



AGENDA REPORT
July 10, 2018

Authorization to issue emergency purchase order for emergency modifications to the Septage & Grease Treatment System at the South Central Wastewater Treatment Facility

SUBJECT:

Authorization to issue emergency purchase order for emergency modifications to the Septage & Grease Treatment System at the South Central Wastewater Treatment Facility.

FISCAL IMPACT:

\$193,032.00

DEPT/OFFICE:

Utility Services

REQUESTED ACTION:

It is requested that the Board of County Commissioners approve an emergency purchase order in the amount of \$193,032.00 for emergency modifications to the Septage & Grease Treatment System at the South Central Wastewater Treatment Facility, request authorization for the County Manager to execute purchase order and approve any associated budgetary changes.

SUMMARY EXPLANATION and BACKGROUND:

The septage and grease is received from licensed commercial haulers at the South Central Regional Wastewater Treatment Facility (SCRWWTF). The septage and grease is screened to remove rags, plastics, rocks, and large debris (>6mm) and then pumped to the sludge holding tank at the SCRWWTF. In the sludge holding tank, the septage and grease are combined with all of the sludge generated by the facilities' main activated sludge treatment process. The combined sludge is dewatered by the facilities' belt-filter presses.

In 2015, Brevard County Utility Services Department (BCUSD) modified the Florida Department of Environmental Protection (FDEP) Wastewater Treatment Facility Permit for the SCRWWTF to allow construction of a new septage and grease receiving, screening, and pumping system. These improvements were constructed and placed in service in 2016. The system is receiving significantly more and larger sand and grit than originally estimated. The sand and grit are frequently clogging the pumps resulting in shutdowns of the septage and grease receiving station. As a result, a temporary portable pump is being used to operate the system until emergency modifications can be made to address the

issue.

Infrastructure Solution Services (ISS) staff and BCUSD Engineering and Operations staff held a series of meetings to review the issue and develop a solution to the current problem. The selected option relocated the pumps into the septage and grease storage tank and eliminated the pump chamber where the grit was settling. Since the mixer in the septage and grease storage tank keeps sand and grit in suspension, the pumps will not experience the current clogging issues. In addition, a second mixer and a flushing system will be installed to provide redundancy and insure clogging will not occur.

The Brevard County Utility Services Department is the only facility that can receive septage and grease from on-site sewage disposal and treatment (septic) systems and grease traps in Brevard County. Utilities received two quotes to perform the required modifications. One was for \$324,805.52 and the other was for the requested amount of \$193,032.00 (see attached quote for services).

BCUSD is requesting this emergency purchase order to make these improvements as soon as possible to avoid any potential interruptions of service in receiving septage and grease.

Contact: Jim Helmer, Utility Services Director, 321-633-2091, Jim.helmer@brevardfl.gov

CLERK TO THE BOARD INSTRUCTIONS:

E-mail Clerk Memo to rose.lyons@brevardfl.gov as soon as available to get emergency purchase order processed.

ATTACHMENTS:

Description

- **Consultant ISS Memo**
- **Bid Proposal L7**



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

July 11, 2018

MEMORANDUM

TO: Jim Helmer, Utility Services Director

RE: Item F.18., Authorization to Issue an Emergency Purchase Order for Emergency Modification to the Septage and Grease Treatment System at South Central Wastewater Treatment Facility

The Board of County Commissioners, in regular session on July 10, 2018, authorized the issuance of an emergency purchase order in the amount of \$193,032 for the emergency modifications to the Septage and Grease Treatment System at the South Central Wastewater Treatment Facility; authorized the County Manager to execute the purchase order; and approved any associated budgetary changes.

Your continued cooperation is greatly appreciated.

Sincerely yours,

BOARD OF COUNTY COMMISSIONERS
SCOTT ELLIS, CLERK

Tammy Rowe

Tammy Rowe, Deputy Clerk

/ds

cc: County Manager
Finance
Budget



Construction, Inc.

4/24/18

Brevard County Utilities

RE: Emergency Modifications to Septage & Grease Treatment System

Attention: Brian Sorensen

You have requested a quote for the following scope of work:

Demolition:

Remove two existing pumps, rails, pump bases and associated electric
Remove two sections of stainless steel piping
Remove existing cover to allow a new pump access hatch
Saw cut and remove existing concrete for new electrical conduit

Construction:

Form and pour new modified concrete wall
Add Raven 405 Coatings to new concrete wall
Extend stainless steel piping
Reinstall the pumps, rails pump bases and associated electrical
On new concrete pad and stainless steel plates
Install 2 Stainless Steel Hangers & 2 Wall Brackets
Relocate level transmitter
Install new 2" Flushing Line and associated valves down to the pump intake
Install new float ball (Supplied by Owner)
Install new pump access hatch
Install new mixer (Supplied by Owner)
Install new electrical conduit and wiring
Install new Disconnect and Transformer
Modify existing control panel
Modify existing scada system
Modify Concrete Sump Area
Include Signed & Sealed Drawings for the Aluminum cover modifications only

Items specifically excluded from this scope include (Can price any of the below if requested):

- Permits
- Bonds
- Start-up and testing
- By-Pass Pumps & Temporary facilities of any kind
- Draining & Cleaning of existing Structure
- Paint and Coatings other than that listed above
- New Cables for Pumps, Transmitter, or Mixer if existing is to short or damaged

Approx. schedule of the scope of work:

- There is no completion deadline. Work can be scheduled as mutually agreeable.
- Approx. 5 weeks of work at the project site is anticipated to complete the scope.

L7 Construction, Inc. proposes to provide the labor, equipment, and materials for all of the above scope of work for the lump sum of **\$ One Hundred Ninety Three Thousand Thirty Two Dollars & Zero Cents (\$193,032.00)**

Thank you for the opportunity to quote you on this scope of work if you have any questions or concerns please feel free to give me a call to discuss.

Brett Lefever
L7 Construction, Inc.
321-972-9325 office
407-760-7694 cell

3840 St. Johns Pkwy.
Sanford, FL 32771
blefever@L7constructs.com



TECHNICAL MEMORANDUM

To: Christi Winn, PE
Brevard County Utility Services Department

From: Tom Vill, PE

Date: May 10, 2018

RE: Emergency Modifications – Septage & Grease Facility

Background

The Brevard County Utility Services Department (BCUSD) receives septage and grease from on-site sewage disposal and treatment (septic) systems and grease traps in the county. The septage and grease is received from licensed commercial haulers at the South Central Regional Wastewater Treatment Facility (SCRWWTF). The septage and grease is screened to remove rags, plastics, rocks, and large debris (>6mm) and then pumped to the sludge holding tank at the SCRWWTF. In the sludge holding tank, the septage and grease is combined with all of the sludge generated by the facilities' main activated sludge treatment process. The combined sludge is dewatered by the facilities' belt-filter presses.

In 2015, BCUSD modified the Florida Department of Environmental Protection (FDEP) Wastewater Treatment Facility Permit for the SCRWWTF to allow construction of a new septage and grease receiving, screening, and pumping system. These improvements were constructed and placed in service in 2016. The system is receiving significantly more and larger sand and grit than originally estimated. The sand and grit are frequently clogging the pumps resulting in shutdowns of the septage and grease receiving station. As a result, a temporary portable pump is being used to operate the system until emergency modifications can be made to address the issue.

Emergency modifications are currently proposed to allow more reliable handling of the sand and grit. The proposed modifications do not change the treatment process for septage and grease received at the SCRWWTF. In addition, the septage and grease treatment capacity of the SCRWWTF is not changed. The proposed modifications increase mixing and reduce the pump storage capacity at the receiving station. A complete description of the proposed modifications is included in the following sections of this memorandum.

Current System Design

The current septage and grease receiving station allows commercial haulers to directly connect to inlet piping. The piping directs the septage and grease into the screen and meters and controls the flow. The flow is screened by a rotating-drum screen inside a Flo-Beast Septage Station. The screenings are washed, dewatered and deposited in a dumpster for disposal. The liquid waste stream is directed to a septage and grease holding tank and pumped to the SCRWWTF's existing sludge holding tank and then

dewatered. The pumping system will also be able to direct flow to the new headworks following completion of the upgrade to the SCRWWTF now under construction.

The septage and grease holding tank is a rectangular reinforced-concrete. The tank includes a submersible mixer to keep solids in suspension when the tank level is above five (5) feet. The mixer is off when the level in the tank is below five (5) feet. The pumps are located in a reinforced concrete chamber connected to the septage and grease holding tank. The pump chamber was designed deeper to allow the holding tank to be completely emptied on a regular basis. The tank is also equipped with an odor control system.

The septage and grease holding tank provides no treatment and only allows temporary storage of septage and grease. This provides the operators flexibility in the timing and amount of septage and grease pumped to the SCRWWTF sludge holding tank. **Figure 1** shows the current system design.

Current Operating Issue & Proposed Modification

The septage and grease system is receiving significantly more and larger sand than originally estimated. The sand and grit are kept in suspension in the septage and grease holding tank by the mixer; however, they settle out in the pump chamber and cause frequent clogging of the pumps. Infrastructure Solution Services (ISS) staff and BCUSD Engineering and Operations staff held a series of meetings to review the issue and develop a solution to the current problem.

The selected option relocated the pumps into the septage and grease storage tank and eliminated the pump chamber. Since the mixer in the septage and grease storage tank keeps sand and grit in suspension, the pumps will not experience the current clogging issues. In addition, a second mixer and a flushing system will be installed to provide redundancy and insure clogging will not occur. **Figure 2** shows the proposed emergency modifications.

Impact of the Proposed Modification

The biggest impact of the proposed modification is that the septage and grease holding tank cannot be drained as part of normal operation and will maintain a minimum operating level of five (5) feet. This results in a reduction in the operating volume of the septage and grease holding tank from approximately 36,000 gallons to 18,000 gallons.

The operating volume is not critical for treatment and only provides flexibility in the timing and amount of septage and grease pumped to the SCRWWTF sludge holding tank. The current operating volume of the septage and grease holding tank allows storage of approximately ½ day of the estimated future septage and grease flows (70,000 gallons). The reduced operating volume will provide storage of approximately ¼ day of the estimated future septage and grease flows. The storage tank also includes emergency storage volume of approximately 15,000 gallons above the operating volume. Once the current upgrades to the SCRWWTF are completed, the screened septage and grease can also be pumped to the plant headworks should a prolonged emergency occur. BCUSD Operations staff is comfortable with the reduced operating volume and it has no effect on the septage and grease treatment capacity of the facility.

A vactor truck will be needed to drain the bottom few feet of the septage and grease holding tank for periodic maintenance. BCUSD Operations staff is comfortable with this need.

FDEP Permit Impacts

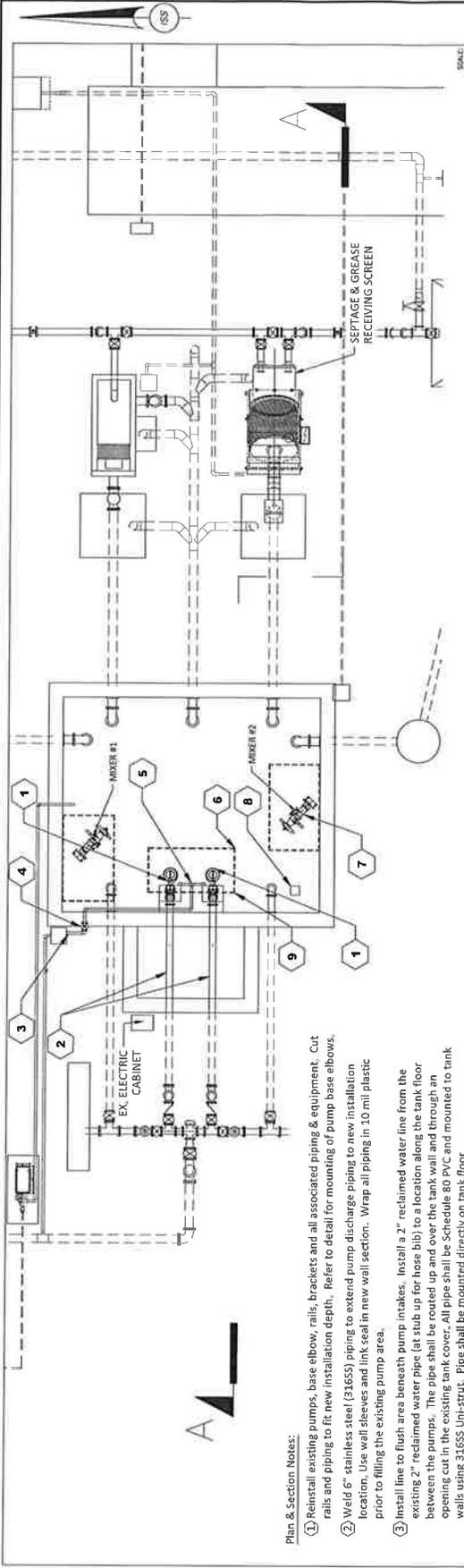
ISS staff reviewed the proposed modifications with FDEP permitting staff and a permit modification is not needed for the work.

NO.	DATE	DESCRIPTION
1	11/10/17	REVISIONS TO BE MADE TO THE DRAWING
2	11/10/17	REVISIONS TO BE MADE TO THE DRAWING
3	11/10/17	REVISIONS TO BE MADE TO THE DRAWING
4	11/10/17	REVISIONS TO BE MADE TO THE DRAWING
5	11/10/17	REVISIONS TO BE MADE TO THE DRAWING
6	11/10/17	REVISIONS TO BE MADE TO THE DRAWING
7	11/10/17	REVISIONS TO BE MADE TO THE DRAWING
8	11/10/17	REVISIONS TO BE MADE TO THE DRAWING
9	11/10/17	REVISIONS TO BE MADE TO THE DRAWING

INFRASTRUCTURE SOLUTION SERVICES
 7185 Merritt Road, Suite 101
 Melbourne, Florida 32940
 Phone: (321) 622-4616

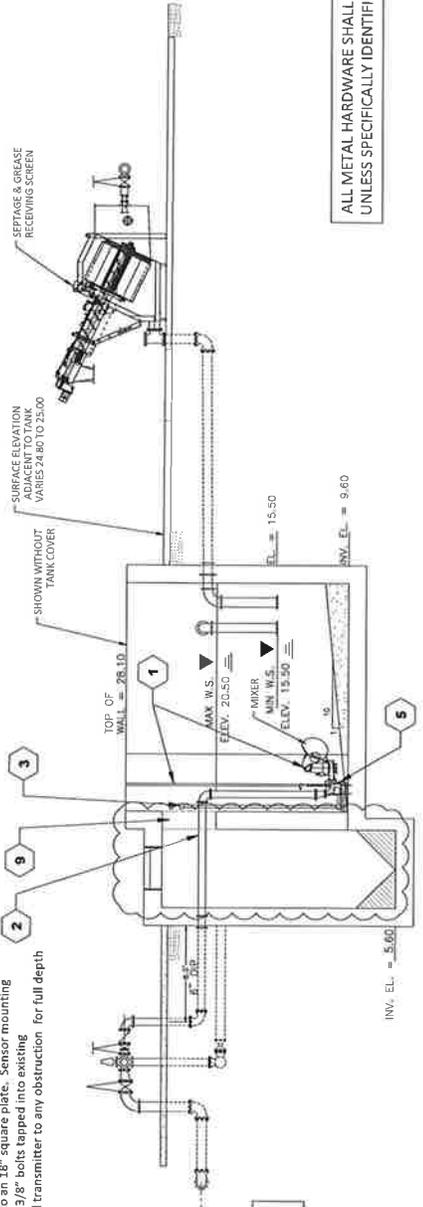
PUMP & TANK MODIFICATION
 PLAN AND SECTION
 EMERGENCY MODIFICATIONS TO
 SEPTAGE & GREASE TREATMENT SYSTEM
 BREARD COUNTY UTILITIES

PROJECT NO.	BRV005
DATE	11/10/17
SCALE	1" = 5'
DRAWN BY	TWV
CHECKED BY	TWV
DATE	11/10/17



TREATMENT SYSTEM PLAN VIEW

- Plan & Section Notes:**
1. Reinstall existing pumps, base elbow, rails, brackets and all associated piping & equipment. Cut rails and piping to fit new installation depth. Refer to detail for mounting of pump base elbows.
 2. Weld 6" stainless steel (316SS) piping to extend pump discharge piping to new installation location. Use wall sleeves and link seal in new wall section. Wrap all piping in 10 mil plastic prior to filling the existing pump area.
 3. Install line to flush area beneath pump intakes. Install a 2" reclaimed water line from the existing 2" reclaimed water pipe (at stub up for hose bib) to a location along the tank floor between the pumps. The pipe shall be routed up and over the tank wall and through an opening cut in the existing tank cover. All pipe shall be Schedule 80 PVC and mounted to tank walls using 316SS Uni-struct. Pipe shall be mounted directly on tank floor.
 4. Install a 2" globe valve, a 2" bronze strainer(50 mesh), and 2" slow-closing solenoid valves (ASCO Series 8221) on wall of tank. Install couplings on both side of strainer and solenoid valve assembly to allow removal in future for service/replacement.
 5. Install 2" piping to direct reclaimed water beneath both pumps to flush any accumulated sand/grit.
 6. Construct new hatch opening with fall protection (refer to structural drawings)
 7. Install new mixer Wilo Model TR60-231-4/24, 15.4 HP, 1700 RPM, 3 Ph, 460V. Mixer and installation mast to be provided by BCUSD. Refer to detail for mounting of mixer.
 8. Relocate existing Ultrasonic level sensor on top of existing tank. The sensor will be located between the existing mixer hatch and new pump hatch and clear of obstructions below. Cut a hole in the existing tank cover and mount sensor to an 18" square plate. Sensor mounting plate shall be fastened to existing tank cover with 3/8" bolts tapped into existing cover. Maintain 2ft. clearance from center of level transmitter to any obstruction for full depth of tank.
 9. Relocate high level float switch.



Datum for Elevations shown is NAVD88

ALL METAL HARDWARE SHALL BE 316 SS UNLESS SPECIFICALLY IDENTIFIED OTHERWISE.

Figure 2

SECTION VIEW A-A

SCALE: 1/4" = 1'-0"