



**Interoffice Memorandum**

**APPROVED  
BY ORANGE COUNTY BOARD  
OF COUNTY COMMISSIONERS**

**JUN 16 2015** *NP/BS*

**AGENDA ITEM**

May 20, 2015

**TO:** Mayor Teresa Jacobs  
—AND—  
Board of County Commissioners

**FROM:** Jon V. Weiss, P.E., Director *JVW*  
Community, Environmental and Development  
Services Department

**CONTACT PERSON:** **Lori Cunniff, CEP, CHMM, Deputy Director**  
**Community, Environmental and Development**  
**Services Department** *L Cunniff*  
**(407) 836-1405**

**SUBJECT:** June 16, 2015 — Consent Item  
Bay Lake Stormwater Retrofit Project, FDEP Section 319 Grant  
Agreement No. G0336, Amendment No. 2

The Environmental Protection Division (EPD) is requesting approval of the Second Amendment to the Florida Department of Environmental Protection (FDEP) Section 319 Grant Agreement No. G0336 for the Bay Lake Stormwater Retrofit Project.

On May 22, 2012, the Board of County Commissioners (BCC) approved the FDEP Section 319 Grant Agreement No. G0336 for the Bay Lake Stormwater Retrofit Project. The First Amendment was approved by the BCC on February 25, 2014, to revise the Grant Work Plan.

Bay Lake (WBID 3004G) is located in the Upper St. Johns watershed in the Wekiva River basin, Middle St. Johns River. Bay Lake is currently TMDL impaired for nutrients (nitrogen and phosphorus). Two in-line water quality treatment vaults, known as modular wetlands, were installed in existing drainage infrastructure that outfall into Bay Lake. Each device incorporates the following multi-treatment compartments: (1) organic and floatable material separation and exclusion from the surcharged portion of the structure, (2) sediment separation and containment, (3) particulate nutrient filtration, and (4) nutrient assimilation using bio-media filtration technology. This stormwater improvement project provides increased nutrient removal efficiencies as a result of the unique and innovative components designed into the system.

Page Two

June 16, 2015 – Consent Item

Bay Lake Stormwater Retrofit Project, FDEP Section 319 Grant Agreement No. G0336, Amendment No. 2

The Second Amendment serves to provide a no-cost time extension from June 18, 2015 to September 20, 2015, in an effort to complete the monitoring phase of the project.

The Second Amendment to the FDEP Grant Agreement No. G0336 was reviewed by the County Attorney's Office and approved as to form.

**ACTION REQUESTED: Approval of DEP Agreement No. G0336 Amendment No. 2 between the State of Florida Department of Environmental Protection and Orange County for the Bay Lake Stormwater Retrofit Project. District 2**

JVW/LC: mg

Attachments

APPROVED  
BY ORANGE COUNTY BOARD  
OF COUNTY COMMISSIONERS  
JUN 16 2015 *NPLBS*

DEP AGREEMENT NO. G0336  
AMENDMENT NO. 2

THIS AGREEMENT as entered into on the 18<sup>th</sup> day of June, 2012, and amended on the 12<sup>th</sup> day of March, 2014, between the STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (hereinafter referred to as the "Department") and ORANGE COUNTY, FLORIDA, a Charter County and political subdivision of the State of Florida (hereinafter referred to as the "Grantee") is hereby amended.

WHEREAS, due to delays in the monitoring phase caused by unfavorable weather conditions, the Grantee has requested a no-cost time extension to complete the project; and,

WHEREAS, the Department has agreed that a no-cost time extension is necessary to complete the project; and,

WHEREAS, other changes to the Agreement are necessary.

NOW, THEREFORE, the parties hereto agree as follows:

-- Paragraph 2 is hereby deleted and replaced with the following:

2. This Agreement shall begin upon execution by both parties and remain in effect through September 20, 2015, inclusive. The Grantee shall be eligible for reimbursement for work performed on or after the date of execution through the expiration date of this Agreement. This Agreement may be amended to provide for additional services if additional funding is made available by EPA and/or the Legislature.

-- Paragraph 16 is hereby revised to remove the Department's Administrative Grant Manager and corrected as follows:

Misty Alderman	
Florida Department of Environmental Protection	
Nonpoint Source Management Section	
3900 Commonwealth Boulevard, MS# 3570	
Tallahassee, Florida 32399-3000	
Telephone No.:	(850) 245-2946
E-mail Address:	Misty.Alderman@dep.state.fl.us

-- Attachment A-1, Revised Grant Work Plan, is hereby deleted in its entirety and replaced with **Attachment A-2, Second Revised Grant Work Plan**, attached hereto and made a part of the Agreement. All references in the Agreement to Attachment A-1 shall hereinafter refer to **Attachment A-2, Second Revised Grant Work Plan**.

In all other respects, the Agreement of which this is an Amendment, and attachments relative thereto, shall remain in full force and effect.

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IN WITNESS WHEREOF, the parties have caused this Amendment to be duly executed the day and year last written below.

ORANGE COUNTY, FLORIDA  
By: Board of County Commissioners

By: *Teresa Jacobs*  
Title: Teresa Jacobs, County Mayor  
Date: 6.16.15

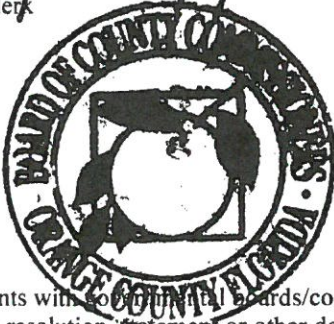
STATE OF FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

By: *[Signature]*  
Secretary or Designee  
Date: 6/17/15

ATTEST: Martha O. Haynie, County Comptroller  
As Clerk of the Board of County Commissioners

By: *Craig A. Stoyles*  
for Deputy Clerk

*Misty Alderman*  
Misty Alderman, DEP Grant Manager  
*Domenica Allen*  
DEP Contracts Administrator



Approved as to form and legality:  
*Lisa M. Archene*  
DEP Attorney

\*For Agreements with governmental boards/commissions: If someone other than the Chairman signs this Amendment, a resolution, statement or other document authorizing that person to sign the Amendment on behalf of the Grantee must accompany the Amendment.

List of attachments/exhibits included as part of this Amendment:

Specify Type	Letter/Number	Description (include number of pages)
Attachment	A-2	Second Revised Grant Work Plan (5 Pages)

**ATTACHMENT A-2  
SECOND REVISED GRANT WORK PLAN**

**PROJECT NAME:** Bay Lake Stormwater Retrofit Project

**PROJECT FUNDING:** \$150,000 **MATCH:** \$176,980.44

**LEAD ORGANIZATION:** Orange County Environmental Protection Division

**PROJECT LOCATION AND WATERSHED CHARACTERISTICS:**

**Geographic Location:** Orange County

**Impacted Watershed Name:** Bay Lake

**Size of Project Impact:** N/A

**Size of Area Being Treated:** 30.5 acres

**Latitude:** 28.60

**Longitude:** 81.42

**Hydrologic Unit Code:** 030801011403

**WBID:** 3004G

**List 303(d) listed waterbody affected:** N/A

**Impairment:** This project will reduce TSS loadings to Bay Lake by approximately 371 lbs/yr.

**TMDL Status:** no TMDL

**BMAP Status:** BMAP in progress

**Land Uses within the area being treated**

<b>Land Use</b>	<b>Acres</b>	<b>%</b>
Residential Low Density (1100)	1.6	5.3
Residential Medium Density (1200)	4.1	13.4
Residential High Density (1300)		
Commercial and Services (1400)		
Other Light Industrial (1500)	12.3	40.3
Extractive (1600)		
Institutional (1700)	6.6	21.6
Recreational (1800)		
Open Land (1900)		
Abandoned Tree Crops	1.7	5.6
Herbaceous Upland Non-Forested (3000)	4.2	13.8
Upland Forests (4000)		
Water (5000)		
Wetlands (6000)		
Barren Land (7000)		
Transportation, Communication, and Utilities (8000)		
<b>Land Use Totals (Acreage and %)</b>	<b>30.5</b>	<b>100</b>

**LAND OWNERSHIP STATUS:**

- Land necessary for the construction of treatment infrastructure is under an easement that allows for the construction and access. The property proposed for the BMP installation is within Orange County right of way.

**PROJECT OVERVIEW:** Bay Lake (WBID 3004G), a group 2 waterbody, is located in the Upper St. Johns watershed in the Wekiva River basin, Middle St. Johns River. Bay Lake is currently TMDL impaired for nutrients (nitrogen and phosphorus). The project will install two (2) "in-line" water quality treatment vaults in existing drainage infrastructure that outfalls into Bay Lake. Each device incorporates the following multi-treatment compartments: (1) organic and floatable material separation and exclusion from the surcharged portion of the structure, (2) sediment separation and containment, (3) particulate nutrient filtration, and (4) nutrient assimilation using bio-media technology. One vault will contain Bold and Gold™ (B&G), a passive nitrogen and phosphorus reduction technology originally developed for septic tank drainfields in nutrient sensitive springsheds such as the Wekiva area. The second

vault will contain BioMediaGREEN™ (BMG), another type of media filtration technology that was developed for enhanced pollutant removal in stormwater runoff. It is expected that the proposed BMP will provide increased nutrient removal efficiencies as a result of the unique and innovative components designed into the system.

**ESTIMATED POLLUTANT LOAD REDUCTION MODEL USED:**

This project is for a structural BMP project. In the below estimated pollutant load reduction, the applicant used the following model:

Dudley, J. L., and L. Lumbard. 2012. Bay Lake Hydrologic/Nutrient Budget and Management Plan. Section 6.2.2. (Prepared by: AMEC E&I, Inc. Prepared for: Orange County Environmental Protection Division.)

BMPs Installed		TSS lbs/yr	TN lbs/yr	TP lbs/yr	Sediment lbs/yr	BOD lbs/yr	Other lbs/yr	Other lbs/yr
Pollutant Loads	Pre-Project	1,125	64	8				
	Post-Project	754	56	7				
	Load Reduction	371	8	1				
	% Reduction	33%	12%	12%				

**EMCS USED IN MODEL:**

Harper, H. H., and D. M. Baker. 2007. Evaluation of Current Stormwater Design Criteria within the State of Florida. Section 4.1.14. (Prepared by: Environmental Research & Design, Inc. Prepared for: Orange County Environmental Protection Division.)

Literature Based EMC Values for Pollutant Load Calculations

(Source: Harper and Baker 2007)

Land Use	FLUCFCS	Literature EMC (mg/L)		
		TSS	TN	TP
Low Density Residential*	1100	23.0	1.61	0.191
Single Family	1200	37.5	2.07	0.327
Light Industrial	1550	60.0	1.20	0.260
Institutional*	1700	60.0	1.20	0.260
Abandoned Tree Crops*	2240	8.4	1.15	0.055
Herbaceous Upland Nonforested*	3100	8.4	1.15	0.055

\*Values inferred from closely-related land-use types

**ESTIMATED RESIDENCE TIME OF ANY PONDS, SWALES, ETC.: N/A**

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**TASKS and DELIVERABLES:**

**TASK NUMBER 1**

**TASK NAME: Design and Permitting**

**TASK DESCRIPTION:** The Grantee shall design the system as described in Task 3 (BMP Construction) and obtain all necessary permits.

**DELIVERABLES:** Submission of copy of final design; copy of all required permits.

**PERFORMANCE STANDARD:** Approval of final design is contingent upon approved permits.

**BUDGET: \$66,992.00 Match for contractor to provide design and permitting services**

**TASK NUMBER 2**

**TASK NAME: Bidding**

**TASK DESCRIPTION:** The Grantee shall prepare and solicit bids utilizing a bid package in accordance with state and federal laws and this Agreement.

**DELIVERABLES:** Submission of copy of bid package and selection of contractor.

**PERFORMANCE STANDARD:** Review of bid package and copy of subcontract to verify compliance with state and federal laws specific to the Nonpoint Source Implementation Grant Program will be completed by the Department Grant Manager.

**BUDGET: \$0.00**

**TASK NUMBER 3**

**TASK NAME: BMP Construction – Vaults 1 and 2**

**TASK DESCRIPTION:** The Grantee shall construct two (2) treatment devices that incorporate the following multi-treatment compartments: (1) organic and floatable material separation and exclusion from the surcharged portion of the structure, (2) sediment separation and containment, (3) particulate nutrient filtration, and (4) nutrient assimilation using bio-media technology (one vault will contain Bold and Gold™ (B&G) developed at the University of Central Florida and the second vault will contain BioMediaGREEN™ (BMG) developed by Modular Wetland Systems, Inc.).

**DELIVERABLES:** Photographs depicting the completion of both vaults; signed certification from Grantee's Engineer overseeing the construction stating that construction has been completed in accordance with approved design. Complete construction of two (2) vaults as outlined above.

**PERFORMANCE STANDARD:** Approval of construction upon review of photographs and certification by Grantee's Engineer by the Department Grant Manager.

**BUDGET: \$70,056.56 DEP Funds, \$109,988.44 Match**

**TASK NUMBER 4**

**TASK NAME: BMP Effectiveness Monitoring – Initial Sampling**

**TASK DESCRIPTION:** The Grantee must complete and submit to the Department a Quality Assurance Project Plan (QAPP) for monitoring prior to commencement of any monitoring. The monitoring plan will specify the sampling locations, sampling instruments, and parameters to be sampled. The parameters shall include, but are not limited to: TN (lbs/yr), TP (lbs/yr), TSS (lbs/yr), Cd, Cr, Cu, Zn, NO<sub>2</sub>/NO<sub>3</sub>, TKN, NH<sub>3</sub>, Orthophosphate, oil/grease, Fecal coliform, rainfall and flow. Monitored events shall include 2 discrete rain events, generally greater than 0.20 inches and less than 1.5 inches. Monitoring shall be performed at inflow and outflow locations of each BMP installed and in accordance with the approved QAPP. Sampling locations shall be recorded and verified using a GPS device. Project-specific details must be added during QAPP development. This task includes installation of water quality monitoring equipment.

**DELIVERABLES:** Department-approved QAPP; monitoring results.

**PERFORMANCE STANDARD:** Submission of QAPP will be reviewed by the Department for compliance with this agreement and the Department's Standard Operating Procedures for monitoring; submission of monitoring results will be reviewed by the Department Grant Manager to ensure monitoring was performed according to the approved QAPP.

**BUDGET: \$41,109.51 DEP Funds**

**TASK NUMBER 5**

**TASK NAME: BMP Effectiveness Monitoring –Intermediate Sampling**

**TASK DESCRIPTION:** The parameters to be sampled shall include, but are not limited to: TN (lbs/yr), TP (lbs/yr), TSS (lbs/yr), Cd, Cr, Cu, Zn, NO<sub>2</sub>/NO<sub>3</sub>, TKN, NH<sub>3</sub>, Orthophosphate, oil/grease, Fecal coliform, rainfall and flow. Monitored events shall include 3 discrete rain events, generally greater than 0.20 inches and less than 1.5 inches.

Monitoring shall be performed at inflow and outflow locations of each BMP installed and in accordance with the approved QAPP. Sampling locations shall be recorded and verified using a GPS device.

**DELIVERABLES:** Cumulative monitoring results.

**PERFORMANCE STANDARD:** The Department Grant Manager will review the monitoring results to ensure monitoring was performed according to the approved QAPP.

**BUDGET: \$ 23,300.36 DEP Funds**

**TASK NUMBER 6**

**TASK NAME: BMP Effectiveness Monitoring – Final Sampling**

**TASK DESCRIPTION:** The parameters to be sampled shall include, but are not limited to: TN (lbs/yr), TP (lbs/yr), TSS (lbs/yr), Cd, Cr, Cu, Zn, NO2/NO3, TKN, NH3, Orthophosphate, oil/grease, Fecal coliform, rainfall and flow. Monitored events shall include a maximum of 2 discrete rain events, generally greater than 0.20 inches and less than 1.5 inches. Monitoring shall be performed at inflow and outflow locations of each BMP installed and in accordance with the approved QAPP. Sampling locations shall be recorded and verified using a GPS device.

**DELIVERABLES:** Cumulative monitoring results.

**PERFORMANCE STANDARD:** The Department Grant Manager will review the monitoring results to ensure monitoring was performed according to the approved QAPP.

**BUDGET: \$ 15,533.57 DEP Funds, \$5,605.64 Expenditures not required as match**

**TASK NUMBER 7**

**TASK NAME: Draft and Final Reports**

**TASK DESCRIPTION:** The Grantee shall submit to the Department a Final Report. The Final Report is intended to capture the outcome and results of the selected project, including all tasks included in this project. It shall include, at least, the following: a summary of monitoring results and an explanation of any unexpected monitoring results or unexpected occurrences. This shall include, where applicable, why a BMP did not obtain or exceed the expected removal efficiency; any problems encountered and how those problems were overcome; an explanation of any project delays; a brief summary of any additional phases yet to be completed; and any additional information which explains the results of the project. The County shall submit the Final Report as a draft prior to submitting the final report for project closeout.

**DELIVERABLES:** Approved Final Report that includes the following: a summary of monitoring results and an explanation of any unexpected monitoring results or unexpected occurrences. This shall include, where applicable, why a BMP did not obtain or exceed the expected removal efficiency; any problems encountered and how those problems were overcome; an explanation of any project delays; a brief summary of any additional phases yet to be completed; and any additional information which explains the results of the project.

**PERFORMANCE STANDARD:** The Department Grant Manager must review the Final Report to verify that it includes a summary of monitoring results and an explanation of any unexpected monitoring results or unexpected occurrences. This shall include, where applicable, why a BMP did not obtain or exceed the expected removal efficiency; any problems encountered and how those problems were overcome; an explanation of any project delays; a brief summary of any additional phases yet to be completed; and any additional information which explains the results of the project.

**BUDGET: \$7,760.92 Expenditures not required as match**

**TIMELINE:**

<b>Task No.</b>	<b>Task Title</b>	<b>Start</b>	<b>Complete</b>
1	Design and Permitting	Month 1	Month 12
2	Bidding	Month 13	Month 17
3	BMP Construction – Vaults 1 and 2	Month 18	Month 24
4	<b>BMP Effectiveness Monitoring – Initial Sampling</b>	Month 25	Month 39
5	<b>BMP Effectiveness Monitoring – Intermediate Sampling</b>	Month 25	Month 39
6	<b>BMP Effectiveness Monitoring – Final Sampling</b>	Month 25	Month 39
7	Draft and Final Reports	Month 38	Month 39



**PROJECT BUDGET BY CATEGORY and TASK:**

<b>Task No.</b>	<b>Category</b>	<b>Grant Funding</b>	<b>Match Funding</b>	<b>Match Source</b>	<b>Additional Required Expenditures (not required match)</b>
1	Contractual	\$0	\$66,992.00	Grantee	
	<b>TOTAL FOR TASK</b>	<b>\$0</b>	<b>\$66,992.00</b>		
2	Contractual	\$0	\$0		
	<b>Total for Task</b>	<b>\$0</b>	<b>\$0</b>		
3	Contractual	\$70,056.56	\$109,988.44	Grantee	
	<b>Total for Task</b>	<b>\$70,056.56</b>	<b>\$109,988.44</b>		
4	Contractual	\$41,109.51	\$0		
	<b>Total for Task</b>	<b>\$41,109.51</b>	<b>\$0</b>		
5	Contractual	\$23,300.36	\$0		
	<b>Total for Task</b>	<b>\$23,300.36</b>	<b>\$0</b>		
6	Contractual	\$15,533.57	\$0		\$5,605.64
	<b>Total for Task</b>	<b>\$15,533.57</b>	<b>\$0</b>		<b>\$5,605.64</b>
7	Contractual	\$0	\$0		\$7,760.92
	<b>Total for Task</b>	<b>\$0</b>	<b>\$0</b>		<b>\$7,760.92</b>
<b>Total:</b>		<b>\$150,000.00</b>	<b>\$176,980.44</b>		<b>\$13,366.56</b>
<b>Total Project Cost:</b>		<b>\$340,347.00</b>			
<b>Percentage Match:</b>		<b>44%</b>	<b>52%</b>		<b>4%</b>

**PROJECT BUDGET CATEGORY TOTALS:**

<b>Category Totals</b>	<b>Grant Funding</b>	<b>Match Funding</b>	<b>Match Source</b>	<b>Additional Required Expenditures</b>
Salaries Total	\$0	\$0		
Fringe Benefits Total	\$0	\$0		
Travel Total	\$0	\$0		
Contractual Total	\$150,000	\$176,980.44	Grantee	\$13,366.56
Equipment Purchases Total	\$0	\$0		
Supplies/Other Expenses Total	\$0	\$0		
Land Total	\$0	\$0		
Indirect Total	\$0	\$0		
<b>Total:</b>	<b>\$150,000.00</b>	<b>\$176,980.44</b>		<b>\$13,366.56</b>
<b>Total Project Cost:</b>	<b>\$340,347.00</b>			
<b>Percentage Match:</b>	<b>44%</b>	<b>52%</b>		<b>4%</b>