



ADDENDUM NO. 1

May 13, 2020

ITB PW 44-20

**STANDISH – LAFITTE CRESCENT STORMWATER IMPROVEMENTS**

The following items are hereby incorporated into the project manual, procurement documents, contract documents, plans and specifications:

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ITEM NO. 1

Question 1 – (00430-1) What is the budget estimate for this project that can be used for the Bid Bond amount request?

Answer: The engineer's estimate of construction cost including contingency was approximately \$960,000.00.

Question 2 – (00010-1) FDOT Standard Plans and Specifications are governing on this project. What type of FDOT approved pipe is preferred?

Answer: General note 11 in the plans provides that pipe materials other than reinforced concrete or Class II HDPE needs to be submitted for approval. We anticipate that, due to the cost and easier installation, Class II HDPE (smooth wall, not perforated) will more likely be selected by bidders.

Question 3 – (Sheet 7) - What material is the existing 24" pipe and what is the preferred CIPP liner material?

Answer: The existing 24" pipe is concrete. It was video inspected by Gulf Coast Underground, LLC and determined to be a good candidate for lining. A copy of the specification for CIPP is attached.

Question 4 – (Sheet 8) - On the pavement patch detail, how far beyond the new base material does the asphalt overlap the existing base material?

Answer: The County's standard for pavement patch requires that the existing asphalt be saw cut, and the asphalt overlap the existing base material 2.5 feet.

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ITEM NO. 2 - ADDITIONAL CLARIFICATION

The bid is comprised of two Phases, Phase 1 (Base Bid) and Phase 2 (Additive Alternate). For clarification, Phase 1 (Base Bid) includes that portion of the project from its outfall into Cinco Bayou (Station 100+00) to Structure S-9 (Station 205+13.20) inclusive. Phase 2 (Additive Alternate) includes everything north of Structure S-9. At this time it is anticipated the final easement needed to complete the project will be received prior to contract execution, and the phases will be combined into one project. However, bids should still be submitted as shown in the Bid Form.

END OF QUESTIONS

RECEIPT OF THIS ADDENDUM SHALL BE ACKNOWLEDGED BY WRITING THIS ADDENDUM NUMBER AND DATE IN THE SPACE PROVIDED ON DOCUMENT 00410-8, 'ADDENDUM ACKNOWLEDGEMENT - ATTACHMENT A.'

**The opening date for this ITB remains May 20, 2020 at 3:00 PM CST.**

SECTION 02580

REHABILITATION OF SEWERS BY CURED-IN-PLACE PIPE (CIPP) METHODS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cleaning and flushing existing sanitary/storm sewers.
2. Television inspection of existing sewers.
3. Inserting liner into existing sewers.
4. Television inspection of post-construction, rehabilitated sewers.

1.2 REFERENCES

A. ASTM International:

1. ASTM D256 - Standard Test Methods for Determining the Izod Pendulum Impact Resistance Notched Specimens of Plastics.
2. ASTM D543, Standard Practice for Evaluating the Resistance of Plastics to Chemical Reagents
3. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.
4. ASTM D695, Standard Test Method for Compressive Properties of Rigid Plastics
5. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
6. ASTM D2837 - Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.
7. ASTM F1216 – Rehabilitation of pipelines by the inversion and curing of a resin-impregnated tube.
8. ASTM F1743 – Rehabilitation of pipelines by pulled-in-place installation of a cured-in-place thermosetting resin pipe.
9. ASTM F2019 – Rehabilitation of existing pipelines and conduits by the pull in place installation of glass reinforced plastic (GRP) cured-in-place thermosetting resin pipe.
10. ASTM F2561, Standard Practice for Rehabilitation of a Sewer Service lateral and

Its Connection to the Main Using a One Piece Lateral Cured-in-Place Liner

11. ASTM D2990, Standard Test Methods for Tensile, Compressive and Flexural Creep and Creep-Rupture of Plastics
12. ASTM D3567, Standard Practice for Determining Dimensions of Fiberglass (Glass-Fiber Reinforced Thermosetting Resin) Pipe and Fittings
13. ASTM D3681, Standard Test Method for Chemical Resistance of “Fiberglass” (Glass Reinforced Thermosetting Resin) Pipe in a Deflected Condition
14. ASTM D5813, Standard Specification for Cured-In-Place Thermosetting Resin Sewer Pipe

### 1.3 DESIGN REQUIREMENTS

- A. Design lining material to have sufficient structural strength to support loads, live loads and groundwater load imposed assuming existing pipe cannot share loading or contribute to structural integrity of liner.
- B. Design lining material to support reasonable anticipated settlement and movement in aerial and elevated pipe segments without jeopardizing the structural integrity or uniformity of the liner.
- C. Design liner to least possible thickness, but in no instance less than 4mm for 6” pipe and no less than 6 mm for 8” and larger pipe, to minimize decreasing of inside pipe diameter.
- D. Design liner material to provide jointless and continuous structurally sound construction able to withstand imposed static, dynamic and hydrostatic loads on long term basis.
- E. Identify design provisions for shrinkage control to prevent future misalignment of service reconnections.

### 1.4 PERFORMANCE REQUIREMENTS

Perform relining and internally reestablish service connections (if applicable) without need for excavation while minimizing disruptions to adjacent occupied buildings and traffic

### 1.5 SUBMITTALS

The Contractor shall submit to OCWS/Engineer the following specifications, drawings, test results, and other data showing details of the fabrication and installation of the CIPP liner; these submittals shall be considered incidental to this project, unless a specific bid item for such is included in the project bid proposal:

1. Product specifications and technical data for the resin catalyst system, sealing materials, and liner tube.

2. Manufacturer provided information that describes the CIPP materials, curing speeds, curing installation processes, installation pressures, and temperature limitations.
3. Certified test results of physical properties testing and chemical resistance testing of the proposed resin material.
4. If a field wet-out procedure will be used for liner impregnation, submit a complete description of the proposed wet-out procedure with detailed information on equipment and material storage locations, resin volumes and/or weights, liner length, start times, finish times, resin injection locations, and any other pertinent data documenting the wet-out procedure. Provide plan indicating procedure for reconnection of laterals and pipe end seals.
6. Map that legibly shows proposed liner insertion location(s), construction staging area(s), and bypass pump and piping locations.
7. Traffic control plan (if required) in accordance with Okaloosa County or FDOT
8. Bypass pumping plan
9. Hydraulic flow capacity calculations with a copy of certification verifying Manning's roughness "n" value for the proposed liner.
10. Schedule of operations for each project or work order.
11. Liner curing parameter records.
12. Pre and post television inspection videos and logs on DVD in accordance with "Section 02567 - TV Inspection of Sewers".
13. Physical samples. Samples removed for testing shall be individually labeled and logged with the following information:
  - a. Owner's Project number and title.
  - b. Sample number.
  - c. Segment number of line as noted on plans.
  - d. Date and time of sample.
  - e. Name of Contractor.
  - f. Name and location of firm performing testing on sample.
14. Certified test results of structural properties of CIPP samples for each segment installed under this contract.
15. Log of pulling forces measured during insertion.
16. Any other testing results or submittals specified in this document or required by applicable ASTM standards.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Section 01700 – Contract Closeout.
- B. Project Record Documents: Record actual locations of each service connection (if applicable).

#### 1.7 QUALIFICATIONS AND PRE-APPROVAL

Manufacturers have been pre-approved for this project, and others will be considered. To be considered as an equal, manufacturers must be formally approved by addendum, prior to bid. All pre-approval requests must be submitted at least 10-days prior to bid. The engineer will have sole discretion in determining whether a manufacturer is to be approved on this project, based upon documentation submitted as required below and

communication with references.

- A. **Manufacturer:** Company specializing in manufacturing Products specified in this section with minimum five years documented experience. Manufacturer shall provide evidence of a minimum of 500,000 linear feet of documented successful installations in sanitary sewer systems and a minimum of 2,000 documented, successful manhole-to-manhole line sections in sanitary or storm sewer systems. Of this experience, qualifications must indicate the successful completion of a minimum of 100,000 linear feet of documented successful installations in sanitary or storm sewer systems with pipe diameters 12” and larger.

Pre-Approved Manufacturers:

I. Applied Felts

II. Liner Product, LLC

- B. **Installer:** Installer shall have a minimum of 100,000 linear feet of documented successful installations of full main cured-in-place pipe.
- a. Installation of the CIPP products shall be performed by a work force that is experienced and certified in installation of the products. The installer shall be certified by the CIPP product manufacturer to have been trained and approved in the installation of their CIPP products and have a minimum of 3 years total experience with the product.
  - b. The Contractor shall submit such certification of hot water or steam cured CIPP Installer to Owner.
  - c. Contractor shall also submit to Owner at least five (5) recent references of the CIPP installer, indicating successful installation of proposed hot water or steam cured CIPP on projects of similar size and scope. For each reference, include at a minimum the Project Name, Location, Length of Segments Lined, Diameter of Segments Lined, Dollar Value of Contract, Customer’s Name and Contact Information.
  - d. Installer’s project manager must have a minimum of 3 years of CIPP installation experience and must be on-site during the installation of the CIPP products
  - e. **Installer Equipment Requirements**  
Installer shall only use hot water or steam curing equipment that has been certified and approved for use by the CIPP product manufacturer.

1.8 PRE-INSTALLATION MEETINGS

Convene a minimum of one week prior to commencing each phase of work of this section to review pre-rehabilitation video.

1.9 DELIVERY, STORAGE, AND HANDLING

Receive, store, and protect liner materials.

## 1.10 FIELD MEASUREMENTS

Verify field measurements of pipes prior to design, fabrication and delivering of liner material.

## 1.11 COORDINATION/PUBLIC NOTIFICATION

The Contractor shall maintain service usage throughout the duration of the project. In the event that a service will be out of service, the maximum amount of time of no service shall be 8 hours for any property served by the sewer. A public notification program shall be implemented, and shall as a minimum, require the Contractor to be responsible for contacting each home or business connected to the sanitary sewer informing them of the work to be conducted, when the sewer will be offline, and any alternative method of service that may be provided. The Contractor shall also provide the following:

- A. Written notice to be delivered to each home or business two business days prior to the beginning of work being conducted on the section, and a local telephone number of the Contractor they can call to discuss the project or any problems which could arise.
- A. Personal contact with any home or business which cannot be reconnected within the time stated in the written notice.
- B. Inform OCWS Maintenance Department 48 hours prior to starting the work.
- C. Owner will supply water for the work described within this section at no charge. Water must be metered and connection provided with suitable backflow protection. Contractor must provide transmission to site. Coordinate the use of the nearest feasible fire hydrant with the Owner. (See Special Conditions)

## PART 2 – PRODUCTS

### 2.1 CURED-IN-PLACE (CIPP) LINER

- A. Pre-Approved Manufacturers: Other products will be considered but must be pre-approved. Pre-approval requests must be made a minimum of 10-days prior to bid (See section 1.7)
- B. Materials:
  - 1. Tube consisting of one or more layers of absorbent non-woven felt fabric or glass reinforced plastic. It shall not be possible to separate the tube layers. The application of the resin to the felt tubing or fiberglass layers shall be conducted under factory conditions and the materials shall be fully protected against UV Light degradation, excessive heat and contamination at all times.
  - 2. Furnish product material in accordance with ASTM F1216, ASTM F1743 and ASTM F2019.
  - 3. Liner effective length to match length of piping to be lined as determined by the Contractor to effectively carry out the rehabilitation and extend into the adjoining manhole structures. The Contractor shall be responsible for field verifying all liner lengths prior to liner fabrication. Each liner shall contain an end section which shall be bonded to each end of the host pipe to prevent leakage from the liner and host pipe.

4. Furnish wet-out tube with uniform thickness that when compressed at installation pressures will meet or exceed design thickness.
5. The outside layer of the tube (before wet out) shall be coated with an impermeable, flexible membrane that will contain the resin and facilitate monitoring of resin saturation during the resin impregnation (wet out) procedure.
6. The tube shall be homogeneous across the entire wall thickness containing no intermediate or encapsulated elastomeric layers. No material shall be included in the tube that may cause delamination in the cured CIPP. No dry or unsaturated layers shall be evident.
7. The wall color of the interior pipe surface of CIPP after installation shall be a light reflective color so that a clear detailed examination with closed circuit television inspection equipment may be made.
8. Seams in the tube shall be stronger than the un-seamed felt and meet the requirements of ASTM D5813.
9. Furnish tube of sufficient size to provide tight fit to existing pipe. Allowances shall be made for longitudinal and circumferential expansion. All dimensions shall be verified by the Contractor prior to fabrication.
10. Furnish resin system consisting of corrosion resistant polyester, vinyl ester, or epoxy. Recycled resins will not be allowed.
11. Chemical and Physical Testing: Test samples in accordance with ASTM D790. Comply with minimum property values shown below with applicable ASTM requirements.

Property	ASTM Method	Test Value
Flexural Modulus	D790	250,000 psi
Flexural Strength	D790	4,500 psi
Compressive Strength	D695	6,500 psi
Longitudinal Flexural Modulus	D2990	150,000 psi

13. Liner Thickness: All liner thickness calculations shall be submitted in accordance with provisions made in this Specification. The thickness design shall be in accordance with ASTM D2412 and F1216. Calculations shall be based on fully deteriorated gravity pipe values. Liner thickness calculations shall comply with, at a minimum, the following design constraints and the following considerations shall be made:

- a. Minimum Factor of Safety = 2.0
- b. Service Temperature = 33 to 150 degrees F
- c. Groundwater Elevation = At Surface
- d. Minimum Liner Thickness = 4.5mm for 6" pipe and 6 mm for 8" and larger
- e. Maximum Long Term Deflection = 5%



- f. Long term flexural modulus shall be estimated as one-half of the lowest short term flexural modulus dictated by ASTM.
- g. Liner thickness shall be the maximum of that dictated by bending, deflection, buckling, and stiffness calculations.
- h. Soil Characteristics
  - 1. Unit Weight = 120 pcf
  - 2. Modulus of Elasticity = 1,000 psi
  - 3. Coefficient of Friction = 0.130r
- i. The liner shall be designed for a minimum fifty-year service life under continuous loading conditions.

## 2.2 SOURCE QUALITY CONTROL

- A. Inspect each lot of liner for defects. Verify liner is homogeneous throughout, uniform in color, free of cracks, holes, foreign materials, blisters or deleterious faults.
- B. Marking:
  - 1. For testing purposes, mark each production lot with identical marking number.
  - 2. The outside of the tube shall be marked for distance at regular intervals along its entire length, not to exceed 5 ft. Such markings shall include the manufacturer's name or identifying symbol. The tubes must be manufactured in the USA.
  - 3. At end of production shift, change marking code to indicate where new production shift started.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify location of piping to be relined.

### 3.2 CLEANING AND FLUSHING

- A. Clean existing sewer pipes of debris, sedimentation and mineral deposits with high velocity cleaner, bucket and scraper, root saws, rolling or balling units. All cleaning and flushing must be in accordance with liner manufacturer's requirements. Any protruding taps, roots, and any and all other obstructions not removed during the pre-installation television inspection shall be removed and surfaces cleaned as required by the lining manufacturer to avoid liner puncture.

### 3.3 INITIAL VIDEO INSPECTION AND REPAIR

- A. Conduct closed-circuit video inspection

- B. Determine condition of existing piping, degree of offset of joints, crushed walls, and obstructions.
- C. Determine and document in writing sizes and locations of service entrances and service connections.
- D. Clear obstructions, service piping protrusions, roots, and other materials from existing pipe to ensure inserted pipe liner contacts only existing pipe wall.

### 3.4 BYPASSING SEWAGE

Set up bypassing pump system to isolate each section of piping if required. A detailed bypass plan shall be submitted by contractor and approved by Engineer and Owner prior to starting work.

### 3.5 POINT REPAIRS

- A. When and where indicated by the video inspection, point repairs shall be completed, as necessary, in order to enable lining. All point repairs shall be approved by the Engineer prior to construction. At Owner's discretion, point repairs may be completed by Others, including Owner's staff.
- B. Point repairs shall be completed if required
- C. Point repairs completed to correct pre-existing conditions shall be paid for at the unit bid price as detailed.

### 3.6 PROTECTION

The Contractor shall provide for the general safety of workers, pedestrians and traveling public throughout the project. Existing surface improvements and underground facilities and utilities shall also be protected. Damage caused by the Contractor shall be repaired at his own expense. Protection to be provided shall include but not be limited to:

- A. Provide barricades, warning lights and signs for excavations created by point repairs and/or excavation pits. Conform to requirements of FDOT, Okaloosa County, or any other governing entity, and of contract documents.
- B. Protection of Manholes/Structures: Install all pulleys, rollers, bumpers, alignment control devices and other equipment required to protect existing manholes/structures, and to protect the pipe from damage during installation. Lubrication may be used as recommended by the manufacturer. Under no circumstances will the liners be stressed beyond their elastic limit.
- C. Do not allow sand, debris, or runoff to enter sewer system.
- D. Verify location of all underground utilities and facilities potentially impacted by rehabilitation or other related project activities and take necessary precautions to provide protection from damage. Damage caused by the Contractor shall be his responsibility and repaired at no additional cost to OCWS.
- E. Protect the liner and components during all phases of work including, but not limited to hauling, installation, entry into the entry pit, and prevention of scarring or gouging of the liner, pipe or components.
- F. Contractor will be responsible for monitoring weather prior to planning a CIPP tube insertion to account for a sufficient duration of tube wet out and insertion and curing

- in order to ensure that wet weather that will prevent access to the project site is accounted for. Contractor's failure to account for oncoming weather will be Contractor's sole responsibility which may extend to removal of damaged or improperly cured CIPP resulting from interrupted CIPP construction process.
- G. Contractor shall notify owner 72 hours prior to liner wet out process for approval. Weather conditions and on-site conditions need to be considered.

### 3.7 INSTALLATION – CURED-IN-PLACE PIPE (CIPP) LINER FOR MAINLINE

- A. Install liner in accordance with ASTM F1216, ASTM F1743, ASTM 2019 and manufacturer's instructions.
- B. Pull or invert liner through existing pipe through access points or using existing manholes. Take care not to damage deformed pipe during installation. Use appropriate sleeves and rollers to protect liner.
- C. Contractor shall stop infiltration or leakage into the existing pipeline to prevent contamination of resin in liner.
- D. Liner Curing:
- Use steam or circulated hot water to cure liner. Ensure temperatures inside liner pipe are sufficient to effect resin curing and are within manufacturers' instructions. Monitor temperature for entire curing period.
- E. Cool-down:
- Cool cured pipe in accordance with manufacturer's recommendations.
- F. Finish:
1. Install finished lining continuous over entire length of piping free of visual defects including foreign inclusions, pinholes and delamination. Confirm lining is impervious and free of leakage from pipe to surrounding ground or from ground to inside lined pipe.
  2. Repair defects affecting integrity or strength of lining.

### 3.8 FIELD QUALITY CONTROL

- A. When liner fails to meet installation requirements, remove failed liner and install new liner.
- B. Conduct closed-circuit video inspection of completed rehabilitation work.
- C. No infiltration of groundwater is permitted. No visual defects including foreign inclusions, dry spots, pinholes, cracks or delamination are allowed.

- D. Confirm service connections are complete and are unobstructed.
- E. Submit summary report of final inspection with copy of video documentation.
- F. Measurement - All sewer pipes will be measured from center of manhole to center of manhole or end of main

### 3.9 CLEANING

Upon acceptance of the installation work and testing, the Contractor shall restore the project area affected by the operations to a condition at least equal to that existing prior to the work.

END OF SECTION 02580