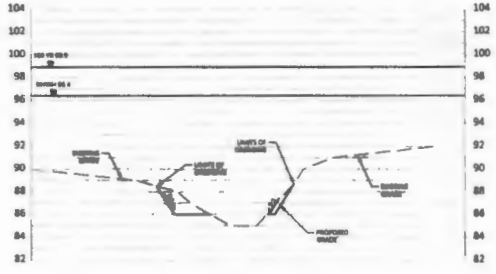

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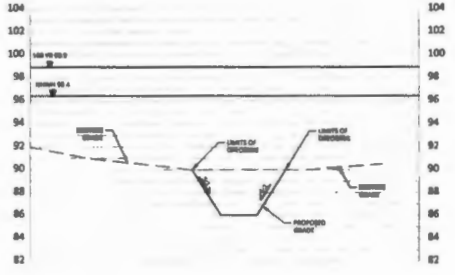


G WALL CROSS SECTION
C-5.1

received
10-30-2020

KELLY, COLLINS & GENTRY, INC.

DATE	REVISION

PREPARED FOR:
SLF IV / BOYD
HORIZON WEST JV, LLC

RW-2 & CCM-3
INFRASTRUCTURE PSP/DP
PSP-15-01-006

DREDGING
CROSS SECTIONS

DRAWN: GAS
DESIGN: AJR
CHECKED: MK
JOB NO.: [illegible]
DATE: [illegible]

SHEET
C-5.0

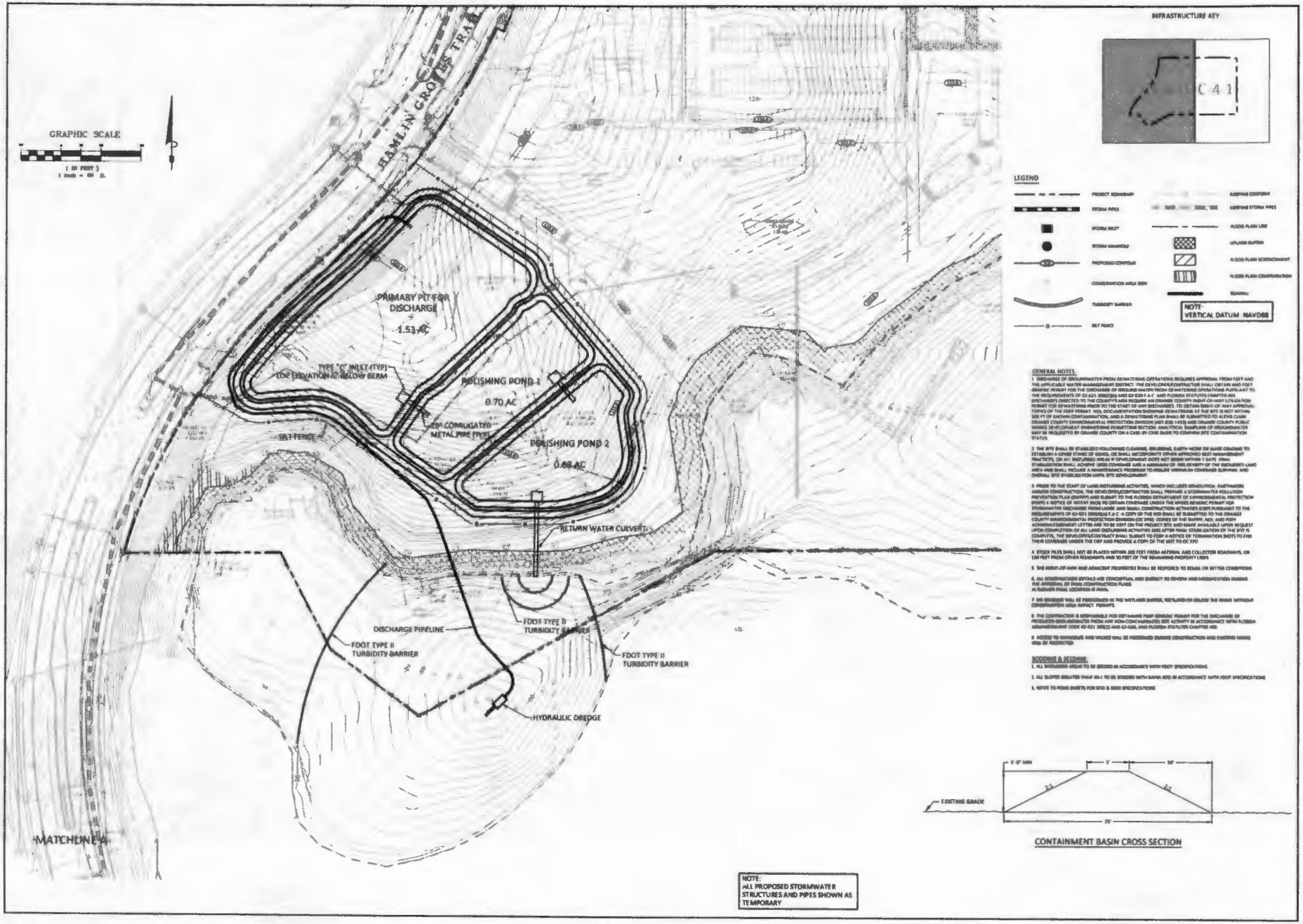
SHEET C-5.1	DREDGING PLAN	RW-2 & CCM-3 INFRASTRUCTURE PSP/DP PSP-15-01-006	PREPARED FOR: SLF IV / BOYD HORIZON WEST JV, LLC	DATE / REVISION	KCG KELLY, COLLINS & GENTRY, INC.

Bio-Tech Consulting Inc.
Environmental and Permitting Services
3025 E. South Street Orlando, FL 32803
Ph: 407-894-5969 Fax: 407-894-5970
www.bio-techconsulting.com

Lake Hancock Shoreline Alteration
Orange County, Florida
Figure
Dredge Areas vs. Enhancement Area

0 75 150
Feet

Project #: 325-34
Produced By: JDH
Date: 10/20/2020



KELLY, COLLINS & GENTRY, INC.

REVISION | DATE

PREPARED FOR:
SLF IV / BOYD
HORIZON WEST JV, LLC

RW-2 & CCM-3
MASS GRADING
PHASE I

LAKE DREDGE
PERMIT EXHIBIT

DRAWN: CRC
DESIGN: SMB
CHECKED: SCI
JOB NO.: 1186.000
DATE: 01/07/21

SHEET
C-1.0

LAKE HANCOCK
ORANGE COUNTY, FLORIDA
BOYD DEVELOPMENT CORPORATION

WATER QUALITY MONITORING PROGRAM

The 6.88-acre Lake Hancock Lakebed Restoration Project is located on the northwestern extent of Lake Hancock within Sections 20 & 21, Township 23 South, Range 27 East in Orange County, Florida. The project area is 6.88 acres in size within Lake Hancock and consists of a proposed hydraulic dredging plan for the removal of organic sediment, muck and vegetation to restore access and boat navigation to this area of the lake. The dredged material will be pumped to a series of three containment ponds where the final effluent will be discharged back into the work area via a control structure and pipe extending from the final pond into the work area.

Lake Hancock

Lake Hancock is located in southeast Orange County and is approximately 481 acres in size. A smaller western lobe of the lake is connected to the main lake through a narrow and shallow connection (neck). The vegetative species observed within the littorial zone of the lakeshore and shallow water's edge of the Lake Hancocok include common buttonbush (*Cephalanthus occidentalis*), sand cordgrass (*Spartina bakeri*), primrose willow (*Ludwigia peruviana*), St. Johns wort (*Hypericum* sp.), maidencane (*Panicum hemitomon*), blackberry (*Rubus* sp.), pickerelweed (*Pontederia cordata*), white waterlily (*Nymphaea odorata*), elderberry (*Sambucus canadensis*), Brazilian pepper (*Schinus terebinthifolius*), Chinaberry (*Melia azedarach*), wax myrtle (*Myrica cerifera*), cattail (*Typha* sp.), Carolina willow (*Salix caroliniana*), slender spikerush (*Eleocharis baldwinii*), coontail (*Ceratophyllum demersum*), Florida yellow bladderwort (*Utricularia floridana*), small pondweed (*Potamogeton pusillus*), and the plant-like algae Chara (*Chara* spp.).

As part of the permitting process associated with the project, the applicant, Boyd Development Corporation, will implement a 10-year program to monitoring the water quality conditions within the project area. The data collected during this monitoring program will be utilized to compare physical and chemical conditions to baseline conditions, to include, but not limited to, State water quality standards, to determine the effects, if any, of the vegetation removal within the project area.

Collection of surface water samples and data associated with the monitoring program will be conducted quarterly for 10 years (estimated at 40 sampling events – quarterly for 10 years). The results of the sampling/data collection will be submitted to the OCEPD and SFWMD within 45 days after completion of each quarterly sampling event. The 4th event and annual monitoring report shall be submitted within 60 days following completion of the sampling event. Report shall include chain of custody, calibration logs, field notes, maps, etc... If the collected data are indicative of atypical conditions or violations of water quality standards or criteria, OCEPD and SFWMD will be notified immediately. Any potential activities associated with corrective actions will be conducted in accordance and coordination with the OCEPD and SFWMD.

The following sections provide information associated with the proposed collection and analysis of water quality samples and data for the Lake Hancock Project Site Surface Water Quality Monitoring Program:

WATER QUALITY METHODS AND MATERIALS

The water quality plan will consist of field data and surface water sample collection, as well as analysis of samples by an approved laboratory. The data and samples will be collected from three (3) water quality monitoring stations to be established in Lake Hancock project area. Data/samples will be collected quarterly for 10 years (a total of forty sampling events). The quarterly events will be established under the Baseline Monitoring Report.

Results of the monitoring events will be compiled and outlined in an annual report submitted to the OCEPD and SFWMD following the ultimate sampling event of the year. The letter reports will include methods, field data, laboratory data, and comparisons of gathered data to baseline/background information, as well as State water quality standards. This monitoring plan is proposed to commence upon approval of the Conservation Area Impact Application from the Orange County Environmental Protection Division (OCEPD) and the South Florida Water Management District (SFWMD) ERP Permit.

The samples collected will be obtained as surface "grabs" utilizing a polyethylene dipper when necessary. Field activities conducted as part of this program will be in accordance with Florida Department of Environmental Protection (FDEP) Standard Operating Procedures (SOP) listed in FT1000 (rev 1/2017). Laboratory analysis will be conducted by a NELAC certified laboratory (TestAmerica – DOH Certification #E83012 Orlando, DOH Certification #E84282 Tampa and DOH Certification #E84282 Nashville). Samples obtained will be placed in containers that have been prepared with the appropriate fixing agents (where necessary), placed on ice and stored at 4°C until delivery to the analyzing laboratory. Samples will be delivered to the laboratory by the project biologist within six (6) hours of collection.

PROPOSED SAMPLING STATIONS

The data and samples gathered as part of this plan will be collected from the following proposed water quality monitoring station: GPS coordinates of the sample locations are provided on the attached exhibit.

Station	Location
Station #1	Western Lobe of Lake Hancock
Station #2	Eastern Lobe of Lake Hancock
Station #3	Southern lobe

The locations of the stations are depicted on the attached exhibit. We believe these locations will be sufficient to assess the project's contributions to the water quality of Lake Hancock.

WATER QUALITY FIELD MEASUREMENTS

Field parameters to be obtained during each monitoring event will include the following:

Time
Dissolved Oxygen
Turbidity (NTU)
Secchi Depth
Water Temperature
Specific Conductivity
pH

Upon arrival at the sampling destination, instruments will be calibrated prior to the collection of samples. During both calibration events standard EPA methods and manufacturer's instructions will be followed. Equipment will be calibrated upon return from the field sampling event to determine drift or error. If drift or error noted is greater than 10% of the measurements recorded will be discarded. In the event that field equipment is in unsatisfactory working condition, the sample date will be rescheduled until such time as the equipment is repaired or alternate equipment is available. Weather conditions will be noted as each monitoring event.

In situ measurements of dissolved oxygen, temperature, specific conductance, and pH will utilize a calibrated YSI Water Quality Data System or similar multi-parameter water quality monitoring instrumentation.

The project biologist will be responsible for sample custody until sample containers are dropped off at the analyzing laboratory. The project biologist will physically collect samples and operate field equipment. The project biologist will be responsible for recording all data and logging information on data sheets and labels in the field. Samples will be transported from the field to the laboratory by the project biologist. When samples are dropped off at the analyzing laboratory, a chain of custody form will be transferred from the project biologist to the laboratory project manager for each set of samples collected. The laboratory will verify the sample location identification, number of samples and types of samples collected. Samples will be logged in and processed per Section 7 of the analyzing laboratory's QAP.

WATER QUALITY SAMPLING ANALYSES

In order to further assess the quality of the designated surface waters, the following sampling parameters, with the exception of metals (annually), will be collected and monitored quarterly: The laboratory Method Detection Limits are based on the Class III criteria as listed in Chapter 62-302.530, F.A.C.

Method	Description
SM2120B	Color in Water by Spectrophotometry (Modified)
SM2340B	Hardness, Ca, Mg
SM10200H	Chlorophyll a corrected Determination
SM2320B	Alkalinity in Water by Titration
SM2540B	Total Solids Dried 103-105C in Water
SM2540C	Total Dissolved Solids in Water
SM2540D	Total Suspended Solids in Water
SM4500CLE	Chloride in Water by Colorimetry- Automated Ferricyanide Method
SM5210B	5-Day Biochemical Oxygen Demand
SM9222D	Escherichia coli
EPA180.1	Turbidity by Nephelometry
EPA200.7	Metals in Water by ICP-AES *
	(AL, Ba, Bo, Ca, Cr, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn)
EPA200.8	Metals in Waters by ICP/MS *
	(Antimony, Arsenic, Beryllium, Cadmium, Lead, Selenium, Silver, Thallium)
EPA300.0	Sulfate
EPA350.1	Ammonia Nitrogen by Colorimetry
EPA351.2	Total Kjeldahl Nitrogen by Colorimetry
	(total Nitrogen, TKN, and Organic Nitrogen)
EPA353.2	Nitrate-Nitrite Nitrogen by Colorimetry (Nitrate, Nitrite, Nox)
EPA365.1	Phosphorus by Colorimetry (TP, OrthoP, and TP filtered)

* Metals analysis will be conducted annually during the ultimate sampling event of each year.

Sample containers utilized in laboratory analysis will be obtained from the NELAC certified laboratory to be utilized prior to each sampling event. The containers will be labeled to indicate the type of analysis (nutrients, biological, metals, etc...) and the type of preservative (if appropriate) for each container. Quality assurance objectives for laboratory analysis of listed parameters will be as per methods listed within Section 5 of the analyzing laboratory's QAP (available upon request).

Upon receipt of the results of the laboratory analysis, all data will be collated, reviewed and compared to baseline data as well as calculated Class III Water Quality Standards established by the FDEP [F.A.C. 62-302.560 Criteria: Class III Waters] when applicable. In addition, results obtained for total nitrogen, total phosphorus and chlorophyll a will be utilized in the Numeric Nutrient Criteria evaluation as described in Chapter 62-302, F.A.C.

REMEDIATION PLAN DURING DREDGE ACTIVITIES

During the dredging process, if water samples show atypical conditions, the applicant will implement a remediation plan to address the specific condition. "Atypical" conditions include elevated levels of specific conductance, dissolved oxygen, pH, and turbidity as defined in 62-302.530 F.A.C. outside the work area.

The County will be contacted immediately regarding any sample criteria that may be considered "atypical." A remediation plan would include stopping all dredging activities until a corrective action plan is drafted, approved and implemented. Once the approved corrective action plan has been put in place, the applicant will resume safe dredging operations until complete.

In applying the water quality standards, the County shall take into account the variability occurring in nature and shall recognize the statistical variability inherent in sampling and testing procedures. The Department's assessment methodology, set forth in Chapter 62-303, F.A.C., accounts for such natural and statistical variability when used to assess ambient waters pursuant to sections 305(b) and 303(d) of the Federal Clean Water Act.

Criteria for Surface Water Quality Class III Freshwater 62-302.530 F.A.C.		
(22) Conductance Specific	Micromhos/cm	Shall not be increased more than 50% above background or to 1275, whichever is greater.
(30) Dissolved Oxygen	Milligrams/L	Rule 62-302.533, F.A.C. (b) For lakes, the daily average DO level shall be calculated as the average of measurements collected in the upper two meters of the water column at the same location on the same day. DO within the DO Percent Saturation as determined by the Dissolved Oxygen Percent Saturation Calculator
(52)(c) pH (Class III Waters)	Standard Units	Shall not vary more than one unit above or below natural background of predominantly fresh waters and coastal waters as defined in paragraph 62-302.520(3)(b), F.A.C. or more than two-tenths unit above or below natural background of open waters as defined in paragraph 62-302.520(3)(f), F.A.C., provided that the pH is not lowered to less than 6 units in predominantly fresh waters, or less than 6.5 units in predominantly marine waters, or raised above 8.5 units. If natural background is less than 6 units, in predominantly fresh waters or 6.5 units in predominantly marine waters, the pH shall not vary below natural background or vary more than one unit above natural background of predominantly fresh waters and coastal waters, or more than two-tenths unit above natural background of open waters. If natural background is higher than 8.5 units, the pH shall not vary above natural background or vary more than one unit below natural background of predominantly fresh waters and coastal waters, or more than two-tenths unit below natural background of open waters.
(70) Turbidity	Nephelometric Turbidity Units	≤ 29 above natural background conditions

SUBMERGED AQUATIC VEGETATION SAMPLING

Two submerged aquatic vegetation sampling events will be conducted annually over the 10-year period. The LVI will be performed following the concepts outlined in the LVI Primer as described in the DEP SOP LVI 1200. Samplers will conduct the assessment per DEP SOP LVI 1100, following other guidelines outlined in the Primer. LVI scores will be calculated in accordance with SOP LVI 2200. Maps depicting the permanent sampling sections and the sampled sections of each event will be provided in all reports. All sampling and report preparation will be done by qualified individuals as noted in FDEP documents (DEP-SAS-002/11).

MUCK SAMPLING

Accumulated muck depth sampling will be conducted annually throughout the 10-year monitoring period. Following the 10-year monitoring period, the dredge areas will be monitored every two (2) years for muck accumulation. If the measured muck accumulation within any of the dredged areas achieves one foot or greater in thickness, it shall be removed in order to maintain the original purpose and design of the project. A maintenance dredge plan will be submitted to OCEPD including the dredge methods, treatment/storage of spoil, BMPs, and a water quality monitoring plan.

BENTHIC MARCROINVERTEBRATE SAMPLING

Benthic macroinvertebrate communities will be assessed during the winter and summer monitoring events bi-annually over the 10-year period to denote any population trends in the benthic population using Hester-Dendy samplers in accordance to FDEP SOP FS 7430 and LT 7710 for collection, sample preparation and analysis. One control station will be located outside of the project area in close proximity and similar depth.

VEGETATIVE MONITORING

The project proposes to enhance the southern portion of the western cove with native herbaceous plantings. Native species such as arrowhead (*Sagittaria lancifolia*), pickerelweed (*Pontederia cordata*), jointed spikerush (*Eleocharis equisetoides*), fireflag (*Thalia geniculata*), canna (*Canna flaccida*), soft rush (*Juncus effuses*), water-lily (*Nymphaea odorata*), sawgrass (*Cladium jamaicense*), maidencane (*Panicum hemitomon*), and giant bulrush (*Schoenoplectus californicus*) will be planted within the littoral zone. Final details and plant numbers will be field determined by the project manager based on site conditions, and will be included in the final engineering documents. A monitoring and maintenance plan will be implemented to ensure the integrity of the plant communities.

Monitoring

The shoreline enhancement area will be quantitatively monitored for a period of ten (10) years. The monitoring events will occur on a semi-annual basis for the entire monitoring period. A baseline monitoring report and ten (10) annual reports will be submitted to the Orange County Environmental Protection Division (OCEPD).

Permanent monitoring transects will be established throughout the shoreline enhancement area and utilized for the collection of sampling data. Each transect will be 100 feet in length have two (2) monitoring stations. Monitoring stations will include a quantitative assessment of vegetation

within a 50-foot radius of each monitoring station. At the ends of each transect, photo stations will be established to provide photographic documentation of the preservation areas. A GPS point will be recorded at each photo station and shown on an exhibit. Data collected from these monitoring stations will include a vegetative species listing with wetland status, estimated percent coverage of species, wildlife utilization, and a description of any problems encountered during the evaluation and proposed solutions.

Maintenance

During the ten (10) year monitoring period, maintenance events to control nusiance and exotic vegetation will occur monthly for the first two (2) years and quarterly the remaining eight (8) years. Maintenance events will be conducted to ensure that the conservation areas are free from invasive exotic vegetation (as defined by the Florida exotic pest plant council) immediately following a maintenance activity and shall constitute no more than 5% of vegetative cover between maintenance activities. Nuisance plant species shall constitute no more than 10% of total cover.

To demonstrate that the mitigation is successful, the following criteria must be maintained.

1) 0% coverage of Category 1 exotic vegetation immediately following a maintenance activity.
2) Coverage of exotic species shall not exceed 5% and coverage of nuisance plant species shall not exceed 10% of total cover between maintenance activities.

MONITORING PROGRAM REPORT PREPARATION

A report of monitoring results will be prepared and submitted annually to the OCEPD and the SFWMD. The reports will be due within ninety (90) days following completion of the last seasonal monitoring event for each year (TBD by Baseline Monitoring Event). The reports will present the results of all in situ measurements and laboratory analyses in tabular and/or graphic formats. The annual reports will include a map indicating the location of all sampling stations; a description of the methods used in collecting, handling, storing, and analyzing all samples; a tabulation of all measurements and analytical results. Data and conclusions drawn from the reports will be utilized to determine the effects, if any, of development on the selected surface waters located in the vicinity of the project. If the collected data are indicative of atypical conditions, OCEPD and SFWMD will be notified immediately. Any potential activities associated with corrective actions will be conducted in accordance and coordination with the OCEPD and SFWMD.

Bio-Tech Consulting Inc.
Environmental and Permitting Services
3025 E. South Street Orlando, FL 32803
Ph: 407-894-5969 Fax: 407-894-5970
www.bio-techconsulting.com

Lake Hancock Shoreline Alteration
Orange County, Florida
Figure
Sampling Stations

0 225 450 900
Feet

Project #: 325-34
Produced By: JDH
Date: 10/30/2020

Bio-Tech Consulting Inc.
Environmental and Permitting Services
3025 E. South Str rlando, FL 32803
Ph: 407-894-596 407-894-5970
www.bio-techcons .com

Hamlin Dredge
Orange County, Florida
Fig 2
Sample Stations

0 225 450 900
Feet

Project #: 325-34
P iced By: JDH
Date. 10/29/2019