



Agenda Report

2725 Judge Fran Jamieson
Way
Viera, FL 32940

Consent

F.2.

10/22/2019

Subject:

Community Groundwater Monitoring and Performance Measurements for the Save Our Indian River Lagoon Project Plan

Fiscal Impact:

FY 19-20 \$192,944

Dept/Office:

Natural Resources Management Department

Requested Action:

It is requested that the Board of County Commissioners (1) authorize the Chair to execute Task Order 19-001-003 SOIRL to measure the performance of projects funded by the Save Our Indian River Lagoon Project Plan and (2) authorize the County Manager to execute amendments, if needed, subject to the approval of the County Attorney's Office and Risk Management.

Summary Explanation and Background:

Groundwater seepage appears to be the largest conduit of upland pollution to the Indian River Lagoon in Brevard County; however little data is available for quantifying the specific sources of groundwater pollution. Septic effluent has been shown to be a significant source of groundwater pollution and recent monitoring in Brevard is demonstrating reclaimed irrigation water is another significant source. Brevard County is specifically interested in monitoring the effectiveness of projects funded by the Save Our Indian River Lagoon Trust Fund to reduce groundwater pollution from septic systems and reclaimed water.

Brevard County will work with Applied Ecology Inc. to investigate nutrient levels in groundwater of communities where septic to sewer and reclaimed water improvement projects are implemented. Forty-five (45) groundwater monitoring wells will be sampled monthly for a year and tested for multiple forms of nitrogen and phosphorus. The project will measure the performance of projects directed at reducing pollution in groundwater in an effort to quantify the cost-effectiveness of various project types.

The data can be used to check the assumed nutrient removal efficiencies of various project types. Results will also be used to help calibrate the state-approved model for septic load estimating in Brevard County. This model can then be used to select the best neighborhoods to connect to sewer service or upgrade to OSTDS. This information will be used to consider or make revisions to the Save Our Indian River Lagoon Project Plan to improve the efficiency and effectiveness of Lagoon Trust Fund investments. This information will also be used to update the area of the Nitrogen Reduction Septic Overlay Ordinance adopted by the County Commission last year.

Clerk to the Board Instructions:

46

Return one fully executed Task Order to Natural Resources



Tammy Rowe, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

Telephone: (321) 637-2001
Fax: (321) 264-6972
Tammy.Rowe@brevardclerk.us

October 23, 2019

M E M O R A N D U M

TO: Virginia Barker, Natural Resources Management Director

RE: Item F.2., Community Groundwater Monitoring and Performance Measurements for the Save Our Indian River Lagoon Project Plan

The Board of County Commissioners, in regular session on October 22, 2019, approved and authorized the Chair to execute Task Order 19-001-003 SOIRL to measure the performance of projects funded by Save Our Indian River Lagoon Project Plan; and authorized the County Manager to execute amendments, if needed, subject to the approval of the County Attorney's Office and Risk Management. Enclosed is a fully-executed Task Order.

Your continued cooperation is always appreciated.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
SCOTT ELLIS, CLERK

Tammy Rowe

Tammy Rowe, Deputy Clerk

Encl. (1)

cc: Finance
Budget

AGREEMENT TO FURNISH PROFESSIONAL
ENVIRONMENTAL SERVICES

Save Our Indian River Lagoon Project Plan Community Groundwater Monitoring
Task Order No. 19-001-003 SOIRL

This Agreement made this ____ day of October, 2019 by Applied Ecology, Inc. hereinafter referred to as the CONSULTANT and the BOARD OF COUNTY COMMISSIONERS OF BREVARD COUNTY, FLORIDA, hereinafter referred to as the COUNTY.

WHEREAS, on October 1, 2019, the CONSULTANT and the COUNTY entered into an AGREEMENT, wherein the CONSULTANT agreed to furnish environmental services to the COUNTY as referred to in the AGREEMENT; and

WHEREAS under SECTION 1 of the AGREEMENT, the CONSULTANT agrees to provide certain professional environmental services which shall be implemented by Task Orders;

NOW, THEREFORE, the parties do mutually agree as follows:

I. PURPOSE

The purpose of the task order is to provide environmental services to the Brevard County Natural Resources Management Department (County) to provide Performance Measurement and Monitoring Services called for in the Respond component (Section 4.4) of the Save Our Indian River Lagoon Project Plan (SOIRLPP), as amended. This task measures the change in groundwater pollution concentrations in response to several project types included in the SOIRLPP and funded by the Save Our Indian River Lagoon Trust Fund. The project types that will be measured in 13 communities by this task order include upgrade of Reclaimed Water Treatment and Septic to Sewer Conversions.

II. SCOPE OF SERVICES

The specific scope of services for this Task Order is described in Exhibit ‘A’, attached hereto and made a part of this Task Order.

III. COMPENSATION

For services described in Exhibit ‘A’, and by the table, ‘fee schedule’, shown as Exhibit ‘B’, the COUNTY shall pay the CONSULTANT a total labor cost and reimbursables not to exceed \$192,944.

IV. TASK ORDER SCHEDULE

The specific scope of services for this Task Order is described in Exhibit ‘A’ attached hereto and made a part of this Task Order. All services in this Task Order shall be completed within 16 months from date of execution of the Task Order unless an extension is authorized by a written Change Order executed by the County.

V. OTHER TERMS AND CONDITIONS

All of the terms and conditions of the Agreement shall apply to this Task Order as if fully set out herein unless such terms and conditions are specifically superseded by the terms and conditions of this Task Order.

VI. EFFECTIVE DATE AND AUTHORIZATION TO PROCEED

This Task Order shall be effective on the date the CONSULTANT receives a written authorization to proceed from the COUNTY'S designated representative.

IN WITNESS WHEREOF, the parties hereto have, through their duly authorized representatives approved and executed this Amendment as of the date set forth below.

BOARD OF COUNTY COMMISSIONERS
BREVARD COUNTY, FLORIDA

By: 

Kristine Isnardi, Chair

as approved by the Board on 10/22/2019

Review for legal form and content

By: _____
Christine Valliere, Assistant County Attorney

ATTEST:



Clerk

APPLIED ECOLOGY, INC.

By: See Next Page →
Claudia Listopad

Title: Principal Scientist

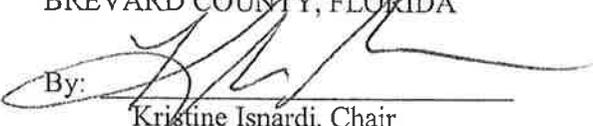
Date: _____, 2018

VI. EFFECTIVE DATE AND AUTHORIZATION TO PROCEED

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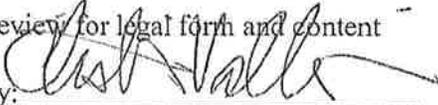
BOARD OF COUNTY COMMISSIONERS
BREVARD COUNTY, FLORIDA

By: 

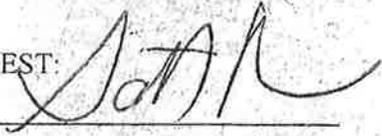
Kristine Isnardi, Chair

as approved by the Board on 10/22/2019

Review for legal form and content

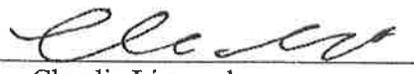
By: 

Christine Valliere, Assistant County Attorney

ATTEST: 

Clerk

APPLIED ECOLOGY, INC.

By: 

Claudia Listopad

Title: Principal Scientist

Date: October 30, 2018/9 PL



October 9, 2019

Virginia Barker
Director, Brevard County Natural Resources Management Office
2725 Judge Fran Jamieson Way, Bldg. A
Viera, Florida 32940

Scope of Work and Fees for the monitoring of the groundwater water quality of 13 communities under the Save Our Indian River Lagoon Project Plan (SOIRLPP)

Dear Virginia,

Thank you for providing Applied Ecology, Inc. (AEI) the opportunity to assist the Brevard County SOIRLPP with the referenced services. This scope of work includes continuing groundwater monitoring, data analysis, and reporting for thirteen distinct communities and three controls (natural areas) within Brevard County. The specific communities were selected in a previous study funded by the State Legislature and based on areas with high potential for retrofit under the SOIRLPP. The following study areas are included in this groundwater monitoring effort: Merritt Island (septic and sewer communities), Melbourne Beach/Satellite Beach (septic, reclaimed, and sewer communities), Turkey Creek (septic, reclaimed, and sewer communities), Suntree (septic, sewer, and reclaimed), and Titusville (sewer and reclaimed). In addition, three natural areas near some of the selected communities are included to be used as control: Coconut Point (Melbourne Beach), Turkey Creek Sanctuary (Turkey Creek), and Enchanted Forest (Titusville). The costs for monitoring and reporting are provided in separate tasks. Please refer to Appendix A for a detailed description of level of effort and costs by subtask.

Task 1– Groundwater Data Collection and Laboratory Analysis

For most previously installed groundwater wells (34), 11 monthly sampling events are included. In addition, for the 11 Turkey Creek wells, 12 monthly sampling events are included in this task. Turkey Creek groundwater monitoring was initiated as a pilot study in 2017 and current funding to sample these 11 wells ends one month prior to the sampling schedule for the remaining locations. In order to ensure all 45 wells are sampled without gaps and sampling end dates coincide, one additional month of monitoring effort is included for the Turkey Creek location.

Sampling will initiate for Turkey Creek in November 2019 and, for the remaining 34 wells, in December 2019. This scope of work will include sampling effort for all 45 locations until the end of October 2020. Well sampling will be in compliance with FDEP groundwater and general sampling protocols and delivered within hold times to a certified NELAC laboratory, when possible. In order to meet the short hold times, duplicate teams are often deployed to collect samples in the vicinity, reducing travel time and number of rush delivery trips to the laboratory. Marine Resources Council (MRC) will provide field sampling support on the sampling days when two teams will be collecting data simultaneously.

Beyond field parameters (pH, temperature, conductivity, and turbidity), the following laboratory parameters will be analyzed in a NELAC certified lab: fecal coliform, NH-3-N, NOX-N, TKN, TN (calculated), OrthoP, and TP. A total of 506 samples and 51 blank/duplicates are included in the scope of work for all parameters. This task also includes collecting and preparing about 1/3 of the total collected samples (178 samples and 9 blanks/duplicates) for isotopic analysis of nitrate-nitrite at the UC Davis Laboratory. Samples will be selected for isotopic analysis based on the nitrate-nitrite concentration data and in consultation with County staff.

Field and laboratory data is entered and quality assured monthly. Summary data tables are updated monthly for quality control.

This task also includes coordination time from both AEI and MRC with the current homeowners to obtain newly signed homeowner agreements to extend the sampling (when necessary), schedule monthly effort, as well as coordination with both the local NELAC certified lab and UC Davis laboratory.

Task 1 Labor: \$86,300

Expenses associated with Task 1 include laboratory analyses of standard water quality parameters and isotopes, field supplies and equipment, and express laboratory delivery.

Total Task 1 (labor + expenses) Cost: \$86,300 + \$75,248 or a total of \$161,548

Task 2 – Data Analysis and Reporting

Data from all available sites will be analyzed for trends over time for each of the parameters taking into account when changes to the project area (i.e. potential connection to central sewer, upgrading in WW treatment) occur. Summary statistics and seasonality will also be examined for the nitrogen species, phosphorus, and fecal coliform for all available well data. Isotopic results will be also be analyzed for trends over time per well and for between treatment types, if possible. Reporting under this task includes quarterly summary data reports of monitoring

activities that includes dates sampling was conducted, final laboratory reports, and sampling logs with purge data, field, and weather data recorded, as well as summary data tables.

In addition, a final draft project report will be prepared to include all the laboratory and field collected data, summary data, graphical representations of trends, and any relevant statistical analysis. MRC will support AEI's data analysis report during the final reporting effort. Task 2 includes time for coordination, one presentation to the SOIRLPP Citizen Oversight Committee, and two in-person meetings to discuss the monitoring results, as well as time to incorporate one set of comments in the final report

Total Task 2 Cost: \$31,396

PROJECT DELIVERABLES

The project will include the following deliverables:

- Quarterly summary data reports (3) of monitoring activities that includes dates sampling was conducted, final laboratory reports, and sampling logs with purge data, field, and weather data recorded, as well as summary data tables.
- Final Draft Report that described the well location, well installation information, summary of field and lab data, any relevant statistical analysis results, and data interpretation
- Final Report which incorporates one set of comments received from County staff

PROJECT SCHEDULE

The project is expected to initiate within 1 week from NTP. Task 1 (groundwater monitoring) is anticipated to start in November 2019 for the Turkey Creek wells (11), and December 2019 for the remaining 34 well locations. Subsequent events will take place every four weeks from initial sampling event. Task 2 (data analysis and reporting) will be completed within 3 months after the last sampling event.

PROJECT BUDGET

Total project cost, including all the expenses, is \$192,944.

I look forward to working with you for these services. If you have any questions, please do not hesitate to contact me at 321.848.1272 or clistopad@appliedecologyinc.com.

Sincerely,



Claudia M. Listopad, Ph.D., GISP
Principal Scientist
Applied Ecology, Inc.



Appendix A. Tasks and subtasks with associated effort and cost for the groundwater monitoring of 13 communities and 3 natural areas.

Task	Subtask	Description	Principal Scientist	Associate Staff Scientist	Field Technician	Technician	MRC Contract	Total Hrs	Total Cost
			\$152.00	\$66.00	\$59.50	\$ 40.50			
Groundwater Sampling	1	Homeowner Notifications and Sampling Preparation; Update HOA Agreements	8	0	84	44	\$320	136	\$8,316
	2	Sampling effort for 11 monthly events for Merritt Island (6 wells)	0	0	93.5	0	\$2,750	93.5	\$8,313
	3	Sampling effort for 11 monthly events (Suntree, 9 wells)	0	0	187	0	\$2,475	187	\$13,602
	4	Sampling effort for 11 monthly events (Satellite Beach, 3 wells)	0	0	82.5	0	\$0	82.5	\$4,909
	5	Sampling effort for 11 monthly events (Titusville, 8 wells)	0	0	159.5	99	\$0	259	\$13,500
	6	Sampling effort for 11 monthly events for Melbourne Beach (8 wells)	0	0	49.5	99	\$3,960	149	\$10,915
	7	Sampling effort for 12 monthly events for Turkey Creek (11 wells)	0	0	162	108	\$3,000	270	\$17,013
	8	Compilation and Reporting of Lab Results and Field Parameters, QA	0	12	0	90	\$0	102	\$4,437
	9	Project management (coordination with laboratory, homeowners, client)	24	8	0	0	\$1,120	32	\$5,296
GW SAMPLING TASK TOTAL			32	20	818	440	\$13,625	1310	\$86,300
Analysis and Reporting	1	Quarterly Reporting of Lab Results and Field Parameters	16	48	64	0	\$0	128	\$9,408
	2	Data Analysis	24	32	0	0	\$2,200	56	\$7,960
	3	Draft and Final Annual Report	24	40	0	0	\$1,280	64	\$7,568
	4	Meetings, Presentations & PM (1 COC Presentation, 2 in-person meetings)	28	14	0	0	\$1,280	42	\$6,460
REPORTING TASK TOTAL			92	134	64	0	\$4,760	290	\$31,396
Project Subtotal (Labor Only)									\$117,696
<i>Expenses (Labs, Field Equipment and Disposables, Travel - Lab Express Transport) for 45 wells</i>									\$75,248
Project Total with Expenses (Without Breeze Swept)									\$192,944