



November 8, 2022

Eric Charest
Indian River County Public Works – Coastal Division
1801 27th Street
Vero Beach, FL 32960-3388
Email: echarest@ircgov.com

Subject: Proposal to Indian River County for Development of ArcNLET Model

Dear Mr. Charest:

Tetra Tech, Inc. (Tetra Tech) is pleased to provide Indian River County (IRC) with this proposal for services to provide an ArcGIS Nitrogen Load Estimation Tool (ArcNLET) model for the unincorporated area of the Indian River Lagoon (IRL) basin in IRC.

BACKGROUND

IRC is located along the IRL, which is one of the nation's most ecologically diverse estuaries and an important ecosystem in the state of Florida. The local governments and state agencies have been working together to restore this system, which has been impaired by excessive nutrient inputs that are causing algal blooms and low dissolved oxygen conditions.

One restoration element for the IRL is the basin management action plan (BMAP) that outlines projects that have been or will be implemented in the near future. In February 2021, the Central IRL BMAP was finalized and outlined requirements for IRC to fulfill nutrient reductions. Septic-to-sewer projects account for a significant reduction in nitrogen load to the IRL. The Florida Department of Environmental Protection (DEP) uses the ArcNLET model to quantify nitrogen load reductions to the IRL from septic-to-sewer conversion projects.

SCOPE OF WORK

Task 1. Collect Data Needed for ArcNLET Modeling

Tetra Tech will work with IRC to gather the data needed for the ArcNLET model. The model is an ArcGIS extension that is dependent on good, local data to provide the best estimates of the nitrogen loading from each septic system within the County. These data include geographic information system (GIS) coverages with the exact location (or parcel) of the septic systems; detailed local waterbodies with streams, ditches, creeks, canals, and lakes; topography; and soils. In addition, water quality data for IRC, specifically groundwater data, are helpful to adjust the default model parameters to match local conditions. Tetra Tech will gather available water quality data from IRC as well as the St. Johns River Water Management District (SJRWMD).

[Tetra Tech, Inc.](https://www.tetratech.com)

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Tetra Tech will review the available data and provide input to IRC on any data gaps that could affect the model results.

Task 2. Develop ArcNLET Model and Conduct Modeling

Using the data gathered in Task 1, Tetra Tech will develop an ArcNLET model that encompasses the entire IRL Basin within unincorporated IRC. The ArcGIS files will be incorporated into the model and the available water quality data will be used to adjust the model parameters. The model will then be run to determine the nitrogen loading impacts from the septic system to the surface waterbodies within IRC.

Task 3. Conduct Sensitivity Analysis for Nitrogen Load Estimate

Tetra Tech will investigate the sensitivity in the nitrogen load estimates from the ArcNLET model by providing probability density functions of the load estimates. This information will help IRC to understand the minimum, maximum, and average nitrogen load estimates to help with identification of future septic to sewer projects.

Task 4. Prepare Draft Report

Tetra Tech will prepare a draft report that summarizes the nitrogen loading from septic systems to surface waterbodies for each area/basin of IRC and include a spreadsheet/database that shows pollutant loading estimates per parcel. The report will also include the results of the sensitivity analysis to help IRC understand the range of loading estimates. The draft report will be provided as a Word document to IRC for review.

Task 5. Prepare Final Report

Tetra Tech will prepare a final report that incorporates the comments received from IRC on the draft report in Task 4. The final report will be provided to IRC as both a Word document and PDF.

Task 6. Communication and Meetings

Throughout the project, Tetra Tech will communicate with IRC to ensure the best data are incorporated into the ArcNLET model and to keep IRC updated on the project status. An in-person meeting will be held to review the draft report and model results with IRC to obtain input for the final report.

PROJECT SCHEDULE

The approximate duration noted for each task is based on our current understanding and best estimates of time required to perform the basic services and may be subject to change upon agreement between IRC and Tetra Tech.

Task	Timeline
Notice to Proceed (NTP)	November 10, 2022
IRC Provides All Data	November 18, 2022

Task	Timeline
Submit Draft ArcNLET Model Report	December 28, 2022
Comments Returned from IRC	January 3, 2023
Submit Final ArcNLET Model Report	January 6, 2023

ASSUMPTIONS

Tetra Tech's scope of services and project costs developed with the following assumptions:

- IRC will provide the available GIS files and water quality data needed to develop the ArcNLET model.
- To meet IRC's January 9, 2023, deadline, an expedited review schedule is required. IRC will provide input on the draft report within three days of receiving the report from Tetra Tech.
- Additional restrictions or limitations as a result of COVID-19, weather, or other unforeseen circumstances will not inhibit Tetra Tech's level of effort or schedule.

PROJECT COST

The estimated costs are based on our current understanding of the project requirements and best estimates of level of effort required to perform the basic services and may be subject to change upon agreement between IRC and Tetra Tech. Our Time and Materials price proposal includes labor hours and travel costs in the amount of \$45,867, as outlined in Table 1. Project budgets may be moved from one task to another to accommodate IRC needs.

Tetra Tech will invoice IRC each month for services rendered during the previous calendar month based on work completed for each task. Tetra Tech shall be paid for all invoices within 30 days of an approved submittal.

PERIOD OF PERFORMANCE

Tetra Tech anticipates commencing project activities upon receipt of a task order authorization from IRC. This project is anticipated to be completed by January 6, 2023 but may be extended to accommodate additional report edits after the January 9, 2023 deadline.

Tetra Tech looks forward to working with you on this project. We are available to discuss our approach with you in detail at your convenience. Should you have any questions regarding this proposal, please contact me at (321) 636-6470.


Sincerely,



Matthew D. Shelton
Project Manager

Cc: Marcy Frick, Tetra Tech
Erin Lincoln, Tetra Tech

Table 1

 TETRA TECH, INC.			Task 1		Task 2		Task 3		Task 4		Task 5		Task 6		TOTAL	
			Organize Data Needed for ArcNLET Modeling		Develop ArcNLET Model and Conduct Modeling		Conduct Sensitivity Analysis for Nitrogen Load Estimate		Prepare Draft Report		Prepare Final Report		Communication and Meetings			
			Units	\$	Units	\$	Units	\$	Units	\$	Units	\$	Units	\$		
Tetra Tech, Inc. Labor																
Employee Name	Category	Rate														
Shelton, Matthew	Project Manager	\$194.00	4.0	\$ 776.00	8.0	\$ 1,552.00	2.0	\$ 388.00	5.0	\$ 970.00	5.0	\$ 970.00	12.0	\$ 2,328.00	36.0	\$ 6,984.00
Frick, Marcy	Scientist VI	\$200.00	-	\$ -	2.0	\$ 400.00	2.0	\$ 400.00	10.0	\$ 2,000.00	5.0	\$ 1,000.00	12.0	\$ 2,400.00	31.0	\$ 6,200.00
Plis, Mykhaylo	Sr. GIS Analyst	\$139.00	10.0	\$ 1,390.00	45.0	\$ 6,255.00	25.0	\$ 3,475.00	20.0	\$ 2,780.00	10.0	\$ 1,390.00	12.0	\$ 1,668.00	122.0	\$ 16,958.00
Rinne, Andrea	GIS Project Analyst	\$110.00	10.0	\$ 1,100.00	55.0	\$ 6,050.00	15.0	\$ 1,650.00	30.0	\$ 3,300.00	10.0	\$ 1,100.00	-	\$ -	120.0	\$ 13,200.00
Leonard, Morgan	Engineer II	\$93.00	5.0	\$ 465.00	-	\$ -	-	\$ -	5.0	\$ 465.00	5.0	\$ 465.00	-	\$ -	15.0	\$ 1,395.00
Keller, Francis	Sr. Project Administrator	\$105.00	1.0	\$ 105.00	1.0	\$ 105.00	1.0	\$ 105.00	1.0	\$ 105.00	1.0	\$ 105.00	1.0	\$ 105.00	6.0	\$ 630.00
Total Labor			30.0	\$3,836.00	111.0	\$14,362.00	45.0	\$6,018.00	71.0	\$9,620.00	36.0	\$5,030.00	37.0	\$6,501.00	330.0	\$ 45,367.00
Fee to Subs			0.0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Subcontractor				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Tetra Tech, Inc. Travel																
Travel to IRC				\$ -		\$ -		\$ -		\$ -		\$ -		\$ 500.00		\$ 500.00
G&A to Travel		0.00%		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -
Fee to Travel		0%		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -
Total Travel				\$ -		\$ -		\$ -		\$ -		\$ -		\$ 500.00		\$ 500.00
Total Tetra Tech, Inc. Expenses (Travel and ODCs)				\$ -		\$ -		\$ -		\$ -		\$ -		\$ 500.00		\$ 500.00
TOTAL				\$3,836.00		\$14,362.00		\$6,018.00		\$9,620.00		\$5,030.00		\$7,001.00		\$45,867.00