

AGENDA ITEM SUMMARY

Meeting Date:	JANUARY 15, 2020
Agenda Category:	CONSENT BUSINESS
Agenda Item Number:	10 A
Subject:	CONCEPTUAL EVALUATION OF VACUUM SEWER SYSTEM FOR POTENTIAL SEPTIC TO SEWER CONVERSION PROJECT, TETRA TECH (WASTEWATER TREATMENT DEPARTMENT)

Attachments:	Memorandum; proposal
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Staff Contact:	Wastewater Treatment Director Elmore
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Background:	The Wastewater Treatment Department is seeking authorization to perform a conceptual evaluation of a vacuum sewer system, which could potentially serve properties along Rockledge Drive east of U.S. Highway 1. A proposal in the amount of \$68,863.00 has been submitted by Tetra Tech in accordance with the terms of the firm's continuing professional services agreement with the City.
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Reference:	
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Suggested Action:	Approve the proposal submitted by Tetra Tech in the amount of \$68,863.00 for the conceptual evaluation of a vacuum sewer system
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MEMORANDUM

TO: Dr. Brenda Fettrow, City Manager
FROM: Jim Elmore, WWT Director
DATE: December 20, 2019
SUBJECT: Rockledge Indian River Lagoon Septic to Sewer Project

*approved to
go to Council.
Dr. Fettrow
12/23/2019*

Tetra Tech, Inc. has submitted a proposal to perform a Conceptual Evaluation of a Vacuum Sewer System for serving properties east of US Highway 1 and along Rockledge Drive.

I am recommending Tetra Tech, Inc. perform this evaluation in accordance with the contract terms of the Agreement for Professional Services signed on November 7, 2018 at a cost of \$68,863.00 to be paid from account No. 400-0035-535.3111.

Submitted for council's approval.



December 23, 2019

Mr. James Elmore, Director
Wastewater Treatment and
Water Reclamation Facility
City of Rockledge
1700 Jack Oates Blvd.
Rockledge, FL 32955

**Subject: Rockledge Drive Indian River Lagoon Septic to Sewer Project
Conceptual Evaluation of Vacuum Sewer Along the Rockledge Drive**

Tt # 200BP Rockledge

Dear Mr. Elmore:

Tetra Tech (Tt) is pleased to submit this proposal to perform a Conceptual Evaluation of Vacuum Sewer for serving properties along Rockledge Drive. Specifically converting properties from septic systems to vacuum sewer system along:

- Rockledge Drive within City limits
- Magruder Avenue
- Park Avenue, and
- East side of U.S. 1 from Park Avenue to Magruder Ave

A. PROJECT DESCRIPTION

The City owns and operates a wastewater collection system that serves homes connected to the City's wastewater reclamation facility. There are areas within the City that are served by septic systems. The City continues to embark on projects to replace septic systems in the service area with central wastewater service, such as the recently converted Breeze Swept subdivision.

This project is the next step towards converting approximately 162 properties along Rockledge Drive, Magruder Avenue, Park Avenue, and the east side of U.S. 1 (between Magruder Avenue and Park Avenue) to the central sewer system employing a vacuum sewer system.

Tetra Tech (Tt) completed a present-worth cost evaluation of up to three (3) wastewater collection systems such as pressure, gravity, and vacuum sewer collection systems limited to Park Avenue (32 properties) and submitted findings in a draft Technical Memorandum (TM). In the TM review meeting, the City requested proposal to perform a similar vacuum sewer collection system present-worth evaluation for the expanded service area as included in the Appendix G of the draft TM along the Rockledge Drive, Magruder Avenue, Park Avenue, and US 1.

B. SCOPE OF WORK

Task 1 - Preliminary Design

1. **Kick-off Meeting:** Tt will prepare for and attend a kick-off meeting with City staff to discuss the project design criteria, points of contact, schedule, and data needs. Tt will prepare the agenda and summary of the kick-off meeting for distribution.
2. **Data Collection and Review:** Tt will develop and submit a data request outlining the data needs for the study. Tt will collect, assemble, review, and analyze available data. In areas where data are missing or otherwise unavailable, Tt will work with the City to develop reasonable estimates and assumptions for the study.
3. **Field Work:** Tt will perform minimal Topographic Surveying to supplement LiDAR contours to improve quality by using Unmanned Aerial Vehicle (drone), GPS and traditional Surveying methods. Tt will recover existing property corners along the proposed alignment to supplement the County GIS parcel lines data. Tt will not perform soil conditions geotechnical investigation in this evaluation. Detailed topographic survey and geotechnical investigation will be performed in the next final design phase.
4. **Conceptual Design of Vacuum Sewer Collection System:** Using the field collected data, project design criteria, and EPA's Manual on Alternative Wastewater Collection Systems (October 1991) as a guide, Tt will conceptually design (plan view layout only), working with the system manufacturer AirVac, Inc., the vacuum sewer collection system. Tt will use the conceptual layout to develop preliminary quantities for performing a capital and O&M cost estimation for the 30-year present-worth cost evaluation.
5. **Grant Funding Water Quality Improvements Concepts:** Similar to the Breeze Swept subdivision septic to sewer conversion project, the City is going to apply for SJWRMD and FDEP cost-share grants. Tt will review SJWRMD/FDEP grant guidelines for the water quality improvement projects and develop concepts to support the applications for grant funding. Tt will include information such as relationship to nutrient TMDLs, as well as information on the TMDLs and BMAP status; benefit area descriptions or delineation for the water quality improvement; project acreage; and methodology and estimates for the pre-project and post-project conditions for nutrient (TN and TP) loading using STEPL and ArcNLET models as requested by the City during the Park Ave TM review meeting.

For the ArcNLET model, the City will need to provide available data. 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. This data includes the exact location or parcel of the septic systems; detailed local waterbodies with streams, ditches, creeks, canals, and lakes; topography; and soils. In addition, groundwater water quality data is helpful to adjust the default model parameters to match local conditions. Tetra Tech will also gather available data from other sources to fill in any gaps. Tetra Tech will then develop an ArcNLET model that encompasses the

entire City limits. 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 systems within the project area. Under this task assignment, Tetra Tech will build the city-wide model and determine the project load reductions. Under a separate task assignment, Tetra Tech can conduct a sensitivity analysis of the model and develop a model report, which can be used by the City to support BMAP project credits.

6. **Draft Technical Memorandum (TM):** Tt will prepare and submit draft TM summarizing the analysis and conclusions of Tasks 1 through 5 for the vacuum system and provide three (3) hard copies and one (1) electronic copy of the draft report for City review.
7. **Meeting:** Tt will meet with the City to discuss and review City comments on the TM.
8. **Final TM:** Tt will incorporate the City's review comments on the draft TM and provide three (3) hard copies and one (1) electronic copy of the final TM to the City.

Task 2 - Final Design

Future Design Phase - After the revised Final TM is issued, final design scope of services for the vacuum sewer collection system and the collection area will be submitted in the next Amendment No. 1 to this project.

C. SCHEDULE

Work will commence upon receipt of the City's notice-to-proceed (NTP). A tentative schedule for major milestones in the project is presented below.

Activity	Proposed Schedule (Months)
Notice to Proceed	January 22, 2020
Data Collection and Field Work	1
Conceptual Design of Vacuum System	2
Water Quality Improvement Concepts	3
Draft TM	May 22, 2020
Draft TM Review Meeting	4.5
Final TM	June 23, 2020
100% Design	December 2020
District Grant Application Due Date	January 31, 2021
Bidding Completed & Construction Begin	April 2021



Mr. James Elmore
City of Rockledge
December 23, 2019
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D. COMPENSATION

The total Lump Sum cost for all services described above will not exceed **\$68,863** as summarized in Attachment A.

If you should have any questions, please do not hesitate to contact us.

Very truly yours,

Tetra Tech

A handwritten signature in blue ink, appearing to read 'R. Shah'.

Rasesh R. Shah, P.E.
Project Manager

Attachment

Rockledge_Drive_Septic_to_Sewer/IRL_Septic_to_Sewer_Scope_20191223.docx

C: Jon D. Fox, P.E., Tetra Tech

Tetra Tech Price Proposal

Rockledge Drive Indian River Lagoon Septic to Sewer Project

Submitted to: City of Rockledge (Attn: Mr. James Elmore)
 Contract Type: T&M

Project Phases / Tasks	Proj Area	Labor Plan											Attachment A				
		Operations Manager	Project Manager	Project Engineer	CAD Designer	St. Water Resourced Eng.	Electrical Engineer	Electrical Designer	Administration	Survey	Survey	Survey	Labor	Travel	ODCs	Task Pricing Totals	
Task 1 - Preliminary Design	479																
Kick-off Meeting	13																68,863
Data Collection and Review	5																1,955
Field Work (Conceptual Level (not final detailed) Survey)	181																617
Geotechnical Investigations (postponed to next phase)																	25,965
Conceptual Design - Vacuum System	90																11,669
Vacuum System	80																10,285
Present Worth Evaluation	10																1,385
Grant Funding Concepts	42																6,311
Draft Technical Memorandum (TMM)	104																12,964
Meeting	18																2,657
Final TMM	26																3,202
Totals	479	32	96	52	66	14	6	33	40	60	80	65,240	3,300	323	68,863		