

BID SOLICITATION



City of Chattanooga
 101 East 11th Street, Suite G13
 Chattanooga, TN 37402

BID OPENING DATE AND TIME:
 10-JUL-19 at 2:00 PM

BID NUMBER: 305589

BUYER:
PHONE #: (423) 643-7230
DELIVERY REQUIRED:

SEALED BIDS

Mail or submit two (2) signed copies of bid form to this office in the enclosed envelope. Retain one copy for your file.

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City of Chattanooga
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 Chattanooga, TN 37402

Item	Class-Item	Quantity	Unit	Unit Price	Total
Requisition No.: 186225 Bid No.: 305589 Ordering Dept.: Waste Resources Buyer: Amanda Berkowitz Phone No.: (423) 643-7233 Email: aberkowitz@chattanooga.gov					
Items Being Purchased: Sanitary Sewer Lateral Connection Seal by Cured-In-Place Pipe Method					
ATTACHMENTS: Specifications (16 pgs) Affirmative Action Plan (2 pgs) Iran Divestment Act (1 pg) No Contact/No Advocacy Affidavit (1 pg) City of Chattanooga (COC) Terms and Conditions posted on Website http://www.chattanooga.gov/purchasing/standard-terms-and-conditions If you can't download call buyer for a copy.					
This Shall Be A Twelve (12) Month Blanket Contract To Supply Sanitary Sewer Lateral Connection Seal by Cured-In-Place Pipe Method For The Waste Resources Division. The Contract Term May Be Renewed For An Additional Two (2) Twelve (12) Month Terms Under The Same Terms And Conditions By Mutual Agreement. The City Of Chattanooga And The Contractor May Bilaterally Extend The Contract By Providing Written Confirmation Of Agreement By Both Parties At Least 30 Days Prior To The Contract's Current Expiration Date Into Any Successive Term As Provided Herein.					
QUANTITIES ARE ESTIMATES ONLY THE CITY OF CHATTANOOGA SHALL GUARANTEE NO MINIMUM OR MAXIMUM AMOUNT PURCHASED DURING THE LIFETIME OF THE CONTRACT.					
*** BID MUST BE RECEIVED NO LATER THAN *** *** 2:00 PM EST ON JULY 10, 2019 ***					
NOTE: ALL BIDS MUST BE SIGNED All bids received are subject to the terms and conditions contained herein and as listed in the above referenced website. The undersigned Bidder acknowledges having received, reviewed, and agrees to be bound to these terms and conditions, unless specific written exceptions are otherwise stated.					
Any manufacturer;s names, trade names, brand names, or catalog numbers used in the specifications are for the purpose of describing and establishing general quality levels. Such references are not intended to be restrictive. Bids will be considered for any brand which meets or exceeds the quality of the specifications listed for any item.					
The City of Chattanooga reserves the right to reject any and/or all bids, waive any informalities in the bids received, and to accept any bid which in its opinion may be for the best interest of the city.					
The City of Chattanooga will be non-discriminatory in the purchase of all goods and services on the basis of race, color, or national origin.					
**** NOTE ****					

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PLEASE PROVIDE US WITH THE FOLLOWING INFORMATION: Company Name _____ Address _____ _____ Phone/Toll-Free No. _____ Fax No. _____ eMail Address _____ Contact Person's Name _____ Estimated Delivery _____ Minority-Owned Business _____ Small Business _____ Veteran _____ Minority Woman-Owned Business _____ Disabled Veteran _____ Woman-Owned Business _____ **** ALL ITEMS MUST BE QUOTED F.O.B. DESTINATION ****					

NOTE: ALL BIDS RECEIVED ARE SUBJECT TO THE TERMS AND CONDITIONS

The City is Exempt from all Federal and State Tax.
 Bids will be received at the above mentioned address.

ALL BIDS MUST BE SIGNED -- The undersigned offers the above quoted prices under the conditions contained herein.

TERMS OF PAYMENT: _____
 TELEPHONE NUMBER: _____

COMPANY: _____
 SIGNATURE: _____
 NAME AND TITLE: _____

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Item	Class-Item	Quantity	Unit	Unit Price	Total
1	4-inch service to 8-inch main Lateral Service Connection Seal (to include by-pass pumping)	10	Each	_____	_____
2	6-inch service to 8-inch main Lateral Service Connection Seal (to include by-pass pumping)	3	Each	_____	_____
3	4-inch service to 10-inch main Lateral Service Connection Seal (to include by-pass pumping)	10	Each	_____	_____
4	6-inch service to 10-inch main Lateral Service Connection Seal (to include by-pass pumping)	5	Each	_____	_____
5	4-inch service to 12-inch Lateral Service Connection Seal main(to include by-pass pumping)	2	Each	_____	_____
6	6-inch service to 12-inch main Lateral Service Connection Seal (to include by-pass pumping)	1	Each	_____	_____
7	4-inch service to 15-inch main Lateral Service Connection Seal (to include by-pass pumping)	1	Each	_____	_____
8	6-inch service to 15-inch main Lateral Service Connection Seal (to include by-pass pumping)	1	Each	_____	_____
9	4-inch service to 18-inch main Lateral Service Connection Seal (to include by-pass pumping)	1	Each	_____	_____
10	6-inch service to 18-inch main Lateral Service Connection Seal (to include by-pass pumping)	1	Each	_____	_____

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Item	Class-Item	Quantity	Unit	Unit Price	Total
11	4-inch service to 24-inch main Lateral Service Connection Seal (to include by-pass pumping)	1	Each	_____	_____
12	6-inch service to 24-inch main Lateral Service Connection Seal (to include by-pass pumping)	1	Each	_____	_____
13	Brush Laterals	40	Each	_____	_____
14	Restoring Services by Remote Cutting	40	Each	_____	_____
15	Reinstate Service Connection	40	Each	_____	_____
16	Mobilization For each Sub-Project.	1	Each	_____	_____
17	Emergency Mobilization (Sub-Project less than 1000 LF)	1	Each	_____	_____
18	Remove Protruding Laterals	40	Each	_____	_____

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***SPECIFICATIONS FOR SANITARY SEWER LATERAL
CONNECTION SEAL BY CURED-IN-PLACE PIPE METHOD
FOR THE WASTE RESOURCES DIVISION
CITY OF CHATTANOOGA, TENNESSEE
May 2019***

1.0 GENERAL

1.1 SCOPE OF SERVICES

Provide all labor, material and equipment to provide for the reconstruction of existing sanitary sewer service laterals using an approved Cured-In-Place Pipe (CIPP) method by forming a new pipe within an existing pipe, which has generally maintained its original shape. The work performed under this Section of the Specifications is deemed to be Specialty Contractor Work.

1.2 REFERENCE STANDARDS

Supply all products and perform all work in accordance with applicable American Society for Testing and Material (ASTM), American Water Works Association (AWWA), American National Standards Institute (ANSI), or other recognized standards. The latest revisions of all standards in effect on date of advertisement are applicable. Where differences exist, or any latitude is either inferred or interpreted between this Specification and referenced product/process standards, this Specification shall govern.

1.3 BASIS OF BIDDING

The Bid shall include the cost per hour for labor and percent markup on materials and specialized equipment that may be required by the Vendor.

The cost per unit shall include any and all costs for wages, benefits, indirect costs overhead, profit, insurance, and any other related direct or indirect cost including bypass pumping. The cost per unit shall be for the services necessary to perform the work described herein.

Cost of these services shall be subject to all of the requirements of the Specifications.

The bid shall be awarded on the basis of the unit cost to provide the lateral sealing services for the Waste Resources Division as well as an evaluation of the Vendor's qualifications, experience, capabilities and other factors specified in the City Code.

The City of Chattanooga reserves the right to reject any and/or all bids, to waive any information in Bids received, and to accept any Bid which in its opinion may be in the best interest of the city.

1.4 QUALITY ASSURANCE

- A. The CIPP used shall be the exact name-brand product proposed with the Contractor having been actively involved in its installation for at least five years. In addition, Contractor shall have successfully installed CIPP liner product in at least 2,000 laterals in wastewater collection system applications.

- B. On Site Field Superintendent: The Qualifying Superintendent must have a minimum of five years of experience with CIPP products. In addition, the Qualifying Superintendent must have supervised jobs in which at least 20,000 feet of pipe has been reconstructed using the exact named product proposed. The Contractor shall submit information to document this with the Bid in accordance with the Instructions to Bidders. The superintendent for the Project shall be on-site during all phases of the work involving any pre and post-installation video inspection, sewer cleaning or insertion and processing of the CIPP.

- C. Resin Class
 - 1. The Contractor shall designate a wet-out facility and shall provide wet-out liner tubes from the designated facility only. Multiple facilities may not be used for the duration of this Contract to supply wet-out liner tubes without prior approval of the Engineer. The impregnated tube shall be free of pinholes, resin voids and other defects. If the cured-in-place pipe is impregnated at the manufacturing plant, it shall be delivered to the job site packed in ice in a refrigerated truck, and remain refrigerated prior to installation to prevent premature curing.

 - 2. The Contractor shall place a sampling valve in-line at a point in the resin/catalyst mixing stage so that a sample of non-catalyzed resin may be taken. A second sampling valve shall be placed in-line at a point after the resin/catalyst mixing stage, but prior to catalyzed resin injection into the liner so that a resin sample may be taken. Both sampling valves shall be left in place for the duration of the Contract.

 - 3. The Engineer shall have the right to inspect the designated wet-out facility and draw samples from one or both sampling valves without prior notice to the Contractor for the duration of the Contract.

 - 4. Infrared Analysis
 - a. The Engineer reserves the right to subject resin samples to an infrared analysis (IR) Scan. This standard analytical test involves shining a beam of light in the infrared frequency region through a thin sample of subject resin. The frequency of light is then varied across the infrared spectrum. Chemical functional groups present in the resin being analyzed will absorb infrared light at specific frequencies and with characteristic absorption intensities.

 - b. A spectrum created from the measurement of light transmitted through the sample across the range of infrared frequencies shall be used to determine the

resin's chemical fingerprint. For Standard Polyester, an overlaid IR spectrum of Reichhold PolyLite® 33420 shall be used as a baseline comparison for the purpose of a test under this contract. For Enhanced Polyester resin, an overlaid IR spectrum of Reichhold PolyLite® 33420-E shall be used as a baseline comparison for the purpose of a test under this contract.

- c. The Engineer may perform random Infrared Scans (IR Scans) and/or Composite Burn-offs to ensure resin quality and consistency throughout the duration of the Contract and shall be responsible for the cost of IR testing.

1.5 SUBMITTALS

- A. Submit shop drawings in accordance with the requirements of City of Chattanooga Standard Specifications. Specific submittal information shall include the following:
 1. The Vendor shall furnish submittal data establishing the structural capabilities, chemical composition, and other mechanical properties of the liner system proposed.
 2. The Vendor shall furnish the proposed liner thickness for each pipe size and depth categories, along with a certification, signed and sealed by an engineer registered in the state that the Project is located, to the effect that the proposed liner thicknesses were calculated based on the parameters specified in Article 2.04 of this section of the Specifications and the site specific external loads. In no case will the proposed liner thicknesses be less than those specified in Article 2.04 of this section of the Specifications. Vendor shall submit 5 hard copies of the design calculations.
 3. The Vendor shall furnish copies of the manufacturer's brochures giving a complete description of the product proposed, its physical and chemical composition, the same for the thermosetting resin or epoxy hardener.
 4. Pre- and post-installation videos and logs (CIPP Inspection Form, Cure Cook out Log, Wet out Request and Recommended Install and Cure Pressures) per Article 3.03 shall be submitted during the course of work.
 5. Catalyst system and resin/catalyst ratio.
 6. The proposed curing schedules and process shall be approved by the resin manufacturer in writing. Cure schedules shall include specific information on "post exothermic cooking times" duration and "cool down" procedures – all to be approved by the resin manufacturer in writing.

7. The Vendor shall submit a Certificate of Authenticity from the resin manufacturer for each shipment to the wet-out facility to include the date of manufacture and Heat Distortion Temperature. This information shall be submitted before the manufacture or installation of any CIPP.
- B. The manufacturer shall submit written certification that the lining system complies with all applicable requirements of these Specifications.
- C. The Vendor shall submit its proposed plan for ensuring that the finished and installed CIPP meets the minimum thickness requirements. The plan shall include detailed inversion procedures to reduce stretching and resin loss and to minimize shrinkage.

1.6 WARRANTY

The Vendor shall warrant and guarantee the work performed for a period of five (5) years from the date of final acceptance. All CIPP liners shall have a design and service life of 50 years. The date of final acceptance by the City shall be the date final payment is made to the Vendor.

2.0 PRODUCTS AND OTHER REQUIREMENTS

2.1 ACCEPTABLE MANUFACTURER

The CIPP lateral rehabilitation system shall be "T-Liner" as manufactured by LMK Enterprises, Inc., or "Top-Hat/Top-Hat Plus" as manufactured by BLD Services, LLC.

2.2 RESINS

- A. The resin for CIPP installed under this Contract shall be a Standard Polyester Resin or Enhanced Polyester Resin unless otherwise directed by the Engineer due to site-specific field conditions and/or design requirements.
- B. Standard Polyester Resins
 1. The resin used shall be a corrosion resistant isophthalic polyester specifically designed for the CIPP being installed. Only premium, virgin, non-recycled resin shall be used. The resin shall be manufactured under ISO 9002 certified procedures.
 2. The resin shall have been tested according to ASTM D2990, D5813, and F1216 by accredited, third-party testing facilities. Results of these tests shall be made available to Engineer upon request.

3. The resin vendor must be able to reference the corrosion scale with the resin itself having a heat deflection temperature greater than 212 degrees Fahrenheit.
- C. Resins shall be shipped directly from the resin manufacturer's facility to the CIPP wet-out facility. Resins shall not be sent to any intermediate mixing facility. Copies of the shipping documents from the resin manufacturer shall be submitted to the Engineer indicating dates of shipment, originating and receiving locations.
 - D. Where required by the Engineer, the Vendor shall provide a styrene-free resin.

2.3 CATALYST SYSTEMS

- A. The catalyst system shall be made up of a primary catalyst and a secondary catalyst. The primary catalyst shall be added at a maximum of 1% of the resin volume by weight unless otherwise approved by the Engineer. The secondary catalyst shall be added at a maximum of 0.05% of the resin volume by weight unless otherwise approved by the Engineer.
- B. Resins, catalysts and resin/catalyst mix ratios shall not be changed or altered during this Contract unless specifically approved by the Engineer in writing.

2.4 LINER TUBE

- A. The tube shall consist of one or more layers of absorbent non-woven felt fabric and meet the requirements of ASTM F1216.
- B. The acceptable liner tube shall be constructed under ISO 9002 certified procedures. Proper certification shall be provided prior to the manufacture or installation of any CIPP.
- C. The tube shall be constructed to withstand installation pressures, have sufficient strength to bridge missing pipe, and stretch to fit irregular shaped pipe sections.
- D. The wet-out tube shall have a uniform thickness that when compressed at installation pressures shall meet or exceed design thickness.
- E. The tube shall be manufactured to a size that when installed shall tightly fit the internal circumference and length of the original pipe. In the event that under-sized pipe is present, liner tube shall be manufactured so that overlap folds or wrinkles do not occur. Allowances shall be made for circumferential stretching during inversion.
- F. The outside layer of the tube, before installation, shall have an impermeable polyurethane or polyethylene plastic coating. This coating shall be an impermeable,

flexible membrane that shall contain the resin and facilitate monitoring of resin saturation during resin impregnation. This coating shall form the inner layer of the finished pipe and is required for enhancement of corrosion resistance, flow and abrasion properties.

- G. The tube shall be homogeneous across the entire wall thickness containing no intermediate or encapsulated layers. No material may be included in the tube that may cause de-lamination in the cured liner, and no dry or unsaturated areas or layer shall be evident.
- H. The wall color of the interior liner surface after installation shall be such that a clear, detailed inspection with closed-circuit television equipment may be conducted.
- I. The outside of the tube shall be marked for distance at regular intervals not to exceed 10 feet. Such markings shall include the manufacturer's name or identifying symbol. The tube shall be stamped with the manufacturer's name or identifying symbol in regular intervals not to exceed twenty feet.
- J. The minimum length shall be that deemed necessary by the Vendor to effectively span the distance between manhole sections of the segment to be lined unless otherwise specified. The line lengths shall be verified in the field before impregnation of the tube with resin.

2.5 CIPP DESIGN

- A. The CIPP thickness shall be designed in accordance with the applicable provisions of ASTM F 1216 and D 2412 for "fully deteriorated gravity pipe conditions" and the following design conditions:
 - a. AASHTO HS-20-44 Live Load, whether under streets or not. The live load will vary based on depth of pipe.
 - b. A dead load based on the depth of pipe shown on the Drawings and a soil modulus of elasticity of 1,000 psi, soil weight of 120 pounds per cubic foot and a coefficient of friction of $Ku'=0.130r$.
 - c. Short-term flexural modulus and long-term modulus when tested in accordance with ASTM D790. Standard Polyester: 250,000 psi and 125,000 psi, respectively
 - d. Minimum Flexural Stress of 4,500 psi, when tested in accordance with ASTM D790.
 - e. Safety factor of 2.0.

Specifications
 Sewer Lateral Connection Seals
 Waste Resources Division

- f. Groundwater height at the ground surface.
- g. Maximum pipe ovality of 2%.
- h. Poisson ratio of 0.3.
- i. Enhancement factor (K) of 7.
- j. Service temperature range shall be 40 to 140 degrees F.
- k. Maximum long-term deflection shall be 5%.
- l. Any and all other site specific external loads. It is the Vendor's responsibility to determine the site specific external loads.

B. Minimum Acceptable pipe Thickness

Pipe Diameter (Inches)	Depth to Invert (Feet)	Minimum Thickness (mm)
8	0-17	6.0
10	0-9	6.0
10	9.1-16	7.5
12	0-11	7.5
12	11.1-13	7.5
15	0-8	7.5
15	8.1-11	9.0
18	0-13.5	10.5
18	13.6-17	12.0
24	0-9.5	12.0
24	9.6-12.5	13.5
24	12.6-15.8	15.0
24	15.9-19.5	16.5
27	0-9.5	13.5
27	9.6-12	15.0
27	12.1-15	16.5
36	0-9.5	18.0
36	9.6-11.7	19.5
36	11.8-14	21.0
36	14.1-16	22.5
36	16.1-18	24.0
36	18.1-21	25.5
36	21.1-22.5	27.0

- C. The liner thickness shall be the greater of the calculated thickness to meet the design requirements of Paragraph 1 above or the minimum acceptable pipe thickness from Paragraph 2 above.
- D. All references to liner thickness shall be defined as total thickness after installation and after curing is complete.
- E. The finished CIPP shall provide a uniform smooth interior wall surface with a Manning “n” coefficient of 0.011.

3.0 EXECUTION

3.1 GENERAL

- A. The lateral reconstruction is accomplished using a non-woven textile tube of particular length and a thermo-set resin with physical and chemical properties appropriate for the application. The lateral tube located within a bladder is impregnated with the synthetic resin and is then placed inside of a protective carrying device. The mainline portion of the liner is physically attached to the lateral portion and is affixed around a rigid launching device. The protective launching device is winched into the existing sewer. When the launching device is properly positioned at the lateral connection, the mainline bladder is inflated by pressurized air that presses the main liner against the host pipe. The lateral portion is then, inverted up through the lateral service line by the action of the inversion bladder. Once the resin-saturated liner is cured, the inversion bladder and launching/carrying devices are removed. All reconstruction of existing gravity sewer service laterals using a pre-approved CIPP Product and Installer shall be performed in accordance with ASTM F 1216.
- B. The Contractor shall carry out his operations in strict accordance with all applicable OSHA standards. Particular attention is drawn to those safety requirements involving work on an elevated platform and entry into a confined space.
- C. The Contractor shall be responsible for obtaining water necessary for cleaning, inversion and other work items requiring water. [The Contractor shall be responsible for obtaining a hydrant use permit from [Tennessee American Water] or [Eastside Utilities].
- D. The Contractor shall be responsible for locating and access to all manholes.
- E. Prior to installation, the service lateral shall be cleaned and closed circuit television (CCTV) inspected per Sections 33 01 30.14 and 33 01 30.16, respectively, of these Specifications.

Specifications
Sewer Lateral Connection Seals
Waste Resources Division

- F. The Contractor shall install a cleanout meeting the requirements of the detail shown on the Drawing at the edge of the right-of-way or utility easement, should one not exist.
- G. The upstream side of the cleanout shall be plugged during insertion and curing of the liner assembly ensuring no flows enter the pipe and no air, steam or odors will enter the building. Main sewer line flows will be by-passed per methods outlined in Section 33 01 30.73 of these Specifications.
- H. The existing service lateral shall be clear of obstructions that prevent the proper insertion and expansion of the lining system. Changes in pipe size shall be accommodated, if the lateral tube is sized according to the pipe diameter and condition. Obstructions may include dropped or offset joints of no more than 20% of the inside pipe diameter.
- I. The CIPP shall be free of dry spots, lifts, and delaminated portions. The CIPP shall taper at each end so as to accept video equipment and maintain a proper flow. After the work is completed, the installer shall provide the Engineer with video footage documenting the repair and the visual markings identifying the sewer lateral address as completed work per Section 33 01 30.16 of these Specifications. The finished product shall provide an airtight/watertight verifiable nonleaking connection between the main sewer and sewer service lateral.
- J. All surfaces, which have been damaged by the Contractor's operations, shall be restored to a condition at least equal to that in which they were found immediately prior to the beginning of the Contractor's operations. Suitable materials and methods shall be used for such restoration. The restoration of existing property or structures shall be done as promptly as practicable and shall not be left until the end of the construction period. Compensation for this work will be included in the rehabilitation item to which it pertains.
- K. Traffic Control: The Contractor shall be responsible for traffic control during the course of each phase of the Work. Prior to beginning Work, Contractor shall submit a traffic control plan for each section of Work for the review and approval. It is the intent that this Work is to be accomplished with as little disturbance to traffic, private property, and the public as is reasonably possible, consistent with timely completion thereof. The traffic control plan shall reflect such requirements where applicable. Signs, signals, and detours shall conform to the local and state requirements for streets and highways. The Contractor shall have and maintain on site a sufficient supply of traffic cones and other traffic signaling devices, including trained and properly equipped flagmen, to safely control all traffic through the work zone(s). Road closures and / or detours will require advance scheduling and prior approval by the Engineer.
- L. Daily Work Schedule: Insofar as is possible, Work shall be so scheduled that the lining of the pipe, curing of the tube, and the reinstatement of service connections can be accomplished in a single working day or shift. Prior approval must be obtained from the

Engineer if work is to be performed at night or on weekends to minimize traffic disturbance. At the end of each working day, temporary tie connections shall be made between the relined section of pipe and the existing system and the plug in the upstream manhole removed, but not before the section being lined has been properly cured in accordance with the manufacturer's instructions and all service connections are reinstated. In some instances, it may be necessary to bypass effluent from service connections.

3.2 BY-PASS PUMPING

- A. By-Pass Pumping shall be the responsibility of the vendor, and requirements will be agreed upon at each sub-project meeting. All by-pass pumping shall be sufficient to meet or exceed the capacity of the existing collection system.
- B. The installation methodology contemplated requires the temporary blocking and back-ups of sewers and sewage. Vendor shall be responsible to limit the extent and duration of such blockages and back-ups so that overflows and spillage onto public or private property and into storm sewers, waterways, and streets does not occur. In the event that such spillage or overflows do occur during the course of or as a result of the Work, the Vendor performing the Work shall immediately report the spillage or overflow to the Engineer or designee, as well as, eliminate the spillage or overflow and, as necessary, remove the blockage and eliminate the back-up. On elimination of the spillage or overflow, the Vendor is to clean up and disinfect the area. Work to stop or contain such events is to be deemed emergency in nature and sufficient justification for total mobilization of resources, the use of overtime or double time, and any other reasonable measures to assure correction of the problem without delay. Damages arising from blockages, back-ups, spillage, or overflows of sewage during the course of the Work or because of the Work shall be the sole responsibility of the Vendor.
- C. Sewage flow shall be pumped around segments during the installation and testing of cured-in-place pipe, the televising of sewers and lateral service reinstatement.
- D. Pumping equipment shall have the capacity to convey 100% of peak flows around the construction area. The flow shall be intercepted at the upstream end of the construction area and shall be pumped through temporary piping of adequate size. The flow shall be discharged into a manhole on the downstream side of the construction area, thus bypassing the sewer segment(s) under construction. The Vendor shall be required to contact all residential and commercial customers whose service lines connect to the sewer main being bypassed and inform them that they will be temporarily out of service. The Vendor shall also advise those customers against water usage until the mainline is back in service. After completing the necessary work on the main line to allow its reuse, the Vendor shall advise those customers that the sewer main is back in service. The Vendor shall maintain a high degree of professionalism, both in workmanship and

appearance, at all times. Should a condition arise that the Vendor cannot restore service within 12 hours of service interruption, the Vendor shall make provisions for pumping all flows within the service interruption area at no cost to the Owner.

3.3 "T-LINER" INSTALLATION (LMK Enterprises, Inc.)

- A. The lateral tube and mainline sheet shall be encapsulated within the translucent bladder (liner/bladder assembly) and shall be vacuum impregnated with resin (wet-out) under controlled conditions. The volume of resin used shall be sufficient to fill all voids in the textile lining material at nominal thickness and diameter. The volume shall be adjusted by adding 5% to 10% excess resin for the change in resin volume due to polymerization and to allow for any migration of resin into the cracks and joints in the original pipe. No dry or unsaturated area in the mainline sheet or lateral tube shall be acceptable upon visual inspection.
- B. The lateral tube and inversion bladder shall be inserted into the carrying device. The mainline liner and bladder shall be wrapped around the "T" launching device and held firmly by four hydrophilic O-rings. A two-part 100% solid epoxy shall be applied to the main/lateral interface. The epoxy shall be applied to the main liner, adjacent to the lateral opening and shall consist of a two-inch wide bands, 300 ml in volume. Both the launching and carrying device shall be pulled into the pipe using a cable winch. The pull will be complete when the open port of the "T" launching device is aligned with the interface of the service connection and mainline pipe. The lateral tube shall be completely protected during the pull. The mainline liner shall be supported on a rigid "T" launcher that is elevated above the pipe invert through the use of a rotating skid system. The liner assembly shall not be contaminated or diluted by exposure to dirt, debris, or water during the pull.
- C. The main sheet in a tubular shape shall be unfolded and the hydrophilic O-rings shall be expanded coming in contact with the main pipe by action of the main inflation bladder. The lateral tube shall be inverted by the action of the lateral bladder through the center of the wrapped main sheet up into an existing lateral pipe fully extending to the designated termination point. The main and lateral bladders shall extend past all ends of the liner forcing the ends to remain open so no cutting for reinstatement is required.
- D. After liner placement is complete; pressure shall be maintained to press the liner firmly against the inner pipe wall. The liner shall be chemically cured at ambient temperatures or by a suitable heat source. The heating equipment shall be capable of delivering a mixture of steam and air throughout the liner bladder assembly to uniformly raise the temperature above the temperature required to cure the resin. The curing of the CIPP shall take into account the existing pipe material, the resin system, and ground conditions (temperature, moisture level, and thermal conductivity of the soil). The heat source

temperatures shall be monitored and logged during the cure and cool down cycles. The manufacturer's recommended cure schedule shall be submitted.

- E. Curing shall be performed with air or a mixture of air and steam without pressure interruption for the proper duration of time per the resin manufacturer's recommendations. The cure cycle and cool down shall take into account actual field conditions and shall be according to the manufacturer's recommendations. The curing temperatures shall be monitored via thermocouples placed in the upstream and extreme downstream end of the liner to ensure that sufficient heat is being supplied to the system to affect proper cure. Once the pipe has been cured, cool water shall be slowly introduced into the rehabilitated pipe. The water temperature shall be cooled inside of the pipe at a rate of 20 to 30 degrees per hour until the water temperature is within 20 degrees of the ambient temperature. The cool down process shall take into account actual field conditions and may be modified in cases of severe conditions or below normal ground temperatures.
- F. The finished CIPP shall be continuous over the entire length of the rehabilitated sewer service lateral and 16-inches of the main pipe (5-inch on either side of a 6-inch lateral or 6-inch on either side of a 4-inch lateral connection).

3.4 "TOP-HAT/TOP-HAT PLUS" INSTALLATION (BLD Services, LLC)

- A. The lateral tube shall be encapsulated within the bladder (liner/bladder assembly) and shall be vacuum impregnated with resin (wet-out) under controlled conditions. The volume of resin used shall be sufficient to fill all voids in the textile lining material at nominal thickness and diameter. The volume shall be adjusted by adding 5% to 10% excess resin for the change in resin volume due to polymerization and to allow for any migration of resin into the cracks and joints in the original pipe. No dry or unsaturated area in the lateral tube shall be acceptable upon visual inspection.
- B. The lateral tube and inversion bladder shall be inserted into the carrying device. Both the launching and carrying device shall be pulled into the pipe using a cable winch. The pull will be complete when the open port of the launching device is aligned with the interface of the service connection and mainline pipe. The lateral tube shall be completely protected during the pull. The mainline liner shall be supported on a rigid launcher that is elevated above the pipe invert through the use of a rotating skid system. The liner assembly shall not be contaminated or diluted by exposure to dirt, debris, or water during the pull.
- C. The lateral bladder shall extend past all ends of the liner forcing the ends to remain open so no cutting for reinstatement is required.

- D. After liner placement is complete; pressure shall be maintained to press the liner firmly against the inner pipe wall. The liner shall chemically have cured at ambient temperatures or by a suitable heat source. The heating equipment shall be capable of delivering a mixture of steam and air throughout the liner bladder assembly to uniformly raise the temperature above the temperature required to cure the resin. The curing of the CIPP must take into account the existing pipe material, the resin system, and ground conditions (temperature, moisture level, and thermal conductivity of the soil). The manufacturer's recommended cure schedule shall be submitted.
- E. Curing shall be performed with air or a mixture of air and steam without pressure interruption for the proper duration of time per the resin manufacturer's recommendations. When the heat source is removed, the CIPP shall be cooled until the temperature on both ends of the CIPP reaches 100 degrees Fahrenheit. The cure cycle and cool down shall take into account actual field conditions and shall be according to the manufacturer's recommendations.
- F. The finished CIPP shall be continuous over the entire length of the rehabilitated sewer service lateral.
- G. The Contractor shall install the top hat into the service lateral connection within five days of the main line CIPP liner installation.

3.5 LATERALS TERMINATING INSIDE MANHOLES (EITHER PROCESS)

Where lateral services terminate inside a manhole, the CIPP liner/insertion bladder shall fully breach the full cross-sectional area of the lateral opening. Once proper cure has been accomplished, the CIPP shall be cut flush with the lateral opening. There shall be no annular space evident between the CIPP and the host pipe. If water is observed around the cured liner between the host pipe or, if an annular space exists, the void shall be filled with an epoxy sealant, Hydro-Tite gasket or other method compatible with the CIPP and approved by the Engineer.

3.6 POINT REPAIRS

It is recognized that the deterioration of sewers is an on-going process and in the event that a point repair is deemed necessary by the Engineer, the repair shall be accomplished by the Contractor in a timely manner.

3.7 SAMPLE PREPARATION AND TESTING OF CURED CIPP

- A. The Engineer shall, at his discretion, perform up to three acceptance tests during the course of the Project. The Contractor shall be instructed to prepare a sample for testing.

- B. In the presence of the Engineer, the Contractor shall remove one sample of the installed liner at least 12-inches in length for testing of installed CIPP flexural properties and thickness. The CIPP testing shall include determining flexural strength, flexural modulus and thickness of each sample. These three individual tests shall comprise one completed CIPP Acceptance Test. The Contractor shall furnish all equipment and personnel necessary to conduct all required sample preparations.

3.8 LEAKAGE TESTING OF CIPP SERVICE LATERALS

- A. Leakage testing of all finished CIPP-lined service laterals shall be conducted in the presence of the Engineer in accordance with the exfiltration test method for gravity pipes. The Contractor shall furnish all equipment and personnel necessary to conduct all of the leakage tests.
- B. Gravity Pipe Leakage Testing: For CIPP, low-pressure air test as specified in Section 33 08 00.13 shall be required after liner has been installed in existing pipe.

3.9 FINAL INSPECTION AND ACCEPTANCE

- A. At the completion of the rehabilitation of the sewer, a digitally formatted video inspection, conforming to Section 33 01 30.16 of these Specifications shall be submitted to the Engineer for review. If, in the judgment of the Engineer, any unsatisfactory conditions are present, the Contractor shall correct conditions in these areas at no cost to the Owner.
- B. The finished pipe must be such that when the thermosetting resin cures, the total wall thickness will be a homogeneous, monolithic felt and resin composite matrix that will be chemically resistant to withstand internal exposure to domestic sewage. When cured, the CIPP must form a mechanical bond with the host pipe.

3.10 CUSTOMER NOTIFICATIONS

- A. The Contractor shall contact all residential and commercial customers whose service lines are to be rehabilitated or who may be affected by upstream or downstream rehabilitations and inform them that they will be temporarily out of service. This notification shall be made a minimum of 24 hours prior to beginning rehabilitation work. See the Drawings and Section 01 35 00 Unique Requirements regarding any additional notification requirements.
- B. For all residences the Contractor shall leave a door hanger detailing the service outage and providing contact information. Door hanger samples shall be submitted to the Engineer for review and approval. The Contractor shall also advise those customers against water usage until the mainline and lateral are back in service. After completing

the necessary work on the main line and lateral to allow their reuse, the Contractor shall advise those customers that the sewer is back in service. Should a condition arise that the Contractor cannot restore service within 12 hours of service interruption, the Contractor shall make provisions for pumping all flows within the service interruption area at no cost to the Owner.

3.11 DAILY WORK SCHEDULE

Insofar as is possible, Work shall be so scheduled that the lining of the pipe, curing of the tube, and the reinstatement of service connections can be accomplished in a single working day or shift. The City's project manager will be contacted at the beginning of every working day to discuss the work schedule. Prior approval must be obtained from the Engineer if work is to be performed at night or on weekends to minimize traffic disturbance. At the end of each working day, temporary tie connections shall be made between the relined section of pipe and the existing system, and the plug in the upstream manhole removed, but not before the section being lined has been properly cured in accordance with the manufacturer's instructions, and all service connections are reinstated. In some instances, it may be necessary to bypass effluent from service connections.

3.12 PAYMENT OF SERVICES

The City will make payment to the Vendor no later than the 30th of the month for the preceding month's service provided invoices are received by the first day of the month. Once the Engineer reviews the final payment request and feels the contractor has met the requirements of the contract, the 5% retainage amount will be awarded, this will signify the close out of the project. Payment requests should be submitted to the Moccasin Bend Wastewater Treatment Plant, 455 Moccasin Bend Road, Chattanooga, Tennessee 37405.

- A. No separate payment shall be made for clearing and constructing access roads to sewers.
- B. The cost of moving and reestablishing landscape features, including labor and materials, shall be included in the unit price bid for the item to which it pertains.
- C. No separate payment shall be made for the cost incurred to repair damaged property. This includes concrete or asphalt driveways, except where payment is authorized for Same Trench Sewer Replacement.
- D. Construction along Highways, Streets and Roadways: No separate payment shall be made for traffic control or maintaining highways, streets, roadways and driveways.
- E. No additional payment will be made for replacement of defective materials.

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- F. All costs related to the implementation of the easement and permit stipulations shall be included in the unit price bid for the item to which it pertains.
- G. No separate payment will be made for clean-up and testing. Any cost for labor, materials and equipment required for clean-up shall be included in the unit price bid for the item to which it pertains.
- H. No separate or additional payment will be made for any special or unique method, means, techniques or equipment necessary for the Contractor's compliance with these Specifications, regulatory requirements, permits, laws or regulations which govern this Project.

Affirmative Action Plan

The City of Chattanooga is an equal opportunity employer and during the performance of this Contract, the Contractor agrees to abide by the equal opportunity goals of the City of Chattanooga as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or handicap. The Contractor will take affirmative action to ensure that applicants are employed, and the employees are treated during employment without regard to their race, color, religion, sex, national origin, or handicap. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay, or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, or handicap.
3. The Contractor will send to each labor union or representative of workers with which he/she has a collective bargaining agreement or other contract or understanding, a notice advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. During the term of this contract the following non-discriminatory hiring practices shall be employed to provide employment opportunities for minorities and women:
 - a. All help wanted ads placed in newspapers or other publications shall contain the phrase "Equal Employment Opportunity Employer."
 - b. Seek and maintain contracts with minority groups and human relations organizations as available.

- c. Encourage present employees to refer qualified minority group and female applicants for employment opportunities
 - d. Use only recruitment sources which state in writing that they practice equal opportunity. Advise all recruitment sources that qualified minority group members and women will be sought for consideration for all positions when vacancies occur.
5. Minority statistics are subject to audit by City of Chattanooga staff or other governmental agency.
6. The Contractor agrees to notify the City of Chattanooga of any claim or investigation by State or Federal agencies as to discrimination.

(Signature of Contractor)

(Title and Name of Company)

(Date)

Chapter No. 817 (HB0261/SB0377).
"Iran Divestment Act" enacted.
Vendor Disclosure and Acknowledgement

By submission of this bid, each proposer and each person signing on behalf of any proposer certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each proposer is not on the list created pursuant to § 12-12-106.

(SIGNED)

(PRINTED NAME)

(BUSINESS NAME)

(DATE)

No Contact/No Advocacy Affidavit

City of Chattanooga
Purchasing Division

For Submission with Sealed RFP, RFQ, Sealed Bid Responses:

State of _____

County of _____

_____ (agent name), being first duly sworn, deposes and says that:

(1) He/She is the owner, partner, officer, representative, or agent of _____
_____ (business name), the Submitter of the attached sealed solicitation
response to Solicitation # _____;

(2) _____ (agent name) swears or affirms that the Submitter
has taken notice, and will abide by the following No Contact and No Advocacy clauses:

NO CONTACT POLICY: After the posting of this solicitation, a potential submitter is prohibited from directly or indirectly contacting any City of Chattanooga representative concerning the subject matter of this solicitation, unless such contact is made with the Purchasing Division.

NO ADVOCATING POLICY: To ensure the integrity of the review and evaluation process, companies and/or individuals submitting sealed solicitation responses, as well as those persons and/or companies formally/informally representing such submitters, may not directly or indirectly lobby or advocate to any City of Chattanooga representative.

Any business entity and/or individual that does not comply with the No Contact and No Advocating policies may be subject to the rejection or disqualification of its solicitation response from consideration.

Submitter Signature:

Printed Name:

Title: _____

Subscribed and sworn to before me this _____ day of _____, 2_____.

Notary Public: _____

My commission expires: _____