

**SEMINOLE COUNTY GOVERNMENT
AGENDA MEMORANDUM**

SUBJECT: Request Authorization to Submit a Department of Environmental Protection 319(h) Grant Application for the Construction of Stormwater System Improvements which will make use of the Club II Regional Stormwater Facility

DEPARTMENT: Public Works **DIVISION:** Road Operations and Stormwater

AUTHORIZED BY: W Gary Johnson **CONTACT:** Mark E. Flomerfelt **EXT.** 5710
W. Gary Johnson, P.E., Dir. Mark E. Flomerfelt, P.E., Mgr.
Public Works Dept. Road Ops/Stormwater Division

Agenda Date <u>06/08/04</u> Regular <input checked="" type="checkbox"/> Consent <input type="checkbox"/> Work Session <input type="checkbox"/> Briefing <input type="checkbox"/>
Public Hearing – 1:30 <input type="checkbox"/> Public Hearing – 7:00 <input type="checkbox"/>

MOTION/RECOMMENDATION:

Approve and authorize staff to submit a Nonpoint Source Management Program, 319(h) grant application request to the Department of Environmental Protection for the construction of stormwater system improvements which will make use of the Club II Regional Stormwater Facility.
District 5; Commissioner McLain (Mark Flomerfelt)

BACKGROUND:

Staff has been working with the Florida Department of Environmental Protection (FDEP) to secure the necessary funding for the design, permitting, and construction of control and diversion structures that will make the Club II regional stormwater facility fully operational. Construction of the structures would improve water quality and drainage within portions of the Midway basin, including the correction of deficiencies along First Drive and Brisson Avenue. The Club II Regional Stormwater facility will be located on a 100 acre site located north of S.R. 46, west of Brisson Avenue.

The grant application requests \$400,000 for the construction of stormwater system improvements which will make use of the 65 acre regional stormwater facility formerly known as the Club II borrow pit. The total cost of the project is \$2,205,000, with \$1,805,000 in a matching contribution. County contribution is through current grant money (SJRWMD), land/easement value and in-house Project Management services. If completed, this facility will provide an estimated 130 acre-feet of storage capacity, resulting in flood control and water quality improvements to portions of the Midway Basin and the existing Sanford Airport outfall.

Reviewed by:	<u>[Signature]</u>
Co Atty:	<u>[Signature]</u>
DFS:	<u>[Signature]</u>
Other:	<u>N/A</u>
DCM:	<u>[Signature]</u>
CM:	<u>[Signature]</u>
File No.	<u>CPWS02</u>

The grant applications are due to the FDEP by July 12, 2004 with funds available immediately upon award.

Attachments: Grant Request application

PROJECT: Club II Regional Stormwater Facility
Stormwater Management System

PROJECT FUNDING: \$400,000.00

LEAD ORGANIZATION: Seminole County
Road Operations & Stormwater Division

CONTACT PERSON: Tom Radzai
Senior Engineer/Capital Projects
520 W. Lake Mary Boulevard
Suite 200
Sanford, FL 32773
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COOPERATING ORGANIZATIONS:
St. Johns River Water Management District

PROJECT ABSTRACT: The project proposes to convert the Club II Borrow pit into a regional stormwater treatment facility. This conversion will involve major regrading of the existing borrow pit site along with the installation of stormwater infrastructure improvements. The end result will be a dual cell wet-detention facility that collects stormwater runoff from the surrounding area and treats it prior to discharging into Lake Monroe (Middle St. Johns River). The areas slated for connection to the proposed stormwater management system currently employ no water quality treatment prior to discharging into Lake Monroe; therefore the construction of this stormwater treatment facility will tremendously reduce the total pollutant (nutrients, suspended solids, BOD, heavy metals) loading to Lake Monroe by approximately 33,000-kg (36.5-tons) per year. In addition to the water quality treatment provided, the proposed stormwater management system will also have a dramatic benefit with regard to flood protection for a large portion of the existing watershed.

PROJECT LOCATION AND WATERSHED CHARACTERISTICS: The Club II Borrow pit is located within Section 32 of Township 19 South and Range 31 East. More specifically, the project site is located north of State Road 46 (Geneva Avenue), south of First Drive, east of the Roseland Park Development and west of Brisson Avenue in Seminole County, Florida.

Watershed Name: Upper St. Johns (Lake Monroe)
Latitude: 28.7937
Longitude: -81.2433
Hydrologic Unit Code (HUC): 03080101

Land Uses within the Watershed (acres and percentages of total):

Land Use	Acres	%
Residential	111.79	21.56
Pasture	199.60	38.49
Woods	103.40	19.94
Surface Water	103.80	20.01
Land Use Totals (Acreage and %)	518.56	100.00

* Land uses and corresponding area pertain to the drainage area contributing stormwater runoff to the proposed stormwater management system.

POLLUTION REDUCTION STRATEGY: This proposal represents a significant step forward in the process to drastically reduce the pollutants injected into surface water bodies by untreated stormwater runoff. The proposed pollution reduction will be accomplished by converting an 84.5-acre borrow pit into a dedicated wet detention facility. The stormwater runoff generated by approximately 416-acres of surrounding pasture, woodland and residential area (including a portion of the Sanford-Orlando Airport) previously discharging directly to Lake Monroe will now be re-routed into the Club II Borrow Pit Stormwater Management System for treatment. The proposed facility will reduce the pollutant loading to Lake Monroe by a total of approximately 36.5-tons per year.

PROJECT OBJECTIVE(S): Lake Monroe is listed as impaired for Nutrients (TSI) and Dissolved Oxygen on the Draft 2003 Verified 303(d) list. The TMDL for both of these parameters is listed as a "low" priority projected for development in 2008. The Club II Borrow Pit Stormwater Management Facility will be designed and constructed to remove a substantial amount of the pollutants contributing to the impaired status of Lake Monroe including the following: Total Nitrogen (TN), Total Phosphorus (TS), Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), Total Copper (TCu), Total Lead (TPb) and Total Zinc (TZn). This reduction in pollutant loading will be accomplished by re-directing stormwater runoff previously discharging directly to Lake Monroe into an 84-acre borrow pit that will be converted into a dedicated stormwater management facility.

PROJECT DESCRIPTION: The Club II Borrow Pit Stormwater Management Facility will consist of two primary phases. Phase 1 will involve the conversion of the existing borrow pit into a wet detention pond and Phase 2 will redirect the runoff generated by the surrounding area into said pond.

At the present time, the Club II Borrow Pit is owned by Bishop and Buttrey and is actively providing fill material for sale. As part of the final reclamation plan, the existing borrow pit will be regraded to provide adequate side slopes for safety and maintenance purposes. Secondly, the stormwater related infrastructure (i.e. control structures) will be installed in order to regulate the water level and discharge rates from the pond. The proposed plan for controlling the water level utilizes a two-stage approach involving both

a low and a high level stormwater outfall. The low level overflow will discharge into the smaller northern cell of the existing borrow pit. Due to the elevations of the homes within a residential development north of the northern cell, it was recommended by the project geotechnical engineer (Devo Engineering), after a thorough analysis, that the water level in the northern cell be controlled as low as possible in order to avoid a berm failure. Therefore, only small orifice flows from the stormwater facility will be discharged into the northern cell. All high level flows will be discharged into the adjacent ditch system via a western control structure and routed to the main outfall ditch on the north side of First Avenue, effectively bypassing the northern cell. This strategy provides an effective water quality treatment process without aggravating the potential seepage condition in the northern borrow pit cell. A brief summary of the preliminary engineering design data for the proposed wet detention pond is included in the following table:

Drainage Area Treated	415.79 acres (0.65 square miles)
Permanent Pool Volume	1,722.34 acre-feet
Mean Detention Time	1395 days
Treatment Volume	156.96 acre-feet (4.53 inches over Drainage Area)

The second component of the project involves re-routing stormwater runoff from the adjacent areas into the Club II Borrow Pit Stormwater Management Facility. This will be accomplished by augmenting/improving existing or constructing new conveyance systems to direct stormwater runoff into the proposed wet detention pond.

ESTIMATED POLLUTANT LOAD REDUCTION:

BMP's Installed		TSS kg/year	TP kg/year	TN kg/year	BOD kg/year	Copper kg/year	Lead kg/year	Zinc kg/year
Club II Borrow Pit								
Pollutant Loads	Pre-Project	28,723	68.1	798	3,869	8.33	2.53	71.5
	Post-Project	258	1.3	68	107	0.31	0.08	1.3
	Load Reduction	28,465	66.8	730	3,762	8.02	2.45	70.2
	% Reduction	99	98	91	97	96	97	98

MODEL USED: The estimated pollutant load reductions stated above were taken directly from a project specific report prepared by Environmental Research & Design, Inc. (Harvey H. Harper, Ph.D., P.E.). Land use and proposed wet detention pond stage-storage data was developed by Professional Engineering Consultants, Inc. and provided to ERD for use in their analysis. A copy of this report is enclosed as supporting documentation for this grant application.

OUTPUTS/DELIVERABLES:

Task 1 – Construction Plans and Permitting

Final construction plans and specifications will be prepared for the borrow pit conversion and the stormwater infrastructure improvements. These plans and specifications will be developed based on a thorough investigation of existing site conditions and previous stormwater studies, detailed modeling of the proposed stormwater management system and industry standard cost-effective design practices. In addition to all information required to obtain the necessary construction permits, the plans and specifications for this project will include a comprehensive erosion and sediment control plan.

Task 2 – Construction

Construction of the Club II Borrow Pit Stormwater Management Facility will begin once the construction plans and specifications have been completed, permits have been obtained and contractors have been selected. Seminole County will provide construction administration and inspection services throughout the duration of the project.

Task 3 – Effectiveness Evaluation

In order to measure the effectiveness of the Club II Borrow Pit Stormwater Management Facility, Seminole County will provide sampling services as explained in Attachment A. In summary, grab samples will be obtained and analyzed at specified intervals in order to verify the estimated pollutant load reduction effectiveness. Reports documenting the results of all sampling activities will be filed.

Task 4 – Project Administration

Seminole County staff will perform (or retain consultants to perform) all project management, construction administration (including construction contractor selection and construction inspection) and effectiveness evaluation duties. Seminole County will also be responsible for ensuring that all reports are submitted to FDEP including construction progress reports, annual monitoring reports and the final project report.

PROJECT MILESTONES:

Task	Activity	Start	Complete
1	Grant Award		Month 1
2	Finalize Design	Month 1	Month 3
3	Pre-Implementation Monitoring	Month 1	Month 6
4	Permitting	Month 3	Month 6
5	Construction	Month 6	Month 12
6	Post-Implementation Monitoring	Month 12	Month 36
7	Quarterly Progress Reports	Month 1	Month 12
8	Final Project Report	Month 33	Month 36

PROJECT BUDGET SUMMARY:

Project Funding Activity	Grant Amount	Matching Contribution	Match Source
Task 1- Land Acquisition		\$1,000,000	Seminole County
Task 2 – Preliminary Engineering Design		\$50,000	SJRWMD
Task 3 – Construction Plans & Permitting	\$75,000		
Task 4 – Construction	\$325,000		
Task 5 – Effectiveness Evaluation		\$50,000	Seminole County
Task 6 – Project Administration		\$131,000	Seminole County
Total :	\$400,000	\$1,231,000	
Total Project Cost :	\$1,631,000		

*The final reclamation plan for the existing borrow pit provides Seminole County with a dedicated drainage easement over the entire borrow pit.

REFERENCES CITED:

Harper, Harvey H., Ph.D., P.E., January 2004. *Evaluation of the Performance Efficiency of the Proposed Club II Borrow Pit Stormwater Management System – Draft Final Report*. Environmental Research & Design, Inc. 3419 Trentwood Boulevard, Suite 102, Orlando, Florida 32812

Seereeram, Devo, Ph.D., P.E., June 2003. *Liner Recommendations For Club 2 Borrow Pond Fill Berm where it interfaces with Celery Plantation Subdivision on the North; and Groundwater Baseflow Analysis Into Club 2 Borrow / Pond For Various Control Level*. 5500 Alhambra Drive, Orlando, Florida 32808

Kincaid, Stephen L., P.E., et al, July 1992. *Midway Basin Drainage Inventory and Engineering Study*. Lochrane Engineering, Inc., 201 South Bumby Avenue, Orlando, Florida 32803

Seminole County Property Appraiser Services
<http://www.scpafl.org/scpaweb/index.jsp>

U.S. Environmental Protection Agency: Surf Your Watershed > Upper St. Johns
http://cfpub.epa.gov/surf/huc.cfm?huc_code=03080101

Florida Department of Environmental Protection
 Total Maximum Daily Loads
<http://www.dep.state.fl.us/water/tmdl/index.htm>

APPENDIX A: MONITORING PLAN

Draft Water Quality Monitoring Plan For Club II Borrow Pit Stormwater Management Facility

Sampling Location: Low-Level Outfall Discharge into the Northern Borrow Pit Cell

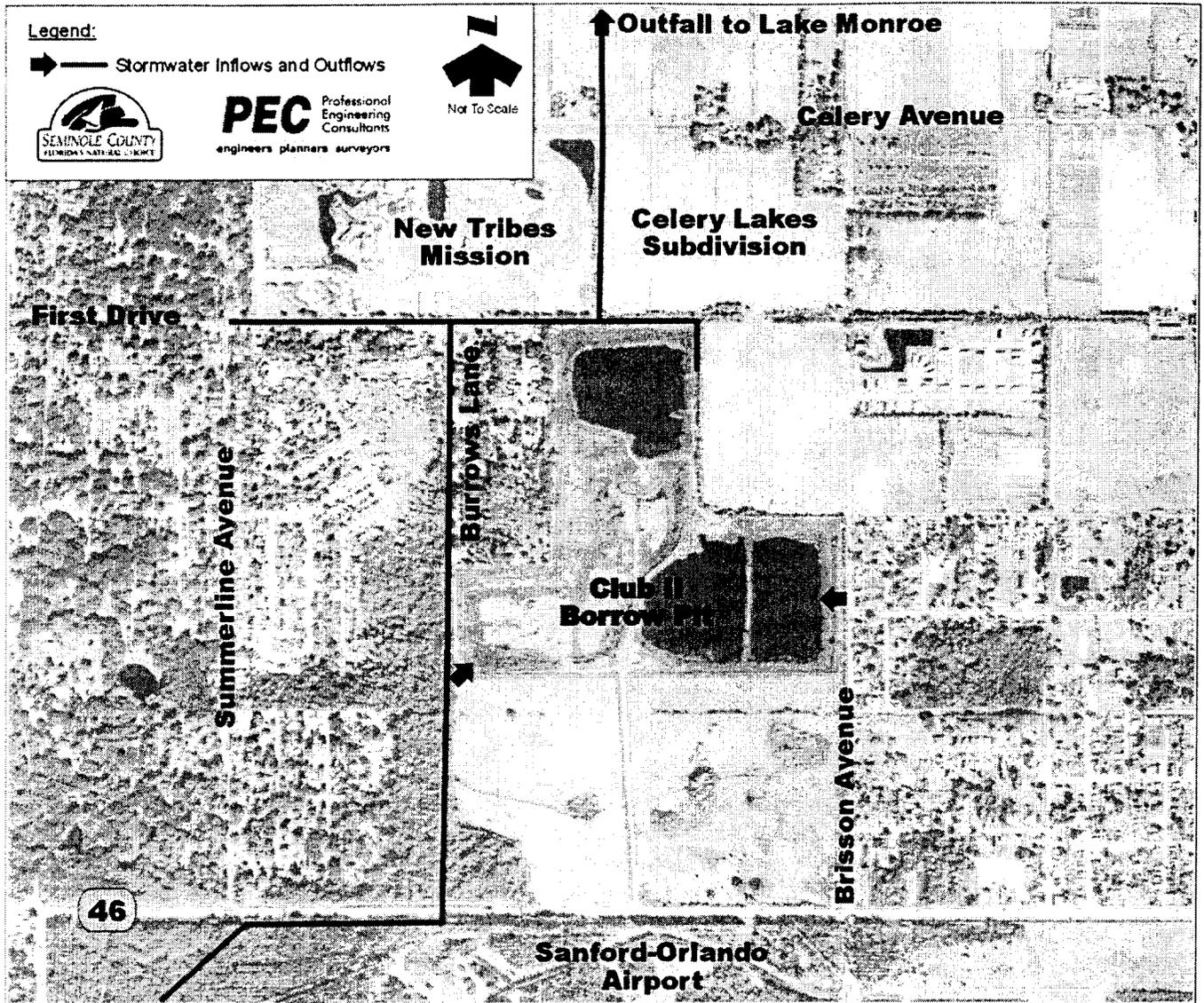
Frequency of Monitoring: Monthly

Parameters to be Monitored: Total Nitrogen (TN)
Total Phosphorus (TP)
Total Suspended Solids (TSS)
Biochemical Oxygen Demand (BOD)

Sampling Method: Grab Sample

APPENDIX B: SITE MAPS

Figure 1: Site Location Map



Please also find a conceptual plan exhibit enclosed.

APPENDIX C: OTHER RELEVANT INFORMATION

Please find the following enclosed:

Evaluation of the Performance Efficiency of the Proposed Club II Borrow Pit Stormwater Management System – Draft Final Report. January 2004

Prepared by: Environmental Research & Design, Inc.
3419 Trentwood Boulevard, Suite 102
Orlando, Florida 32812
Harvey H. Harper, Ph.D., P.E.

Final Reclamation Plans for The Club II Borrow Pit. April 2004

Prepared by: Bishop & Buttrey
6239 Edgewater Drive, Suite D-1
Orlando, Florida 32810
Ed Chesney, P.E.

Drainage Basin Map (Proposed Condition) for the Club II Borrow Pit - Draft

Prepared by: PEC/Professional Engineering Consultants, Inc.
200 E. Robinsion Street, Suite 1560
Orlando, Florida 32801
Greg Teague, P.E.