



INVITATION FOR BID #16-1327BLS

SANITARY SEWER - LATERAL LINING REHABILITATION SERVICES

Manatee County, a political subdivision of the State of Florida, (hereinafter "Owner", "Manatee County" or the "County") will receive sealed bids from individuals, corporations, partnerships, and other legal entities organized under the laws of the State of Florida or authorized to conduct business in the State of Florida.

NON-MANDATORY INFORMATION CONFERENCE

In order to ensure all prospective bidders have sufficient information and understanding of the County's needs, an Information Conference will be held at **10:00AM on April 7, 2016 at the Manatee County Utilities Maintenance Conference Room, 4520 66th Street West, Bradenton, FL 34210.** Attendance is not mandatory, but is highly encouraged.

DEADLINE FOR CLARIFICATION REQUESTS: **3:00PM, April 8, 2016**

Reference Bid Article A.09

BID OPENING TIME AND DATE DUE **3:00PM, April 15, 2016**

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FOR INFORMATION CONTACT:

Bonnie Sietman, Sr. Buyer
(941) 749-3046

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Manatee County Financial Management Department
Purchasing Division

AUTHORIZED FOR RELEASE: *DWW*

SECTION A INFORMATION FOR BIDDERS

A.01 OPENING LOCATION

Sealed bids will be **publicly opened** at the **Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, Florida 34205** in the presence of County officials at the time and date stated, or soon thereafter. All bidders or their representatives are invited to attend the sealed bid opening.

Any bids received after the stated time and date will not be considered. It shall be the sole responsibility of the bidder to have their bid delivered to the Manatee County Purchasing Division for receipt on or before the stated time and date. Bidder shall be solely and strictly responsible for its timely delivery to the Purchasing Division. Bids delayed by mail, courier, or bids delayed for any other reason, shall not be considered, shall not be opened at the public opening, and arrangements shall be made for their return at the bidder's request and expense.

A.02 SEALED & MARKED

One original and one copy of your **signed bid** shall be submitted in one sealed package, clearly marked on the outside "**Sealed Bid #16-1327BLS, Sanitary Sewer – Lateral Lining Rehabilitation Services** with your company name.

For your convenience, a mailing label is provided with this Invitation for Bid or you may address the package as follows:

Manatee County Purchasing Division
1112 Manatee Avenue West, Suite 803
Bradenton, Florida 34205
Sealed Bid #16-1327BLS, Sanitary Sewer – Lateral Lining Rehabilitation
Services

All blank spaces on the bid form must be filled in as noted with amounts extended and totaled and no modifications shall be made in the wording of the forms or in the items thereupon. In the event an edit is made in your submittal, the bidder shall write its initials by the change. Any bid may be rejected which contains any omissions, alterations, irregularities of any kind, or which in any manner fail to conform to the requirements of this IFB.

A bid made by an individual, either in his/her own or proper person or under a trade or firm name, shall be executed under the individual's signature. If made by a partnership, the bid shall be executed by two or more of the general partners. If made by a corporation, the bid shall be executed by its President or other legally authorized corporate officer or agent.

A.03 BID FORMS

Bids must be submitted on the provided bid forms, although additional pages may be attached. **Bidders must fully complete all pages of the bid forms. Bid forms must be executed by an authorized signatory who has the legal authority to make the bid and bind the company. Bidders must fully comply with all requirements of this IFB in its entirety.** Failure to comply may result in bidder being deemed nonresponsive.

A.04 MATHEMATICAL ERRORS

Bid Forms without imbedded mathematical formulas:

In the event of multiplication/extension error(s), the unit price shall prevail. In the event of addition error(s) the extension totals will prevail. In the event the dollar amount for contract contingency is omitted, it will be added to the total price of the bid.

Bid Forms with imbedded mathematical formulas:

Interactive Bid Forms that contain mathematical formulas may be used for automating lengthy and complex bid forms. In the event these forms are used and a multiplication/extension error(s) is discovered, the unit price entered by the vendor shall prevail. The vendor shall assume the responsibility and accuracy of the information input in the bid form and therefore shall verify that the calculations are correct before submitting their bid.

Regardless of which type of bid form is used, all bids shall be reviewed mathematically and corrected by the Purchasing Division, if necessary, using these standards, prior to additional evaluation.

A.05 SECURING BID DOCUMENTS

IFB's and all documents issued pursuant to the IFB are available for download at no charge at mymanatee.org by clicking on "[Bids and Proposals](#)" on the left side of the home page. You may view and print these pdf files using Adobe Reader software.

Manatee County may also use DemandStar to distribute bids. Visit the DemandStar website at www.Demandstar.com for more information regarding this service. Participation in the DemandStar system is not a requirement for doing business with Manatee County.

Complete copies of the IFB and all related documents are available for public inspection at the Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205, or by calling (941) 749-3014. Appointments are encouraged. Documents are available between the hours of 9:00 AM and 4:00 PM Monday through Friday, with the exception of holidays.

In addition, Manatee County informs the Manatee Chamber of Commerce of all active solicitations who then distributes the information to their members.

A.06 EXAMINATION OF BID DOCUMENTS AND SITE(S)

It is the responsibility of each bidder before submitting a bid to (a) examine all IFB documents thoroughly; (b) consider federal, state, and local codes, laws, and regulations which may affect costs, progress, performance, or furnishing of the work; (c) study and carefully correlate bidder's observations with the IFB documents; and (d) notify the County of all conflicts, errors, or discrepancies in the IFB documents prior to the deadline for clarification requests.

A.07 NON-EXCLUSIVE

Unless otherwise stated in this bid specification, any contracts resulting from this bid are nonexclusive. The County reserves the right, in its sole opinion, to purchase items listed in this bid through the State of Florida contracts, cooperatives, other current government contracts, and nonprofit contracts as provided in the Manatee County Purchasing Policy. The

County reserves the rights to solicit separate bids for requirements that are a portion of a larger contract bid as a whole. Additionally at the County's sole option, additional contracts may be entered into as a result of such situations as unusual volumes, time/delivery requirements, special requirements, other brands, lease, project specific requirements, or similar situations.

A.08 MODIFICATION OF BID DOCUMENTS

If a bidder wishes to recommend changes to any portion of the IFB documents, the bidder shall furnish, in writing, data and information necessary to aid County in evaluating the request to modify the IFB documents. County is not obligated to make any changes to the IFB documents. Unless an addendum is issued, the IFB documents shall remain unaltered.

A.09 CLARIFICATION REQUESTS & ADDENDA

Each bidder shall examine all IFB documents and shall judge all matters relating to their adequacy and accuracy. Any inquiries, suggestions or requests concerning interpretation, clarification or additional information pertaining to this IFB shall be made through the Manatee County Purchasing Division. County shall not be responsible for oral interpretations given by any County employee, representative, or others.

3:00PM, April 8, 2016 shall be the deadline to submit to the Purchasing Division, in writing, all inquiries, suggestions, or requests concerning interpretation, clarification or additional information pertaining to this IFB.

This deadline has been established to maintain fair treatment of all potential bidders, while maintaining progression of the work.

If any addenda are issued to this IFB, County will post the documents on the Purchasing Division's web page at <http://www.mymanatee.org/purchasing>, and then by clicking on "**Bids and Proposals**". If the original solicitation was broadcast via DemandStar, the addenda will also be broadcast on the DemandStar distribution system to "Planholders" on this web service.

The issuance of a written addendum is the only official method whereby interpretation, clarification or additional information can be given.

It shall be the **responsibility of each bidder, prior to submitting a bid**, to contact the Purchasing Division (see contact information on the cover page) to **determine if any addenda were issued** and to make such addenda a part of their bid.

A complete set of the IFB documents must be used in preparing bids. County assumes no responsibility for errors and misinterpretations resulting from the use of incomplete sets of bid documents.

A.10 LOBBYING

After the issuance of any IFB, prospective bidders or their agents, representatives or persons acting at the request of such bidder shall not contact, communicate with or discuss any matter relating to the IFB with any officer, agent or employee of Manatee County other than the Purchasing Official or the contact identified on the first page of this IFB, pursuant to the Manatee County Code of Laws. This prohibition includes copying such persons on all written

communication, including email correspondence. This requirement begins with the issuance of an IFB and ends upon execution of the final agreement or when the IFB has been cancelled. Violators of this prohibition shall be subject to sanctions as provided in the Manatee County Code of Laws.

A.11 UNBALANCED BIDDING PROHIBITED

County recognizes that large and/or complex projects will often result in a variety of methods, sources, and prices. However, where in the opinion of the County such variation does not appear to be justified, given bid requirements and industry and market conditions, the bid will be presumed to be unbalanced. Examples of unbalanced bids will include:

1. Bids showing omissions, alterations of form, additions not specified, or required conditional or unauthorized alternate bids.
2. Bids quoting prices that substantially deviate, either higher or lower, from those included in the bids of competitive bidders for the same line item unit costs.
3. Bids where the unit costs offered are in excess of or below reasonable cost analysis values.

In the event County determines that a bid is presumed unbalanced, it will request the opportunity to and reserves the right to, review all source quotes, bids, price lists, letters of intent, etc., which the bidder obtained and upon which the bidder relied upon to develop its bid. County reserves the right to reject as nonresponsive any presumptive unbalanced bids where the bidder is unable to demonstrate the validity and/or necessity of the unbalanced unit costs.

A.12 WITHDRAWAL OF BIDS

Bidders may withdraw bids as follows:

- a. Mistakes discovered before the public bid opening may be withdrawn by written notice from the bidder submitting the bid. This request must be received in the Purchasing Division prior to the time set for delivery and opening of the bids. A copy of the request shall be retained and the unopened bid returned to the bidder; or
- b. After the bids are opened or a selection has been determined, but before an agreement is signed, a bidder alleging a material mistake of fact may be permitted to withdraw their bid if:
 1. The mistake is clearly evident in the solicitation document; or
 2. Bidder submits evidence which clearly and convincingly demonstrates that a mistake was made. Request to withdraw a bid must be in writing and approved by the Purchasing Official.

A.13 IRREVOCABLE OFFER

Any bid may be withdrawn up until the time and date set for opening of the bid. Any bid not so withdrawn shall, upon opening, constitute an irrevocable offer for a period of ninety (90) days to sell to Manatee County the goods or services set forth in the attached IFB until one or more of the bids have been duly accepted by County.

A.14 BID EXPENSES

All expenses for submitting bids to the County are to be borne by the bidder.

A.15 RESERVED RIGHTS

County reserves the right to accept or reject any and/or all bids, to waive irregularities and technicalities, and to request resubmission. Also, County reserves the right to accept all or any part of the bid and to increase or decrease quantities to meet additional or reduced requirements of County. Any sole response received by the first submission date may or may not be rejected by County depending on available competition and current needs of County. For all items combined, the bid of the lowest, responsive, responsible bidder **will** be accepted, unless all bids are rejected.

The lowest, responsible bidder shall mean that bidder who makes the lowest bid to sell goods and/or services of a quality which meets or exceeds the quality of goods and/or services set forth in the IFB documents or otherwise required by County.

To be responsive, a bidder shall submit a bid which conforms in all material respects to the requirements set forth in the IFB. **Bidders must fully comply with the IFB documents in their entirety.**

To be a responsible bidder, the bidder shall have the capability in all respects to perform fully the bid requirements, and the tenacity, perseverance, experience, integrity, reliability, capacity, facilities, equipment, and credit which will assure good faith performance.

Also, County reserves the right to make such investigation as it deems necessary to determine the ability of any bidder to furnish the service requested. Information County deems necessary to make this determination shall be provided by the bidder. Such information may include, but shall not be limited to current financial statements, verification of availability of equipment and personnel, and past performance records.

A.16 APPLICABLE LAWS

Bidder must be authorized to transact business in the State of Florida. All applicable laws and regulations of the State of Florida and ordinances and regulations of Manatee County will apply to any resulting agreement. Any involvement with the Manatee County Purchasing Division shall be in accordance with the Manatee County Purchasing Ordinance as amended.

A.17 SCRUTINIZED COMPANIES

Section 287.135, Florida Statutes, prohibits agencies from contracting with companies, for goods or services over \$1,000,000, that are on either the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum

Energy Sector List. Both lists are created pursuant to section 215.473, Florida Statutes.

At the time a company submits a bid or proposal for a contract or before the company enters into or renews a contract with an agency or governmental entity for goods or services of \$1 million or more, the company must certify that the company is not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List. Form #5A is provided for the bidder's convenience.

A.18 COLLUSION

By submitting a bid in response to this IFB, bidder certifies that it has not divulged, discussed or compared its bid with any other bidder, and has not colluded with any other bidder or parties to this bid whatsoever. Also, bidder certifies, and in the case of a joint bid each party thereto certifies as to their own organization, that in connection with this bid:

- a. any prices and/or cost data submitted have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices and/or cost data, with any other bidder or with any competitor;
- b. any prices and/or cost data quoted for this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder, prior to the scheduled opening, directly or indirectly to any other bidder or to any competitor;
- c. no attempt has been made or will be made by the bidder to induce any other person or firm to submit or not to submit a bid for the purpose of restricting competition;
- d. the only person or persons interested in this bid, principal or principals is/are named therein and that no person other than therein mentioned has any interest in this bid or in the resulting agreement to be entered into; and
- e. no person or agency has been employed or retained to solicit or secure the resulting agreement upon an agreement or understanding or a commission, percentage, brokerage, or contingent fee except bona fide employees or established commercial agencies maintained by bidder for purpose of doing business.

A.19 CODE OF ETHICS

With respect to this bid, if any bidder violates, directly or indirectly, the ethics provisions of the Manatee County Procurement Code and/or Florida criminal or civil laws related to public procurement, including but not limited to Florida Statutes Chapter 112, Part III, Code of Ethics for Public Officers and Employees, such bidder will be disqualified from eligibility to perform services or provide the goods described in this IFB, and may also be disqualified from furnishing future goods or services to, and from submitting any future bids to supply goods or services to Manatee County.

By submitting a bid, the bidder represents to County that all statements made and materials submitted are truthful, with no relevant facts withheld. If a bidder is determined to have been untruthful in their bid or any related presentation, such bidder will be disqualified from eligibility to provide the goods and/or services described in this IFB, and may also be disqualified from furnishing future goods or services to, and from submitting any future bids to supply goods or services to Manatee County.

A.20 PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES

A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime, as that term is defined in Section 287.133, Florida Statutes, may not submit a bid to provide any goods or services to a public entity; may not submit a bid with a public entity for the construction or repair of a public building or public work; may not

submit bids on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under an agreement with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for Category Two for a period of thirty-six (36) months following the date of being placed on the convicted list.

In addition, the Manatee County Procurement Code prohibits the award of any bid to any person or entity who/which has, within the past five (5) years, been convicted of, or admitted to in court or sworn to under oath, a public entity crime or of any environmental law that, in the reasonable opinion of the Purchasing Official, establishes reasonable grounds to believe the person or business entity will not conduct business in a responsible matter.

To ensure compliance with the foregoing, the Code requires all persons or entities desiring to do business with County to execute and file with the Purchasing Official an affidavit, executed under the pain and penalties of perjury, confirming that person, entity and any person(s) affiliated with the entity, does not have such a record and is therefore eligible to seek and be awarded business with County. In the case of a business entity other than a partnership or a corporation, such affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, such affidavit shall be executed by the general partner(s). A Public Contracting and Environmental Crimes Certification form is attached herein for this purpose.

A.21 CONTRACT

The agreement resulting from the acceptance of a bid shall be in the form of purchase order.

A.22 TERMINATION OF CONTRACT

Manatee County reserves the right to terminate any contract, at any time, with or without cause.

A.23 PURCHASING COOPERATIVE

It is the intent of this Invitation for Bid to include requirements and to obtain bids on behalf of Manatee County and reserve the right for the entities belonging to the Sarasota Bay Chapter of NIGP to obtain purchases from this bid proposal. This opportunity is also made available to any and all local, County, Public Educational Institutions, non-profits, and the State of Florida. Pursuant to their own governing laws, and subject to the agreement of the vendor, other entities may be permitted to make purchases at the terms and conditions contained herein. Manatee County will not be financially responsible for the purchase of other entities from this solicitation.

A.24 DISCOUNTS

Any and all discounts must be incorporated in the prices contained in the bid and not shown separately. The prices indicated on the Bid Form shall be the prices used in determining award.

A.25 TAXES

Manatee County is exempt from Federal Excise and State Sales Taxes. (F.E.T. Cert. No. 59-78-0089K; Florida Sales Tax Exempt Cert. No. 85-8012622206C-6); therefore, the bidder is prohibited from delineating a separate line item in his bid for any sales or service taxes. Nothing herein shall affect the bidder's normal tax liability.

The successful bidder shall be responsible for the payment of taxes of any kind and character, including, but not limited to sales, consumer, use, and other similar taxes payable on account of the work performed and materials furnished under the award in accordance with the laws and regulations of the place of the project which are applicable during the performance of the work. Nothing herein shall affect the bidder's normal tax liability.

A.26 DESCRIPTIVE INFORMATION

Unless otherwise specifically provided in the IFB documents, all equipment, materials and articles provided shall be new and of the most suitable grade for the purpose intended. Unless otherwise specifically provided in the IFB documents, reference to any equipment, material, article or patented process, by trade name, brand name, make or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition.

A.27 DELIVERY

Unless otherwise specified, all prices are to be FOB Destination.

A.28 AUTHORIZED PRODUCT REPRESENTATION

The bidder, by virtue of submitting the name and specifications of a manufacturer's product, will be required to furnish the named manufacturer's product. Failure to do so may, in the County's sole discretion, be deemed a material breach of the resulting agreement and shall constitute grounds for County's immediate termination of the resulting agreement.

A.29 ROYALTIES AND PATENTS

The successful bidder shall pay all royalties and license fees for equipment or processes in conjunction with the equipment and/or services being furnished. Successful bidder shall defend all suits or claims for infringement of any patent, trademark or copyright, and shall save County harmless from loss on account thereof, including costs and attorney's fees.

A.30 AMERICANS WITH DISABILITIES ACT

County does not discriminate upon the basis of any individual's disability status. This non-discrimination policy involves every aspect of County's functions including one's access to, participation, employment, or treatment in its programs or activities. Anyone requiring **reasonable accommodation** for an Information Conference or Bid Opening should contact the person named on the cover page of this IFB document at least twenty-four (24) hours in advance of either activity.

A.31 EQUAL EMPLOYMENT OPPORTUNITY

In accordance with Title VI of the Civil Rights Act of 1964, Title 15, Part 8 of the Code of Federal Regulations and the Civil Rights Act of 1992, County hereby notifies all bidders that it will affirmatively ensure minority business enterprises are afforded full opportunity to participate in response to this IFB and will not be discriminated against on the grounds of race, color, national origin, religion, sex, age, handicap, or marital status in consideration of bid award.

A.32 MINORITY BUSINESS ENTERPRISE / DISADVANTAGED BUSINESS ENTERPRISE

The State of Florida Office of Supplier Diversity provides the certification process and the database for identifying certified MBE/DBE firms. Additional information can be obtained at <http://www.osd.dms.state.fl.us/iframe.htm> or by calling (850) 487-0915.

A.33 SUBCONTRACTORS.

The successful bidder will obtain prior written approval from the County for any subcontractor(s) and the work they will perform. A subcontractor is defined as any entity performing work within the scope of the project who is not an employee of the successful bidder.

Bidders subcontracting any portion of the work shall include a list of subcontractors along with their bid. The list shall include: name and address of subcontractor, type of work to be performed and the percent of the contract amount to be subcontracted.

Prior to the employment of any person under this contract, the successful bidder shall utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of (a) all persons employed during the contract term by the successful bidder to perform employment duties within Florida and (b) all persons, including subcontractors, assigned by the successful bidder to perform work pursuant to the contract with Manatee County. For more information on this process, please refer to United States Citizenship and Immigration Service site at: <http://www.uscis.gov/>.

Only those individuals determined eligible to work within the United States shall be employed under this contract.

By submission of a bid in response to this IFB, the successful bidder commits that all employees and subcontractors will undergo e-verification before placement on this contract.

If County has reasonable objection to any subcontractor, the County may request the successful bidder to submit an acceptable substitute without an increase in contract sum or contract time.

If successful bidder declines to make any such substitution, the County may award the resulting agreement to the next lowest qualified bidder that proposes to use acceptable subcontractors, who County does not make written objection to. In the event the successful bidder declines to make any such substitution post award, the County may exercise its right to terminate the agreement.

The successful bidder shall maintain sole responsibility for the actions of its employees and subcontractors. New employees brought in after contract award shall follow the same requirement stated above for the life of the contract.

A.34 DISCLOSURE

Upon receipt, all inquiries and responses to inquiries related to this IFB become public records, and shall be subject to public disclosure requirements pursuant to Florida Statute, Chapter 119.

Bids become subject to disclosure thirty (30) days after the opening or if a notice of intent to award decision is made earlier than this time as provided by Florida Statutes § 119.071(1)(b). No review or analysis of the bid shall be conducted at the public bid opening.

Based on the above, County will receive bids at the time and date stated and will make public at the opening the names of the business entities which submitted a bid and any

amount presented as a total offer without any verification of the mathematics or the completeness of the bid.

If the County rejects all bids and concurrently notices its intent to reissue the solicitation, the rejected bids are exempt from public disclosure until such time as County provides notice of an intended decision concerning the reissued solicitation or until County withdraws the reissued solicitation. A bid is not exempt for longer than twelve (12) months after the initial notice rejecting all bids.

In any agreement entered into by the County wherein the successful bidder is acting on behalf of the County, the successful bidder is required to comply with Florida Statute, Section 119.0701 which requires keeping, maintaining and disclosing public records.

A.35 LOCAL PREFERENCE

Local business is defined as a business legally authorized to engage in the sale of the goods and/or services, and which certifies within its bid that for at least six (6) months prior to the announcement of the Invitation For Bid it has maintained a physical place of business in Manatee, Desoto, Hardee, Hillsborough, Pinellas or Sarasota County with at least one full-time employee at that location.

Local preference shall not apply to the following categories of agreements:

1. Purchases or agreements which are funded, in whole or in part, by a governmental or other funding entity, where the terms and conditions governing the funds prohibit the preference.
2. Any bid announcement which specifically provides that local preference, as set forth in this section, is suspended due to the unique nature of the goods or services sought, the existence of an emergency as found by either the County Commission or County Administrator, or where such suspension is, in the opinion of the County Attorney, required by law.
3. For a competitive solicitation for construction services in which fifty percent (50%) or more of the cost will be paid from state-appropriated funds which have been appropriated at the time of the competitive solicitation.

To qualify for local preference under this section, **a local business must provide certification to County** by completing an **"Affidavit as to Local Business"** form which is available for download at www.mymanatee.org/vendor. Click on "Affidavit for Local Business" to access and print the form. Complete, notarize, and mail the notarized original to: Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205.

It is the responsibility of the bidder to ensure accuracy of the affidavit and notify County of any changes affecting same.

A.36 VENDOR REGISTRATION

Registering your business will provide Manatee County a sourcing opportunity to identify supplies of goods and services, plus identify local businesses.

You may register online at www.mymanatee.org/vendor. If you need any assistance, please call (941) 749-3014, Monday – Friday, 8:00 A.M. to 5:00 P.M., excluding holidays, and the Purchasing Division can assist you as needed.

Registration is not mandatory; however, by taking the time to register, you are helping the County to provide timely notification of quotation, bid and proposal opportunities to your business.

A.37 ENVIRONMENTAL SUSTAINABILITY

All bidders are encouraged to use as many environmentally preferable "green" products, materials, supplies, etc. as possible in order to promote a safe and healthy environment. Environmentally preferable are products or services that have a reduced adverse effect on the environment.

Bidders shall acknowledge whether or not their organization has an environmental sustainability initiative by checking the appropriate box on the bid form. In addition, the bidder shall submit a summary of their environmental sustainability initiative along with their bid. This information will be used as a determining factor in the award decision when all other evaluative factors, including local preference policies are otherwise equal.

A.38 ePAYABLES

Manatee County Board of County Commissioners and the Manatee County Clerk of the Circuit Court have partnered to offer the ePayables program, which allows payments to be made to vendors via credit cards.

The Clerk of the Circuit Court will issue a unique credit card number to vendor after goods are delivered or services rendered, vendors submit invoices to the remit to address on the purchase order. When payments are authorized, an email notification is sent to the vendor. The email notification includes the invoice number(s), invoice date(s), and amount of payment. There is no cost for vendors to participate in this program; however, there may be a charge by the company that processes your credit card transactions.

If you are interested in participating in this program, please complete the ePayables Application attached herein and return the completed form via email to Ms. Lori Bryan, Supervisor at lori.bryan@manateeclerk.com.

A.39 FUNDING

This bid is subject to the appropriation of funds in an amount sufficient to allow continuation of the County's performance in accordance with the terms and conditions of this bid. The county shall provide prompt written notice to the vendor that sufficient funds have not been appropriated to continue its full and faithful performance under the terms of this bid, and shall, effective thirty (30) days after giving such notice or upon the expiration of the time for which funds were appropriated, whichever occurs first, be thereafter released of all further obligations in any way related to the bid.

A.40 CONDITIONS FOR EMERGENCY/HURRICANE OR DISASTER – TERM CONTRACTS

It is hereby made a part of this Invitation for Bid that before, during and after a public emergency, disaster, hurricane, flood, or other acts of God that Manatee County shall require a "first priority" basis for services. It is vital and imperative that the majority of citizens

are protected from any emergency situation which threatens public health and safety, as determined by the County. Successful Bidder agrees to provide services to the County or other governmental entities as opposed to a private citizen, on a first priority basis. The County expects to pay contractual prices for all services required during an emergency situation. Successful Bidder shall furnish a twenty-four (24) hours phone number in the event of such an emergency.

A.41 PRECEDENCE

Statements contained in the Scope of Work or Bid Summary section of this Invitation for bid, which vary from the information contained in this section A, Information to Bidders, shall have precedence.

END OF SECTION A

SECTION B
BASIS OF AWARD

B.01 BASIS OF AWARD

The County intends to award a minimum of one and/or up to five (5) of the lowest responsive, responsible Bidders meeting specifications for Sanitary Sewer – Lateral Lining Rehabilitation Services. Bidders are required to bid all items to be considered responsive. The County reserves the right to use any Awarded Bidder which it deems to be in its best interest for any specific project. Selection of an Awarded Bidder for each project will be within the sole discretion of the County. The agreement(s) resulting from the acceptance of a bid shall be made by issuing a blanket purchase order(s) and be bound by the terms and conditions of the purchase order and the specifications of this Invitation for Bid.

NOTE: Attendance of the Information Conference (prebid meeting) is highly recommended.

END OF SECTION B

SECTION C
GENERAL TERMS AND CONDITIONS

C.01 AGREEMENT FORMS

The agreement(s) resulting from the acceptance of a bid shall be in the form of a blanket order(s) on an "as required" basis.

C.02 ASSIGNMENT OF AGREEMENT

Successful Bidder shall not assign, transfer, convey, sublet or otherwise dispose of this Agreement or of his right, title, or interest therein, or his power to execute such Agreement, or to assign any monies due or to become due there under to any other person, firm or corporation unless first obtaining the written consent of the County.

Subcontractors shall be bound by the terms and conditions of this agreement insofar as it applies to their Work, but this shall not relieve the Successful Bidder from the full responsibility of the County for the proper completion of all Work to be executed under this agreement. No subcontracting will be allowed without the prior written approval of the County.

C.03 CANCELLATION

Any failure of the Successful Bidder to furnish or perform the Work (including, but not limited to, commencement of the Work, failure to supply sufficient skilled workers or suitable materials or equipment) in accordance with the agreement, the County may order the stop of the Work, or any portion thereof, until the cause for such order has been eliminated.

If the Successful Bidder persistently fails to perform the Work in accordance with the agreement, the County reserves the right to terminate the agreement and select the next qualified bidder or re-advertise this procurement in part or in whole. The County reserves the right to cancel all or any undelivered or unexecuted portion of this agreement with or without cause.

C.04 INDEMNIFICATION

The Successful Bidder covenants and agrees to indemnify and save harmless the County, its agents and employees, from and against all claims, suits, actions, damages, causes of action, or judgments arising out of the terms of the resulting agreement for any personal injury, loss of life, or damage to the property sustained as a result of the performance or non-performance of services or delivery of goods; from and against any orders, judgments, or decrees, which may be entered against the County, its agents or employees; and from and against all costs, attorney's fees, expenses and other liabilities incurred in the defense of any such claim, suit or action, and the investigation thereof. Nothing in the award, resulting agreement, contract or Purchase Order shall be deemed to affect the rights, privileges and immunities of the County as set forth in Florida Statute Section 768.28.

C.05 QUALIFICATIONS OF BIDDERS

Each bidder shall possess all licenses required (in accordance with regulation of professions and occupations 489.105 Florida Statute) or possess an Underground Utility Contractor License or a Certified General Contractors License for the Work which is the subject of this bid, and upon request shall submit a true copy of all applicable licenses. **The Successful Bidder (Company supplying the bid) shall have a minimum of three (3) years of experience in sanitary sewer lateral lining rehabilitation services to be considered for award.**

To demonstrate qualifications to perform the Work, each bidder shall be able to provide evidence of Bidder's qualification to do business in the state of Florida. In addition each bidder shall submit as a portion of their bid, a completed Bidder's Questionnaire as provided herein.

No person who is not certified or registered as a Certified General Contractor or Underground Utility Contractor pursuant to Chapter 489, Florida Statutes, on the day the bid is submitted, and who has continuously held that certification or registration for a period of at least three (3) consecutive years immediately prior to the day the bid is submitted, may be qualified to bid on this Work. In the event that a bidder is a business organization, including a partnership, corporation, business trust or other legal entity as set forth in Section 489.119(2), Florida Statutes, then the bidder shall only be qualified to bid on this Work if: 1) the bidder (the business organization) is on the day the bid is submitted, and for a least three (3) consecutive years immediately prior to the day the bid is submitted has been, in continuous existence, properly licensed and registered as required by Florida law; and 2) the bidder, on the day the bid is submitted, has a certified or registered Qualifying Agent, as required by Section 489.119, Florida Statutes, and that Qualifying Agent has been the same Qualifying Agent of the bidder for a period of at least three (3) consecutive years immediately prior to the day the bid is submitted.

C.06 QUALITY GUARANTEE

If any product/service delivered does not meet performance representations or other quality assurance representations as published by manufacturers, producers or distributors of such products or the specifications listed in this bid, the Successful Bidder shall pick up the product from the County at no expense to the County. The County reserves the right to reject any or all materials if, in its judgment, the item reflects unsatisfactory workmanship or manufacturing or shipping damage. Also, the Successful Bidder shall refund to Manatee County any money which has been paid for same. The Successful Bidder will be responsible for attorney fees in the event the Successful Bidder defaults and court action is required.

C.07 REGULATIONS

It shall be the responsibility of the bidder to assure compliance with PACP (Pipeline Assessment Certification Program), CIPP (Cured in Place Pipe), OSHA, EPA and/or other Federal or State of Florida legislation, rules, regulations or other requirements, as each may apply.

C.08 WARRANTY AND GUARANTEE PROVISIONS

All work, materials, and equipment furnished as defined herein shall be guaranteed and warranted by the Successful Bidder for a minimum period of three (3) years, unless otherwise specified, from final acceptance by the County to be free from defects due either to faulty materials or equipment or faulty workmanship. This three year warranty includes but is not limited to lateral lining products.

All materials, equipment, and workmanship furnished and installed by the Successful Bidder is warranted and guaranteed by the Successful Bidder to be such as to meet the specifications herein and to accomplish the purposes and functions implied and expected for this type of service.

The County shall, following discovery thereof, promptly give written notice to the Successful Bidder of faulty materials, equipment, or workmanship within the period of the guarantee and

the Successful Bidder shall promptly replace any part of the faulty equipment, material, or workmanship at his own cost.

These warranty and guarantee provisions create no limitations on the County as to any claims or actions for breach of guaranty or breach of warranty that the County might have against parties other than the Successful Bidder, and do not constitute exclusive remedies of the County against the Successful Bidder.

C.09 PERFORMANCE AND PAYMENT BONDS - PER RELEASE ORDER

Per release order, the Successful Bidder, for projects totaling \$100,000 or more, shall furnish surety bonds using the form prescribed in F.S. 255.05, which is provided herein, as security for faithful performance of the release order awarded as a result of this bid and for the payment of all persons performing labor and/or furnishing material in connection therewith. Failure to provide the required bonds on the prescribed form may result in successful bidder being deemed nonresponsive. Bonds must be in the form prescribed in F.S. § 255.05, and must not contain notice, demand or other terms and conditions, including informal pre-claim meetings, not provided for in F.S. §255.05. The Successful Bidder will add as a separate entry the cost of the bonding with supporting invoice on the submitted pay application / invoice.

Surety of such bonds shall be in an amount equal to the release order award issued by a duly authorized and nationally recognized surety company, authorized to do business in the State of Florida, satisfactory to this County. The attorney-in-fact who signs the bonds must file with the bonds, a certificate and effective dated copy of power-of-attorney. Performance and Payment bonds shall be issued to Manatee County, a political subdivision of the State of Florida, within ten (10) calendar days after notification of release order.

In addition, pursuant to F.S. § 255.05(1) (b), prior to commencing work, the Successful Bidder shall be responsible and bear all costs associated to record the Performance and Payment bond with the Manatee County Clerk of the Circuit Court. A certified copy of said recording shall be furnished to the Purchasing Division upon filing. Pursuant to F.S. § 255.05(1) (b), the County will make no payment to the Successful Bidder until the Successful Bidder has complied with this paragraph.

Furnishing of the recorded Performance and Payment bonds shall be requisite to execution of a release order over \$100,000 with the County. Said Performance and Payment bonds will remain in force for the duration of the release order over \$100,000, with the premiums paid by the Successful Bidder. Failure of the successful bidder to supply the required bonds shall be just cause for cancellation of the release order award. The County may then contract with another acceptable bidder.

C.10 NO DAMAGES FOR DELAY

No claim for damages or any claim other than for an extension of time shall be made or asserted against the County by reason of any delays. The Successful Bidder shall not be entitled to an increase in the Total Contract Price or payment or compensation of any kind from the County or direct, indirect, consequential impact or other costs, expenses for damages, including but not limited to costs of acceleration or inefficiency arising because of delay, disruption, interference or hindrance from any cause whatsoever; provided, however, that this provision shall not preclude recovery or damages by the Successful Bidder for hindrance or delays due solely to fraud, bad faith, or active interference on part of the County or its agents.

Otherwise, the Successful Bidder shall only be entitled to extensions of the Contract Time as the sole and exclusive remedy for such resulting delay, in accordance with and to the extent specifically provided above.

C.11 NO INTEREST

Any monies not paid by the County when claimed to be due to the Successful Bidder under this Contract shall not be subject to interest including prejudgment interest. Any monies not paid by the County when claimed to be due to the Successful Bidder for damages awarded in the case of construction delays shall not be subject to prejudgment interest.

C.12 CONSTRUCTION OF CONTRACT

This Contract and the rights and responsibilities hereunder shall not be construed more strongly against either party, regardless of the extent to which such party may have participated in the preparation hereof.

C.13 WORK AUTHORIZATION

Any work authorized for procurement under this contract shall be on an **"as required"** basis at various locations within the County. The Successful Bidder is not authorized to proceed with, and will not be compensated for, any work that is not authorized by a valid Release Order Number issued by the County. All work shall be scheduled with the County's Representative. The Successful Bidder shall be given a scope of work for each project and shall be required to visit the work site. The Successful Bidder's Price Proposal to the County for completing the work shall include the number of days to complete the work and the total price to complete the work, including the items required in accordance with the attached Bid Form. The County reserves the right to disapprove the Price Proposal and shall have no obligation to issue a Release Order for the work.

If during performance of the Work additional work is determined to be required, a written proposal must be provided to the County for approval before additional work is performed.

C.14 PROJECT SCHEDULE

As Release Orders are issued under the Blanket Purchase Order for Sanitary Sewer – Lateral Lining Rehabilitation Services, individual project schedules will need to be supplied by the Successful Bidder and approved by the County for each project.

C.15 MATERIAL/SAFETY DATA SHEET

It shall be the responsibility of the awarded bidder(s) to submit, upon notification of award, a Material Safety Data Sheet (MSDS) for all toxic substances in accordance with Florida Statutes Chapter 442, The Right To Know Law, which mandates on-site MSDS for all toxic substances appearing in the work place.

C.16 LIQUIDATED DAMAGES

If the Successful Bidder refuses or fails to prosecute the Work, or any separable part thereof, with such diligence as will hinder its completion within the time specified, the County may seek damages. The actual damages for delay will be impossible to determine and in lieu thereof, the Successful Bidder shall pay to the County the sum of \$250.00 as fixed, agreed, and liquidated damages for each calendar day of the delay until the Work is finally accepted by the County and the Successful Bidder and his Surety shall be liable for the amount thereof.

END OF SECTION C

SECTION D
INSURANCE REQUIREMENTS

D.01 INSURANCE

The Successful Bidder will not commence work under an agreement until the Successful Bidder has obtained all insurance under this section and such insurance coverage as might be required by the County. The Successful Bidder shall obtain, at his expense, the following minimum amounts of insurance (inclusive of any amounts provided by an umbrella or excess policy):

a. Workers' Compensation/Employers' Liability

Part One - There shall be no maximum limit (other than as limited by the applicable statute) for liability imposed by Florida Workers' Compensation Act or any other coverage required by the agreement documents which are customarily insured under Part One of the standard Workers' Compensation Policy.

Part Two - The minimum amount of coverage for the coverage required by the agreement documents which are customarily insured under Part Two of the standard Workers' Compensation Policy shall be:

<u>\$100,000</u>	(Each Accident)
<u>\$500,000</u>	(Disease-Policy Limit)
<u>\$100,000</u>	(Disease-Each Employee)

b. Commercial General Liability

The limits are to be applicable only to work performed under this agreement and shall be those that would be provided with the attachment of the Amendment of Limits of Insurance (Designated Project or Premises) endorsement (ISO Form CG 25 03) to a Commercial General Liability Policy with the following minimum limits.

General Aggregate:	<u>\$4,000,000</u>
Products/Completed Operations Aggregate	<u>\$4,000,000</u>
Personal and Advertising Injury	<u>\$2,000,000</u>
Each Occurrence	<u>\$2,000,000</u>
Fire Damage (Any One Fire)	<u>\$2,000,000</u>
Medical Expense (Any One Person)	<u>\$2,000,000</u>

c. Business Auto Policy

Each Occurrence Bodily Injury and Property	
Property Damage Liability Combined	<u>\$ 500,000</u>
Annual Aggregate (If Applicable)	<u>\$1,000,000</u>

d. Owner's & Contractors Protective Liability

The minimum OPC Policy limits per occurrence and, if subject to an aggregate, annual aggregate to be provided by the Successful Bidder shall be the same as the amounts shown above as the minimum per occurrence and general policy aggregate limits respectively required for the Commercial General Liability coverage. The limits afforded by the OPC Policy and any excess policies shall apply only to the County and the County officials, officers, agents and employees and only to claims arising out of or in connection with the Work under this Contract.

- e. Property Insurance
If this Contract includes construction of or additions to above ground buildings or structures, Successful Bidder shall provide "**Builder's Risk**" insurance with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s).

- f. Installation Floater
If this Contract does not include construction of or additions to above ground building or structures, **but does involve** the installation of machinery or equipment, Successful Bidder shall provide an "**Installation Floater**" with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s).

- g. Certifications of Insurance and Copies of Policies
 Certificates of Insurance in triplicate evidencing the insurance coverage specified in the above paragraphs shall be filed with the Purchasing Official before operations are begun. The required certificates of insurance shall name the types of policy, policy number, date of expiration, amount of coverage, companies affording coverage, and also shall refer specifically to the quote number, project title and location of project. Insurance shall remain in force at least one year after completion and acceptance of the project by the County, in the amounts and types as stated herein, including coverage for all products and services completed under this agreement.

ADDITIONAL INSURED:

Manatee County, a political subdivision of the State of Florida, shall be specifically named as additional insured on all policies.

If the initial insurance expires prior to the completion of operations and/or services by the Successful Bidder, renewal certificates of insurance and required copies of policies shall be furnished by the Successful Bidder and delivered to the Purchasing Official thirty (30) days prior to the date of their expiration. Nothing herein shall in any manner create any liability of the County in connection with any claim against the Successful Bidder for labor, services, or materials, or of subcontractors; and nothing herein shall limit the liability of the Successful Bidder or Successful Bidder's sureties to the County or to any workers, suppliers, material men or employees in relation to this Contract.

- h. In order for the certificate of insurance to be properly received, it must comply with the following:
 - 1. The certificate holder shall be:
**Manatee County Board of Commissioners,
 a political subdivision of the State of Florida
 P.O. Box 1000
 Bradenton, FL 34206-1000**

 - 2. Certificate shall be mailed to:
**Manatee County Purchasing Division
 1112 Manatee Avenue West, Suite 803
 Bradenton, FL 34205
 Attention: Bonnie Sietman, Sr. Buyer**

END OF SECTION D

SECTION E
SPECIFIC TERMS & CONDITIONS

E.01 PURPOSE

It is the intent of Manatee County to establish an annual agreement to procure, on an "as required" basis Sanitary Sewer – Lateral Lining Rehabilitation Services. The proposed work may include, but not limited to, TV Inspection and computerized analysis, lateral rehabilitation which may include cleaning and inspection, sewage bypass pumping, reestablishing service connections, maintenance of traffic, surface restoration and any associated work required to complete a project in accordance with this Invitation to Bid specification. It is the specific purpose of this bid to establish an agreement for the required services to secure the cost and availability.

E.02 BLANKET ORDERS

Blanket Purchase Order(s) shall be issued as a result of this bid. A written Blanket Purchase Order, when accompanied by a valid Release Order number provided by an authorized County department, will authorize services on an "**as required**" basis. No single release order shall exceed \$199,999.00. A project exceeding \$200,000.00 shall be solicited under a separate formal, sealed process in accordance with FS 255.0525. (Note: The quantities shown on the Bid Form are estimates only. There is no guarantee that these quantities will be released).

A master agreement with subsequent individual release orders shall be used, therefore for payment; each invoice shall indicate the Blanket Purchase Order number followed by a valid Release Order number.

E.03 QUANTITIES

The exact quantities of the required services / product cannot be determined at this time, however, approximated past annual usage is indicated on the Bid Form. This bid award may result in similar quantities of purchases; however, this is not guaranteed. Release Orders shall be issued on an "**as required**" basis; covering all or part of the specified items on bid.

E.04 DELIVERY

Once a written Release Order (RO) is faxed / emailed to the Successful Bidder, the work shall be scheduled and started within sixty (60) calendar days. However, should the work have to be performed on an emergency basis, work will be scheduled and started within ten (10) calendar days.

All deliveries to the Utilities Warehouse Facility shall be pre-arranged between the Successful Bidder and the Utilities representative. Holiday and weekend deliveries may be needed as product use or circumstances require.

If the Successful Bidder cannot meet the delivery requirements for any of the items specified herein, the County reserves the right to place orders from the next lowest responsive, responsible bidder or to solicit new pricing at the time of need.

The primary goal of this agreement is for the speedy acquisition of water and sewer materials and accessories; therefore, successful bidder's responsiveness under the terms of this agreement is paramount. Delivery of orders resulting from award of this bid shall be made within seven (7) to ten (10) business days after receipt of a valid release order number for the

items listed on the Bid Form. For all other items, deliveries shall be made complete within thirty (30) calendar days after receipt of a valid release order number.

Failure to respond within the time specified may result in materials being ordered from and delivered by others and/or termination of award.

E.05 FORCE MAJEURE

Neither party shall be considered in default in performance of its obligations hereunder to the extent that performance of such obligations, or any of them, is delayed or prevented by Force Majeure. Force Majeure shall include, but not be limited to, hostility, revolution, civil commotion, strike, epidemic, accident, fire, flood, wind, earthquake, lack of or failure of transportation facilities, any law, proclamation, regulation ordinance or other act of government, or any act of God or any cause whether of the same or different nature, existing or future; provided that the cause, whether or not enumerated in this item.

E.06 PAYMENT

Within forty-five (45) days after completion of work by the Successful Bidder, acceptance by the County, and presentation of an appropriate invoice, the County shall pay the total amount due. Invoices shall indicate both the Blanket Purchase Order number and the Release Order number.

E.07 PERMITS/FEES/REGULATIONS

Successful Bidder shall be required to give all necessary notices, obtain all permits and inspections, and pay all costs in connection with the work. Successful Bidder shall assure compliance with any OSHA, EPA, and/or federal, state, and local rules, regulations. Any conflicts between the specifications and code shall be brought to the attention of the County's representative and resolved before the work is continued.

The Successful Bidder shall give all notices and comply with all laws bearing on the conduct of the work as drawn and specified. If the Successful Bidder observes that the drawings and specifications are at variance therewith, Successful Bidder shall promptly notify the County in writing, and any necessary changes shall be made. If the Successful Bidder performs any work contrary to such laws, ordinances, rules, and regulations and does not comply with the aforesaid procedure, Successful Bidder shall bear all costs incidental to such violation.

E.08 DEVELOPMENT OF PRICE PROPOSAL

The County will initiate a meeting with the Successful Bidder to review the scope of work; this may also include an on-site visit. The Successful Bidder shall then be required to prepare a detailed cost estimate using the unit prices bid. (The Successful Bidder's bid prices stated herein shall serve as the basis for establishing the value of the work to be performed.) This cost estimate shall include a Successful Bidder-developed and detailed statement of work and shop drawings/sketches for the work required. The Successful Bidder shall ensure that its proposal is complete using the applicable specifications and standards included herein. The detailed statement of work must be supported by all necessary documentation to indicate that adequate planning to accomplish the work has been performed.

A schedule of completion of the work shall be included in the proposal, if the schedule is not provided to the Successful Bidder by the County. Costs for the aforementioned

documentation shall be included in the Successful Bidder's bid prices and will not be paid separately by the County.

The Successful Bidder shall be expected to expeditiously prepare its proposal and in no event shall the proposal preparation time exceed **15 calendar days**. The Successful Bidder shall submit its proposal to the County, who will evaluate the proposal and, if approved, will issue a written notice to proceed with the work. The County reserves the right to disapprove the proposal. The County has no obligation to issue a notice to proceed for the work.

If additional quantities are required to complete the work, a "revised" release order detailing the additional work will be issued. It shall be the Successful Bidder's responsibility to advise the County and obtain prior approval for additional quantities to be utilized beyond those specified in the release order.

E.09 MEASUREMENT AND PAYMENT

In the measurement of items to be paid for on the basis of area of finished work, the lengths and / or widths to be used in the calculations shall be the final dimensions measured along the surface of the completed work within the neat lines shown or designated.

Where payment for items is shown to be paid for on a lump sum basis, no separate payment will be made for any items of work required to complete the lump sum items. Contactor may be required to provide a break-down of the lump sum totals upon request.

E.10 MOBILIZATION / DEMOBILIZATION

Measurement and payment for this bid item shall include full compensation for the required 100 percent (100%) Performance Bond, 100 Percent (100%) Payment Bond, when applicable, all required insurance and permits for the project and the Successful Bidder's mobilization and demobilization costs as shown in the Bid Form.

Mobilization shall include the preparatory work and operations in mobilizing for beginning work on the project; including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site, as required by the Contract and all applicable laws and regulations.

Payment for the mobilization / demobilization Bid item shall not exceed 5 percent (5%) of the total individual project amount.

The successful Bidder shall provide the County with forty-eight (48) hour notice prior to start of work.

E.11 PRICE ADJUSTMENTS

Prices shall remain firm for the first twelve month term of the agreement. If not cancelled by the Vendor of the County, the awarded Blanket Purchase Order(s) shall be automatically renewed beyond the first twelve (12) month agreement for four (4) additional 12-month periods, not to exceed sixty (60) months provided there are not changes in prices, terms, or conditions. Requested price changes for the (4) additional 12-month periods may be approved upon review by the Purchasing Division. Documentation shall be submitted to the Purchasing Division for review. If the County should consider said increase unwarranted or unreasonable, the County reserves the right to refuse the proposed increase, terminate the

agreement with the vendor, select a second vendor, or re-advertise.

Written notice of intention not to renew shall be submitted by the successful bidder 90 days prior to the end of an agreement period.

E.12 SECURITY

All employees of the awarded Successful Bidder shall at all times provide their current driver's license upon request.

E.13 WARNING SIGNS AND BARRICADES

The Successful Bidder shall provide adequate signs, barricades, flashing lights, flagmen and watchmen, and take all necessary precautions for the protection of the work and the safety of the public. Traffic control warning signs and barricades shall be in strict accordance with the provisions of the Florida Department of Transportation Manual on Traffic Controls and Safety Practices for Street and Highway Construction, Maintenance and Utility Operations (latest revision). All barricades and obstructions shall be protected at night by flashing signal lights which shall be of substantial construction and suitable for night visibility. Suitable warning signs shall be so placed and illuminated at night as to show in advance where construction, barricades, or detours exist. All work items are to include the cost of signing and traffic maintenance, **except** as related to shell and base preparation over 100' or overnight.

E.14 MAINTENANCE OF TRAFFIC

Open pits, trenches, unpaved streets, debris, or other obstructions due to construction that will prevent the normal flow of traffic during an extended construction stoppage, for any reason, shall be minimized. In the event an extended construction stoppage is found to be necessary, Successful Bidder shall, at his own expense, provide normal traffic flow during extended construction stoppage. Extended stoppage will be defined by the County.

All excavated material shall be placed so that vehicular and pedestrian traffic may be maintained at all times. If the Successful Bidder's operations cause traffic hazards, he shall repair the road surface, provide temporary roadways, erect wheel guards or fences, or take other safety measures which are satisfactory to the County.

E.15 PUBLIC SAFETY AND CONVENIENCE

The Successful Bidder shall at all times so conduct his work as to insure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work and to insure the protection of persons and property in a matter satisfactory to the County. No road or street shall be closed to the public except with the permission of the County and proper governmental authority. Fire hydrants on or adjacent to the work shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the Successful Bidder to insure the use of sidewalks and proper functioning of all gutters, sewer inlets, drainage ditches, and irrigation ditches. All public emergency agencies (i.e., fire, medical, police, etc.) shall be furnished a list of all street closing locations and durations at least 48 hours in advance of construction closing.

E.16 PROTECTION OF WORK, PERSONS, AND PROPERTY

The Successful Bidder shall continuously maintain adequate protection of all work from damage and shall protect all property from injury or loss arising in connection with the contract. Successful Bidder shall make good any such damage, injury or loss, except such as may be directly due to error in contract documents. Successful Bidder shall provide,

protect, and maintain all passageways, guard fences, lights, and other facilities required by public authority or local conditions.

Successful Bidder shall provide reasonable maintenance of traffic ways for the public and preservation of the continuation of the County's business taking into full consideration all local conditions. Successful Bidder shall comply with Florida Department of Commerce Safety Regulations and any local safety regulations.

E.17 CLEAN UP

The Successful Bidder shall keep the construction site free of rubbish and waste materials and restore to their original condition those portions of the site not designated for alteration by the scope of work. Clean up and restoration shall be accomplished on a continuing basis throughout the contract period and in such a manner as to maintain a minimum of nuisance and interference to the general public and residents in the vicinity of the work. The Successful Bidder shall remove, when no longer needed, all temporary structures and equipment used in his operations. It is the intent of this specification that the construction areas and those other areas not designated for alteration by the scope of work be restored to their original condition or as nearly as possible.

END OF SECTION E

SECTION F
MINIMUM TECHNICAL SPECIFICATIONS

F.01 PURPOSE – SANITARY SEWER SYSTEMS

1) Method 1 – Sanitary Sewer - Cured-in-Place-Pipe (CIPP) –Reconstruction of existing pipe via inserting resin-impregnated flexible felt / fiberglass tube into the existing pipe, cured by external heat source, hot water cure only. Pipeline Assessment Certification Program (PACP) Certification required.

F.02 REQUIREMENTS – SANITARY SEWER - LATERAL LINING

1) The Successful Bidder shall provide trenchless reconstruction of service laterals, mainline sewers and storm sewers. The Successful Bidder shall have the capability of performing County selected services which include televised inspection, data collection, system flow analysis, and pipeline reconstruction.

2) Service connections shall be cut and brushed enough to allow access for group packer.

3) Successful bidder reserves the right to deem what is "safe" to grout based on the air test results.

4) All items 6" – 12" diameter pipes shall include a minimum of 2.5 gallons of grout per joint.

5) TV Inspection refers to the televised inspection of the pipe interior using remote controlled video equipment. Payment is by the linear feet of travel within the pipe. TV inspection does not include any cleaning except for the use of water jet or camera transport. The unit price varies according to the pipe diameter. Written inspection reports and video are required for each TV inspection performed. PACP Certification required.

6) Additional Set Up refers to the charge for the termination of the TV Inspection in a section of pipe due to a blockage, and the reentry of the camera from the opposite direction. The feet actually televised would be charged in addition to Set Up.

7) Lateral Inspection refers to televised inspection of a service connection via an existing clean out. Payment is a lump sum for footage up to 30 linear feet. Additional footage would be charged at the applicable rate.

8) Cleaning – (light, medium, heavy) - The intent of sewer line cleaning is to remove dirt, grease, rocks, tuberculation, sand, and other foreign materials from the lines and restore the sewer to a minimum of 95% of the original carrying capacity. Since the success of other phases of work depends on the cleanliness of the lines, the importance of this phase of the operation is emphasized. It is recognized that there are some conditions such as broken pipe and major blockages that prevent cleaning from being accomplished or where additional damage would result if cleaning were attempted or continued. Should such conditions be encountered, the Successful Bidder will not be required to clean those specific segments of the sewer line.

If, in the course of normal cleaning operations, damage does result from preexisting and unforeseen conditions such as broken pipe, the Successful Bidder will not be held

responsible. However, the Successful Bidder is required to provide flow transfer and may be directed to assist the County in the repair.

9) Light Cleaning refers to the removal of 1/4 diameter or less of sand and/or debris from a section of pipe. The removal of roots and/or tuberculation would be considered a separate line item.

10) Medium Cleaning refers to the removal of 1/4 to 1/2 diameters of sand and/or debris from a section of pipe. The removal of roots and/or tuberculation would be considered a separate line item.

11) Heavy Cleaning refers to the removal of greater than 1/2 diameters of sand and/or debris from a section of pipe. The removal of roots and/or tuberculation would be considered a separate line item.

12) Trenchless Pipe Reconstruction System, Sanitary Mains, refers to the installation of a resin impregnated, cured-in-place pipe by external heat source, hot water cure only within the existing sewer main.

13) Service reconnection refers to the reinstatement of the house service connection of the sewer main after the installation of the Trenchless Pipe Reconstruction System. This is accomplished from within the sewer main via a remote controlled cutting device.

14) Service Lateral Inspection and Preparation for Reconstruction refers to the reinstatement of a house service connection to the sewer main after the installation of the Trenchless Pipe Reconstruction System. In addition the service lateral TV Inspection and the connection surface is prepared for the installation of the Trenchless Lateral Reconstruction System.

15) Trenchless Lateral Reconstruction refers to installation of a resin impregnated cured-in-place lateral within the existing lateral extending from the sewer main connection to a previously installed clean out.

16) Service Reconstruction up to 30 Linear Feet refers to the lateral reconstruction via the above system for a base footage of 30 linear feet.

17) Additional footage refers to the additional footage of lateral reconstruction beyond the 30 linear feet included in the base price.

18) Additional for stack service refers to an additional charge incurred when reconstructing a service lateral in the stack or vertical configuration.

19) Easement access refers to the additional charge incurred when working within easements between property boundaries.

20) Traffic Control refers to the additional charge incurred for placing traffic control personnel or devices in areas deemed unsafe. This does not cover the placement of standard traffic cones, which shall be included in the price bid by bidders for Trenchless Pipe Reconstruction.

END OF SECTION F

BIDDER'S QUESTIONNAIRE

(submit in duplicate)

**IFB # 16-1327BLS
SANITARY SEWER – LATERAL LINING REHABILITATION SERVICES**

The Bidder warrants the truth and accuracy of all statements and answers herein contained. (Attach additional pages if necessary.)

1. Contact Information:

FEIN #: _____

License #: _____

License Issued to: _____

Date License Issued (MM/DD/YR): _____

Company Name: _____

Physical Address: _____

City: _____ State of Incorporation: _____ Zip Code: _____

Phone Number: () _____ Fax Number: () _____

Email address: _____

2. Bidding as: an individual ___; a partnership ___; a corporation ___; a joint venture ___

3. If a partnership, list names and addresses of partners; if a corporation, list names of officers, directors, shareholders, and state of incorporation; if joint venture, list names and address of ventures' and the same if any venture are a corporation for each such corporation, partnership, or joint venture:

4. Bidder is authorized to do business in the State of Florida: ___ Yes ___ No
For how many years? _____

5. Your organization has been in business (under this firm's name) as a

Is this firm in bankruptcy? _____

6. Attach a list of projects where this specific type of work is performed.

Bidder Name: _____

7. Is this firm currently contemplating or in litigation? Provide summary details.

8. Have you ever been assessed liquidated damages under a contract during the past five (5) years? If so, state when, where (contact name, address, and phone number) and why.

9. Have you ever failed to complete Work awarded to you? Or failed to complete projects within contract time? If so, state when, where (contact name, address, phone number) and why.

10. Have you ever been debarred or prohibited from providing a bid to a governmental entity? If yes, name the entity and describe the circumstances.

11. Will you subcontract any part of this Work? If so, describe which portion(s) and to whom.

12. If any, list MBE/DBE (with Agreement amount) to be utilized:

Bidder Name: _____

13. What equipment do you own to accomplish this Work? (A listing may be attached)

14. What equipment will you purchase/rent for the Work? (Specify which)

15. List the following in connection with the surety which is providing the bond(s):

Surety Name: _____
Address: _____

Name, address, phone number and email of surety's resident agent for service of process in Florida:

Agent's Name: _____
Address: _____

Phone: _____
Email: _____

Bidder Name: _____

Attachment "A"

STATEMENT OF NO OFFER

**IFB # 16-1327BLS
SANITARY SEWER – LATERAL LINING REHABILITATION SERVICES**

If you do not intend to bid please return this form immediately to:

Manatee County Purchasing Division
1112 Manatee Avenue West, Suite 803
Bradenton, Florida 34205

We, the undersigned, have declined to bid on IFB #16-1327BLS, for the following reason(s):

- Specifications too restrictive
- Insufficient time to respond
- We do not offer this product or service
- Our schedule would not permit us to perform
- Unable to meet specifications
- Specifications unclear (explain below)
- Other (specify below)

REMARKS

Thank you for your input.

Company Name: _____

Company Address: _____

Telephone: _____

Date: _____

Signature: _____

(Print or type name and title of above signer)

ATTACHMENT B

PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES CERTIFICATION

**SWORN STATEMENT PURSUANT TO ARTICLE V,
MANATEE COUNTY PROCUREMENT CODE**

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

This sworn statement is submitted to the Manatee County Board of County Commissioners by

_____ [Print individual's name and title]

_____ for _____ [Print name of entity submitting sworn statement]

whose business address is _____

and (if applicable) its Federal Employer Identification Number (FEIN) is _____. If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: _____

I understand that no person or entity shall be awarded or receive an Owner's Agreement for public improvements, procurement of goods or services (including professional services) or an Owner's lease, franchise, concession or management agreement, or shall receive a grant of Owner's monies unless such person or entity has submitted a written certification to Owner that it has not:

(1) been convicted of bribery or attempting to bribe a public officer or employee of Manatee County, the State of Florida, or any other public entity, including, but not limited to the Government of the United States, any state, or any local government authority in the United States, in that officer's or employee's official capacity; or

(2) been convicted of an agreement or collusion among bidders or prospective bidders in restraint of freedom of competition, by agreement to bid a fixed price, or otherwise; or

(3) been convicted of a violation of an environmental law that, in the sole opinion of Owner's Purchasing Official, reflects negatively upon the ability of the person or entity to conduct business in a responsible manner; or

(4) made an admission of guilt of such conduct described in items (1), (2) or (3) above, which is a matter of record, but has not been prosecuted for such conduct, or has made an admission of guilt of such conduct, which is a matter of record, pursuant to formal prosecution. An admission of guilt shall be construed to include a plea of nolo contendere; or

(5) where an officer, official, agent or employee of a business entity has been convicted of or has admitted guilt to any of the crimes set forth above on behalf of such an entity and pursuant to the direction or authorization of an official thereof (including the person committing the offense, if he is an official of the business entity), the business shall be chargeable with the conduct herein above set forth. A business entity shall be chargeable with the conduct of an affiliated entity, whether wholly owned, partially owned, or one which has common ownership or a common Board of Directors. For purposes of this Form, business entities are affiliated if, directly or indirectly, one business entity controls or has the power to control another business entity, or if an individual or group of individuals controls or has the power to control both entities. Indicia of control shall include, without limitation, interlocking management or ownership, identity of interests among family members, shared organization of a business entity following the ineligibility of a business entity under this Article, or using substantially the same management, ownership or principles as the ineligible entity.

(Continued)

Any person or entity who claims that this Article is inapplicable to him/her/it because a conviction or judgment has been reversed by a court of competent jurisdiction shall prove the same with documentation satisfactory to Owner's Purchasing Official. Upon presentation of such satisfactory proof, the person or entity shall be allowed to contract with Owner.

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR MANATEE COUNTY IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT ANY AGREEMENT OR BUSINESS TRANSACTION SHALL PROVIDE FOR SUSPENSION OF PAYMENTS, OR TERMINATION, OR BOTH, IF THE CONTRACTING OFFICER OR COUNTY ADMINISTRATOR DETERMINES THAT **SUCH PERSON OR ENTITY HAS MADE FALSE CERTIFICATION.**

[Signature]

STATE OF FLORIDA
COUNTY OF _____

Sworn to and subscribed before me this ____ day of _____, 20____ by _____

Personally known _____ OR Produced identification _____
[Type of identification]

Notary Public Signature My commission expires _____

[Print, type or stamp Commissioned name of Notary Public]

Signatory Requirement - In the case of a business entity other than a partnership or a corporation, this affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, this affidavit shall be executed by the general partner(s). In the case of a corporation, this affidavit shall be executed by the corporate president.

BID FORM
INVITATION FOR BID #16-1327BLS

SANITARY SEWER – LATERAL LINING REHABILITATION SERVICES

We, the undersigned, hereby declare that we have carefully reviewed the IFB Documents in their entirety and with full knowledge and understanding of the aforementioned herewith submit this quote, completely meeting each and every specification, term, and condition contained therein.

As bidder, we understand that the IFB documents, in its entirety, including but not limited to, all specifications, terms, and conditions shall be made a part of any resulting Agreement between Manatee County and the successful bidder. Failure to comply shall result in Agreement default, whereupon, the defaulting successful bidder shall be required to pay for any and all re-procurement costs, damages, and attorney fees as incurred by County, and agrees to forfeit his/her bid bond.

*MANATEE COUNTY PURCHASING DIVISION
1112 MANATEE AVENUE WEST, SUITE 803
BRADENTON, FL 34205
BONNIE SIETMAN, SENIOR BUYER,
P 941.749.3046 F 941.749.3034
bonnie.sietman@mymanatee.org*

Communications concerning this bid shall be addressed as follows: **(Complete all fields)**

Bidder's Name: _____
Mailing Address: _____
Telephone: () _____ Fax: () _____
Email Address: _____

I, _____ on [date(s)] _____ attest that I have
visited the project site(s) to familiarize myself with the full scope of work required for the quote

Acknowledge Addendum No. _____ Dated: _____ Acknowledge Addendum No. _____ Dated: _____
Acknowledge Addendum No. _____ Dated: _____ Acknowledge Addendum No. _____ Dated: _____
Acknowledge Addendum No. _____ Dated: _____ Acknowledge Addendum No. _____ Dated: _____

Environmental Sustainability – The Company submitting this bid has an environmental sustainability initiative currently in place. Yes No If yes, the bidder shall submit a summary of their environmental sustainability initiative along with their bid.

Authorized Signature(s): _____

Name and Title of Above Signer(s): _____

Date: _____

BID FORM - IFB #16-1327BLS					
SANITARY SEWER - LATERAL LINING REHABILITATION SERVICES					
Description		Est. Annual Qty	Unit of Measure	Pricing	Extended Pricing
GROUP 1					
Sanitary Sewer Rehabilitation Services					
LATERAL LINING					
(section/piece/point) Trenchless					
Pipe Reconstruction - CIPP					
Main or Lateral Reconstruction					
1	Additional clean out installation up to 4' deep, grassed area	500	each		
2	Additional clean out installation greater than 4' deep, grassed area	500	each		
3	Additional clean out installation up to 4' deep, paved area	500	each		
4	Additional clean out installation greater than 4' deep, paved area	500	each		
5	Trenchless lateral cleaning & reconstruction system up to 30 linear ft	100	per each		
6	Trenchless lateral cleaning & reconstruction system over 30 linear ft	100	per each		
7	Full wrap at main + 24" into lateral	50	per each		
8	Standard Service Reconnection	100	per each		
9	Service with pressure grouting	100	per each		
10	Lateral reinstatement cutting of defective lateral opening	100	per each		
11	Hammer tap removal	50	per each		
12	Lateral Grouting, 6" dia, sanitary sewer (qty < 20)	20	ea joint		
13	Lateral Grouting, 6" dia, sanitary sewer (qty > 20)	20	ea joint		
14	Lateral Grouting, 8-12" dia, sanitary sewer (qty < 20)	20	ea joint		
15	Lateral Grouting, 8-12" dia, sanitary sewer (qty > 20)	20	ea joint		
16	PACP - Level 1 - Visual inspection and report of observations	500	linear ft		
17	PACP - Level 2 - CCTV inspection and data capture computer reports - including measurements of manhole data	500	linear ft		
18	Flagman (each)	2	per day		
19	Arrowboard (each)	2	per day		
20	Barricades (each)	2	per day		
21	Lane dividers (each)	4	per day		
22	Variable message board	4	per day		
23	Light tower	2	per day		
24	Easement access, additional less than 12" diameter	100	linear ft		
25	Easement access, additional greater than 12" diameter	100	linear ft		
26	Wellpointing / dewatering	1	lump sum		
27	Mobilization / Demobilization (projects in excess of \$100,000), including Performance and Payment Bond NOTE: not to exceed 5%	100000	%		
28	Mobilization / Demobilization (projects less than \$100,000), without Performance and Payment Bond NOTE: not to exceed 5%	25000	%		
GRAND TOTAL, GROUP 1					\$

Bidder Name: _____

Supplemental Technical Specifications

for

**IFB #16-1327BLS
SANITARY SEWER – LATERAL LINING REHABILITATION SERVICES**

November 2015

INFRASTRUCTURE Engineering Standard Specifications

SECTION 01570	TRAFFIC REGULATION
SECTION 02626	SANITARY SEWER LATERAL REHABILITATION
SECTION 02720	SANITARY SEWER BYPASS PUMPING
SECTION 02730	PREPARATORY CLEANING AND ROOT REMOVAL
SECTION 02752	TELEVISION SURVEY
SECTION 02760	PREPARATORY CLEANING AND ROOT REMOVAL
SECTION 02763	CHEMICAL GROUTING
SECTION 02765	CURED-IN-PLACE PIPE LINER

SECTION 01570

TRAFFIC REGULATION

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

The Contractor shall be responsible for providing safe and expeditious movement of traffic through construction zones. A construction zone is defined as the immediate areas of actual construction and all abutting areas which are used by the Contractor and which interfere with the driving or walking public.

The Contractor shall remove temporary equipment and facilities when no longer required, restore grounds to original or to specified conditions.

1.02 TRAFFIC CONTROL

The necessary traffic control shall include, but not be limited to, such items as proper construction warning signs, signals, lighting devices, markings, barricades, channelization and hand signaling devices. The Contractor shall be responsible for installation and maintenance of all devices and detour routes and signage for the duration of the construction period. The Contractor shall utilize the appropriate traffic plan from the FDOT Maintenance of Traffic Standards, Series 600 of the FDOT Roadway & Traffic Design Standards, Latest Edition.

Should there be the necessity to close any portion of a roadway carrying vehicles or pedestrians the Contractor shall submit a Traffic Control Plan (TCP) at least 5 days before a partial or full day closure, and at least 8 days before a multi-day closure. TCP shall be submitted, along with a copy of their accreditation, by a certified IMSA or ATSA Traffic Control Specialist.

At no time will more than one (1) lane of a roadway be closed to vehicles and pedestrians without an approved road closure from the County Transportation Department. With any such closings, adequate provision shall be made for the safe expeditious movement of each.

All traffic control signs must be in place and inspected at least 1 day in advance of the closure. Multi-day closures notification signs shall be in place at least 3 days in advance of the closure. All signs must be covered when no in effect, and checked twice a day by the Worksite Traffic Supervisor when they are in effect.

The Contractor shall be responsible for removal, relocation, or replacement of any traffic control device in the construction area which exists as part of the normal preconstruction traffic control scheme. Any such actions shall be performed by the Contractor under the supervision and in accordance with the instructions of the applicable highway department unless otherwise specified.

The Contractor will consult with the County immediately on any vehicular or pedestrian safety or efficiency problem incurred as a result of construction of the project.

The Contractor shall provide ready access to businesses and homes in the project area during construction. The Contractor shall be responsible for coordinating this work with affected homeowners.

When conditions require the temporary installation of signs, pavement markings and traffic

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barriers for the protection of workers and traffic, the entire array of such devices shall be depicted on working drawings for each separate stage of work. These drawings shall be submitted to the County for review and approval prior to commencement of work on the site.

Precast concrete traffic barriers shall be placed adjacent to trenches and other excavations deeper than six inches below the adjacent pavement surface.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 02626

SANITARY SEWER LATERAL REHABILITATION

1.01 GENERAL

This section describes the material requirements, installation practices, and test methods for the rehabilitation of sanitary sewer service lateral lines and connection to the sanitary sewer main line, without excavation. The pipe renovation shall be accomplished by providing and installing a one piece resin impregnated lateral and main connection cured-in-place pipe (CIPP) liner installed into the existing lateral connection by a pressure apparatus. When cured, the liner shall have a watertight connection seal at the mainline and extend over the length of the service lateral providing a continuous one piece structural pipe within a pipe.

All such work shall comply with these Specifications, the requirements of ASTM F1216 or ASTM F2561-11, and the specific product manufacturer's recommendations. Any conflict between the product manufacturer's recommendations and any portion of the Contract Documents shall be resolved prior to beginning the work.

The Contractor shall utilize the products of one manufacturer which meet the requirements of these Specifications when relining sections of existing sewer which are straight or have minor offsets.

It shall be the Contractor's sole responsibility to insure that materials provided by the liner manufacturer will function as intended when installed in curved or offset sections of existing pipe.

1.02 DESIGN CRITERIA

The fabrication and installation of the CIPP lateral liner system shall be done in accordance with ASTM F1216 or ASTM F2561

The CIPP thickness shall be designed per ASTM F1216, Appendix X1.

The CIPP design for the lateral tube and mainline connection shall assume no bonding to the original pipe.

The resin saturated lateral tube and the main sheet must place the resin in full contact with the host pipe.

This specification references ASTM test methods which are made a part hereof by such reference and shall be the latest edition and revision thereof:

ASTM F-1216 - Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube.

ASTM F-2561 - Standard Practice for Rehabilitation of a Sewer Service Lateral and Its Connection to the Main Using a One-Piece Main and Lateral Cured-In-Place Liner.

ASTM D-790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

ASTM D-792 - Standard Test Methods for Density and Specific Gravity of Plastics by displacement.

ASTM D-2990 - Standard Test Methods for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics

ASTM D-5813 - Standard Specification for Cured-in Place Thermosetting Resin Sewer Pipe.

1.03 QUALIFICATIONS

All sewer products are intended to have a minimum 50 year design life, in order to minimize the owner's long term risk of failure, only proven products and installers with substantial successful long term track records will be considered.

The manufacturer of the CIPP lateral lining system shall have a minimum of five (5) year documented history of satisfactory performance with a minimum of 10,000 CIPP lateral installations for the product that is being supplied in this Invitation for Bids. Additionally, the manufacturer's CIPP lateral lining product shall have a minimum of 2,500 CIPP lateral installations that have been in service for a minimum of five (5) years.

The Contractor performing the work shall be employees of the company manufacturing the CIPP lateral lining system, or shall be licensed as an authorized installer of the system by the manufacturer.

The Contractor shall have a minimum of three (3) years of continuous service experience installing CIPP lateral lining in pipe of similar size, length and configuration as proposed in this project. Additionally, the Contractor shall have successfully installed a minimum of 5,000 CIPP lateral liners in a wastewater collection system, of which a minimum of 2,500 were installed in Florida.

1.04 SUBMITTALS

Submit submittals in accordance with Section 01340, Shop Drawings, Project Data, and Samples and the following:

With the Bid, provide the following documentation to demonstrate that the proposed CIPP lateral lining system meets the qualifications listed above in subsection 1.03.A:

1. Resin

- i. Long term test creep data confirming the resin system's 50 year design life in accordance with ASTM D2990.
- ii. Chemical Resistance per ASTM F 1216
- iii. Certificate of Compliance with ASTM F 1216

2. Tube

Certificate of Compliance with ASTM F1216

If glass fiber reinforcement is used, CIPP strain Corrosion testing data in accordance with ASTM D3681

With the Bid, provide documentation that the manufacturer of the proposed CIPP lateral lining system meets the qualifications listed above in subsection 1.03.B. Provide contact information for at least three (3) similar projects referenced in subsection 1.03.B as part of the Bid Submittal.

With the Bid, provide documentation that the CIPP Contractor meets the qualifications listed above in subsections 1.03.C and 1.03.D. Provide contact information for at least three (3) similar projects referenced in subsection 1.03.D as part of the Bid Submittal.

Submit the following to the Project Manager prior to Mobilization:

Contractor shall provide to the Project Manager for review, complete design calculations for the liner thickness per ASTM F1216. The design shall be signed and sealed by a professional engineer in the State of Florida and certified by the manufacturer as to compliance of his material to the values used in the calculation. Approval of the calculations shall not relieve the Contractor of any contractual obligations.

The Contractor shall provide a typical schedule for "wet out" of the connection seal and lateral liner in the method statement together with a typical insertion and curing schedule/plan at the pre-construction meeting.

Certified copies of the test reports for the resin material used for this project.

Proposed testing laboratory with qualifications, experience history and references.

Installation Plan/Diversion Pumping Plan (including Emergency Plans) as required. E. Submit the following to the Project Manager after completion of each service:

The Contractor shall submit the installation and curing process control sheets including information as described under Section 3.E, GENERAL INSTALLATION PROCEDURES of this specification.

Pre and Post CCTV inspection tapes.

Manufacturer's certification of proper installation.

Physical samples: for every ten laterals lined, two flat plate samples shall be processed and tested. The flat plate sample preparations shall be as described under Section 3.7-A.1 of this specification. Samples removed for testing shall be individually labeled and logged to record the following:

County's project number and title.

Sample number

Segment number of line as noted on supplements. iv. Date and time of sample

Name of Contractor Location and by whom tested

Street name and address

Results of test. Samples shall be numbered as follows:

a. Sample No.1: Flat plate sample.

PART 2 PRODUCTS

2.01 MATERIALS

CIPP Sectional Liner and Lateral Lining Tube:

The liner assembly shall be continuous in length and consist of one or more layers of flexible needled felt or an equivalent non-woven material that meet the requirements of ASTM F1216 and ASTM D5813.

The liner tube shall be fabricated to a size that when installed will neatly fit the circumference of the lateral pipe, shall have uniform wall thickness, and shall create a watertight seal at the mainline interface. No intermediate or encapsulated elastomeric layers shall be in the textile that may cause de-lamination in the CIPP.

The textile tube and sheet shall be constructed to withstand installation pressures, have sufficient strength to bridge missing pipe segments, and flexibility to fit irregular pipe sections. The resin saturated textile tube and sheet shall meet ASTM F 1216, 7.2 as applicable, and the tube shall have 5% to 10% excess resin distribution

(full resin contact with the host pipe) that when compressed and cured will meet or exceed the design thickness.

Resin System

The resin/liner system shall conform to ASTM D5813 Section 8.2.2. The resin shall be a corrosion resistant polyester, vinyl, epoxy or silicate resin and catalyst system that when properly cured within the composite liner assembly, meets the requirements of ASTM F1216, the physical properties herein, and those which are to be utilized in the design of the CIPP, for this project.

The resin shall have proven resistance to ultraviolet light (sunlight) at any stage prior to installation.

The resin system shall be manufactured by a company selected by the CIPP supplier which shall produce a CIPP that will comply with the structural and chemical resistance requirements of ASTM F1216:

Table 1 CIPP INITIAL STRUCTURAL PROPERTIES

Property	ASTM Test	Minimum Value	
	PSI	(MPa)	
Flexural Strength	D 790	4,500	(31)
Flexural Modulus	D 790	250,000	(1,724)

Interface Seal

The interface seal shall have structural properties in accordance with ASTM F1216 and as referenced in Table 1 - CIPP Initial Structural Properties. The interface seal shall meet the 50 year design life of the CIPP lateral liner. The interface seal shall meet the conditions above and shall be a full-circle integrally manufactured to the lateral liner providing a seamless connection between the mainline liner and the lateral liner. Fabrication of the interface seal shall be in accordance with ASTM F1216 or ASTM F2561.

Interface seals shall be designed for either a "T" or "Y" fitting and shall be able to accommodate either condition without wrinkles or folds when installed.

The interface seal shall provide a watertight connection between the service connection and the mainline.

The interface seal between the lateral liner and the mainline sewer pipe shall be compatible with the mainline liner.

2.02 DELIVERY, STORAGE AND HANDLING

If the flexible tube is impregnated with resin at the factory, it shall be transported, installed, and cured before expiration of the shelf life.

Impregnated tube shall be stored and transported under refrigerated, ultraviolet light free conditions.

Each liner shall be accompanied with the appropriate documentation indicating time and date of liner manufacturing, felt thickness, number of layers, length of liner, resin type and name, hardener type and name, batch numbers, mixing ratios, etc.

No cuts, tears, or abrasions shall occur during handling. The Contractor shall not place the tube into the host pipe before the Project Manager inspects the tube.

PART 3 EXECUTION

3.01 CONSTRUCTION (ALL METHODS)

General:

Unless otherwise noted, the lateral lining methods listed below are acceptable to the County. Should the Contractor desire to use different methods than described in these Specifications, written permission must be obtained from the County. The finished product is to be of highest quality and shall eliminate any infiltration or corrosion problems which may exist in the system.

Pre-Installation Procedures:

The Contractor shall notify all the residents affected by this construction at least 24 hours prior to any service disruption affecting their service connection. The mainline sewer shall be kept in operation at all times during the rehabilitation of lateral lines. By-passing as outlined in the following section is permitted. Alternate methods shall be submitted to the County for approval.

By-Passing Existing Flows: The Contractor shall furnish equipment, materials, supplies, labor and all incidentals required to by-pass the sanitary sewer flow such that the lateral lining process may be completed. The Contractor shall plug the upstream line and pump the flow to the nearest downstream manhole (or, when approved by the County, to another system all together) per Section 02720. Dumping the existing flow onto private property or streets shall not be allowed. At the end of each day, the Contractor shall make temporary tie-ins such that no service is interrupted overnight. By-passing of existing flows shall be considered an incidental part of this Contract and will not be paid for directly.

All requisite pre-installation submittals shall be approved, including traffic management measures, safe pedestrian passage, and provision of vehicular access to property, bypass/diversion pumping and emergency measures prior to the commencement of any work.

The Contractor shall use CCTV to inspect the lateral line immediately prior to reconstruction and determine the overall structural condition of the lateral. Both the mainline in the vicinity of the lateral and the lateral shall be surveyed.

The location of any conditions which may prevent proper installation of the connection seal or lateral liner shall be noted and provided to the Project Manager so that these conditions can be corrected.

The Contractor shall pre-condition the lateral line and the mainline in the vicinity of the lateral for acceptance of the CIPP by thoroughly cleaning and removing any roots, grease build-up, or any other obstruction that may interfere with lining operations by mechanical means or high pressure flush and vacuum.

No interface seal shall be installed in the presence of active infiltration. Infiltration at the lateral interface shall be controlled by chemical grout sealing per the lateral liner manufacturer's guidelines.

It is the responsibility of the Contractor to clear the main and the lateral of all obstructions in the area to be lined. All debris removed from the sewer during cleaning shall be transported in watertight containers and disposed of in accordance with all local, state and federal regulations.

General Installation Procedures

The CIPP lateral liner system installation will be accomplished remotely using air or water for inversion and curing.

The cured-in-place pipe shall provide a smooth interior surface and shall conform to the existing pipe and eliminate any groundwater infiltration or connection to the outside of the host pipe/service.

The CIPP lateral liner system shall be installed from the mainline sewer and shall extend a minimum of 3 feet and up to 25 feet to effectively span the distance from the lateral connection at the main to the desired termination location in the service lateral pipe. For the purpose of this specification, the termination point shall be a distance within 18 inches of the intersection of a clean out or property line.

No cleanout is, or should be, required for the installation of the CIPP lateral liner system. If necessary, the CIPP lateral liner system may be installed utilizing existing cleanouts installed at the property line or launched from the sewer main.

It is the intent of these specifications that all lateral lining/ work be accomplished utilizing existing cleanouts. In the event a lateral has been identified to be repaired by means of a CIPP lateral liner installation, and no cleanout exists where a cleanout is required to complete the lining of the lateral, the Contractor shall obtain authorization from the County's Project Manager to install a new clean out.

When required, an overlap method is performed with a pull-in-process installation from a cleanout or access point back to the main. In either case, the lateral liner must provide a watertight seal at the mainline and a structural repair of the lateral over the specified length.

The Installer shall verify the lengths in the field before impregnation of the resin.

Wet Out:

Thoroughly saturate lining system prior to installation. Catalyst system or additives compatible with the resin and liner shall be as recommended by the manufacturer.

Handle the resin impregnated lining system to retard or prevent resin setting until it is ready for insertion.

Insertion:

CIPP shall be installed in accordance with the manufacturer's instructions and the practices outlined in ASTM F1216 or ASTM F2561 for direct inversion installations.

The Contractor shall document the placement of the CIPP lateral liner by internal video inspection. The installer shall be capable of viewing the lateral liner contacting the lateral pipe from the beginning to the end of the repair. Video documentation of the lateral liner contacting the lateral pipe, prior to curing shall be provided to the Project Manager.

Lubricant shall be used, as recommended by the manufacturer, to reduce friction between the host pipe and the liner during the inversion or pull-in process. No resin shall be lost by contact with the manhole walls or the pipe during the pull-in process. The lubricant used shall be a non-toxic product with no detrimental effects on the liner and shall not be detrimental to wastewater treatment plant operations.

Any cured liner/resin composite pipe left protruding from the main line or service connection shall be trimmed back using a hydraulic-powered robotic cutting device specifically designed for cutting cured-in-place pipe. All materials shall be removed from the sewer system and not allowed to float downstream. The Contractor will be held responsible for the cost of all repairs or maintenance resulting from materials accumulating in downstream pump stations.

The addition of pressure shall be adjusted to cause the impregnated flexible tube to invert from the mainline to lateral clean-out, holding the tube tight against the host sewer pipe.

If water is used to accomplish the inversion process, the Contractor shall complete an installation process control sheet for every lining completed. The control sheets shall provide the following information:

Liner length

Hydrostatic head at the point of inversion

Hydrostatic head at the termination point

Time when inversion process starts V. Time start cutting ends.

If air or steam issued in the inversion process, the liner manufacturer shall provide the minimum pressure required to hold the tube tight against the host pipe and maximum pressure allowable to not damage the tube. Once the inversion has started, the pressure shall be maintained within the recommended pressure range until the inversion has been completed. Should the pressure deviate from within this range, the installed liner shall be removed. The CONTRACTOR shall complete an installation process control sheet for every lining completed. The control sheets shall provide the following information.

Liner length

Minimum pressure

Maximum pressure

Time and pressure when inversion process starts and every ten minutes until inversion process is completed. V. Time start cutting ends.

Finish: The finished CIPP shall be continuous and free from visual defects such as foreign inclusions dry spots, pinholes, de-lamination, and wrinkles greater in length than 1 % of the pipe ID. Any section of lining with such defects shall be removed and replaced at no additional cost to the County. If the defective liner cannot be repaired or removed, the Contractor will be responsible for all costs associated with replacement of the service.

Clean Up: After liner installation has been completed and accepted, the Contractor shall clean up the entire project area and restore the site to its original condition prior to the commencement of work. All excess material and debris not incorporated into the permanent installation shall be disposed of by the CONTRACTOR. Any materials used in the installation other than the cured lube/resin composite are to be removed from the pipe.

Post Televising of Completed Work

Following completion of CIPP liner installation, a CCTV inspection shall be completed. Submit to the County color DVD's or approved electronic files showing completed work.

Correction of failed CIPP or CIPP deemed defective from post-installation television inspection or test reports for structural values, thickness, etc., shall be repaired as determined by Project Manager at no extra cost to the County. Method of repair, which may require field or workshop demonstration, shall be approved by Project Manager.

Testing

Laboratory Testing:

Flat plate samples shall be tested as requested by the Engineer. However, as a minimum a frequency of two flat plate samples shall be processed and tested for every 10 laterals lined. The time and location will be selected by the Project Manager. The Contractor shall prepare the flat plate samples on site using the actual CIPP liner being installed. Once the liner is applied to the clamped mold, the sample shall be placed in either the upstream or downstream manhole, to simulate the environmental conditions that the lateral liner being installed will experience during the curing process. After the curing process has been completed, the sample shall be removed, labeled and sent to the laboratory facility for physical properties testing.

Samples shall be tested for modulus of elasticity and flexural strength in accordance with ASTM 0790. Preparation and testing samples shall be performed in accordance with the approved submittals. Failure of either the modulus or flexural strength tests on either sample shall be grounds for the rejection of all CIPP liners installed since the last successful test.

Testing shall be completed by accredited laboratory at the Contractor's expense. The Contractor shall submit the chosen laboratory with appropriate accreditation documentation for approval by the Project Manager prior to testing. Testing results shall be provided to the Project Manager within seven days of receipt.

Hydrostatic Testing - Low Pressure Air Test

Random low pressure air tests shall be performed as directed by the Project Manager. I. On ten percent (10%) of the laterals repaired under this contract.

If more than ten percent (10%) of the air tests fail, an additional 10% of the laterals will be selected by the Project Manager to be tested at no additional cost.

If more than twenty-five percent (25%) of the air tests fail, the Project Manager may direct the Contractor to test all of the repaired laterals at no additional cost.

Low Pressure Air Test Procedure

Place test balls no more than 5 inches inside the CIPP lateral liner at the upper point of the repair.

Place test balls in the mainline a minimum of 12 inches from and centered on the lateral opening.

Introduce air into the sealed line until an internal pressure of 4.0 psig is achieved.

Allow the pressure to stabilize for 2 minutes, but in no case let the pressure drop to less than 3.5 psig.

If the pressure drops 1.0 psig in less than 4 minutes, the test will be considered to have failed.

If the lined lateral fails the air test, the Contractor shall locate the leak and perform corrective measures including:

Re-inspection of the lateral by CCTV

Repair using materials and methods contained in this specification. III. Repeat the air test

END OF SECTION

SECTION 02720

SANITARY SEWER BYPASS PUMPING

PART 1 GENERAL

1.01 SCOPE

The Contractor shall furnish all labor, materials, equipment and incidentals required to maintain existing and anticipated flows within the affected portion of the collection system throughout the construction period.

1.02 PUBLIC IMPACTS

The contractor shall not create a public nuisance due to excessive noise or dust, nor impact the public with flooding of adjacent lands, discharge of raw sewage, or release of other potential hazards, nor shall he encroach on or limit access to adjacent lands. No extra charge may be made for increased costs to the contractor due to any of the above.

1.03 SUBMITTALS

A. The Contractor shall, within 30 days of the date of the Notice to Proceed, submit to the Project Manager a detailed Pumping Plan for each site by-pass pumping will be needed. The Pumping Plan shall address all measures and systems to prevent a sanitary sewer overflow (SSO) as defined by the EPA. The Plan shall include as a minimum:

Working drawings and sketches showing work location, pump location, piping layout & routing. Show all proposed encroachment and access impacts on adjacent properties or facilities.

Pump, control, alarm and pipe specifications or catalog cuts. Detailed sketch of controls and alarm system.

Power requirements and details on methods to provide by-pass power or fueling.

Calculation and determination of response times to prevent an SSO after a high water alarm. If anticipated peak flows are 750 G.P.M. or greater, an operator is required on site at all times pump is in service. If the anticipated peak flows are less than 750 G.P.M. an operator may not be required to be on site at all times; show operator on-site schedule.

Procedures to be taken in case of power, pump, or piping failures; including contact names and numbers for emergency notifications.

Frequency and specific responsibility for monitoring pump operation, fuel levels, pump maintenance and entire length of piping.

PART 2 PRODUCTS

2.01 EQUIPMENT

Pumps:

By-pass pumping system shall consist of at least a primary pump and a backup pump. Each pump shall have a minimum pumping capacity of 150% of the anticipated peak flows. If a lift station by-pass, 150% of the lift station capacity (G.P.M. & T.D.H) for the lift station being by-passed.

Pumps shall be low noise or sound attenuated. The noise level at any operating condition, in any direction, shall not exceed 70dBA at a distance of twenty three (23) feet (7 meters) from the pump and/or power source.

Controls:

The by-pass pump system shall be equipped with automatic controls and an alarm system. The automatic controls will automatically start the backup pump in the event of a high water condition or failure of the primary pump. The alarm system will immediately notify the Contractor of a pump failure or high water condition.

Pipe:

Pipe shall be of adequate size and capacity to match the pumps. Pipe type and materials will depend on the particulars of the site conditions, and shall be detailed in the Pumping Plan. Contractor will provide all connections.

PART 3 EXECUTION

SITE CONDITIONS

Site conditions will vary by site. Contractor is responsible to determine and address requirements such as traffic control, excavation, connections & fittings, impacts on access to adjacent properties, routing and support of by-pass piping, etc., in the Pumping Plan.

ON-SITE MONITORING

All by-pass operations where the anticipated flow rates are 750 G.P.M or greater shall require an employee on-site at all times (full-time on-site monitoring attended by personnel experienced with the pumps and controls, with demonstrated ability to monitor, turn on & off, and switch between pumps while the by-pass pump system is in service.

By-pass operations where the anticipated flow rates are less than 750 G.P.M may not require an employee on-site at all times while the by-pass pump system is in operation. The Contractor shall have personnel experienced with the pumps and controls on site within the calculated response time to prevent an SSO after a high water alarm.

During by-pass operations, the Contractor shall have posted on site with the permit, a copy of the approved Plan and the name and 24 hour contact number of the primary response person, the job site superintendent, and the construction company owner.

3.03 OPERATIONS

The Contractor is responsible for securing and providing power, fuel, site security, traffic control and all other supplies, materials and permits required for the by-pass pumping.

Contractor shall demonstrate automatic pump switching and alarm system to the satisfaction of: the County inspector, Project Manager, or Lift Stations Superintendent prior to beginning by-pass pumping. Satisfactory demonstration shall be documented by the inspector's, PM's or Lift Station Superintendent's dated signature on the posted copy of the approved Pumping Plan.

3.04 DAMAGE RESTORATION & REMEDIATION

The Contractor shall be responsible for any pre-pump notifications, all restoration of pre-pump conditions and any damage caused by by-pass operations.

Should there be an SSO caused by or as a direct result of the by-pass pumping, the contractor is responsible for all immediate & long term response, notifications, clean up, mitigation, etc. Copies of all written response plans, notifications, documentation, mitigation plans, etc., shall be submitted to the County Project Manager.

END OF SECTION

SECTION 02730

PREPATORY CLEANING AND ROOT REMOVAL

PART 1 - GENERAL

1.01 WORK INCLUDED

A. This Section covers the preparatory cleaning of sewer lines and manholes as needed prior to the internal survey of the sewer lines by closed-circuit television. It also covers the preparatory cleaning and root removal of sewer lines and the cleaning of manholes prior to rehabilitation. The CONTRACTOR shall furnish all necessary material, labor, equipment and services required for cleaning the specific sewer lines.

1.02 GENERAL

Sewer Line Cleaning: Removal of foreign materials from sewer lines to restore the sewer to a minimum of 95% of the original carrying capacity, for proper seating of pipe lining, or as required by other specified rehabilitation. It is recognized that there are some conditions such as broken pipe and major blockages that prevent cleaning from being accomplished or where additional damage would result if cleaning were attempted or continued. Should such conditions be encountered, the CONTRACTOR will not be required to clean those specific sewer sections. If, in the course of normal cleaning operations, damage does result from preexisting and unforeseen conditions such as broken pipe, the CONTRACTOR will not be held responsible.

Manhole Cleaning: All concrete and masonry surfaces must be cleaned prior to repair. Removal of grease, laitance, loose bricks, mortar, unsound concrete, and other materials from manholes. Water blasting (minimum 1,200 psi), utilizing proper nozzles, shall be the primary method of cleaning; however, other methods, such as wet or dry sandblasting, acid wash, concrete cleaners, degreasers, or mechanical means may be required to properly clean the surface. Surfaces on which these other methods are used shall be thoroughly rinsed, scrubbed, and neutralized to remove cleaning Managers and their reactant products.

Television Inspection: Operation necessary to complete an internal inspection for verification of existing conditions prior to performing rehabilitation and to verify for approval of rehabilitated sewer segments. CONTRACTOR shall furnish all labor, materials, equipment, tools, and other incidental services for closed circuit television inspection or work.

Light Cleaning: The removal of sand and/or debris occupying up to 25% of the diameter of the pipe.

Medium Cleaning: The removal of sand and/or debris occupying between 25% and 50% of the diameter of the pipe.

Heavy Cleaning: The removal of sand and/or debris occupying more than 50% of the diameter of the pipe.

Specialty Cleaning: The removal of grease, roots, and tuberculation in cast iron pipe; the use of special equipment such as bucket machines; root cutters or internal protruding tap remover or high pressure water blasting.

Cleaning and Preparation for Cementitious Liner Rehabilitation

The manhole or chamber surface shall be clean, structurally sound and free from oil, grease, loose mortar, paints, protective coatings, efflorescence, laitance and airing compounds. The conditions of the manhole or chamber may require the use of an environmentally safe degreasing compound; if so, the surface shall be thoroughly rinsed to eliminate any residue.

Place covers over invert to prevent extraneous material from entering the sewer lines.

All foreign material shall be removed from the manhole wall and bench using a high pressure water spray (minimum 4,000). Loose and protruding brick, mortar, and concrete shall be removed using a mason's hammer, chisel and/scrapper. Fill any large voids with quick setting patching material.

If the 4,000 psi high water pressure water spray is not successful in removing all grease and contaminants, then a chemical wash shall be used to clean and degrease the interior of the manhole or chamber. The entire structure shall be thoroughly water- and/or sand-blasted to remove any loose or deteriorated material. The CONTRACTOR shall clean all accumulations of debris, such as dirt and grease, loose mortar, bricks and concrete, and dispose of properly. Care shall be taken to prevent any loose material from entering outlet sewer lines by inserting a 2-inch or smaller mesh protective screen into the manhole's outlet.

Any existing manhole steps shall be removed prior to sealing (waterproofing) the structure walls, and installing liners.

PART 2 - PRODUCTS

2.01 CLEANING EQUIPMENT

High-Velocity Jet (Hydrocleaning) Equipment: All high-velocity sewer cleaning equipment shall be constructed for ease and safety of operation. The equipment shall have a selection of two or more high-velocity nozzles. The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all size lines designated to be cleaned. Equipment shall also include a high-velocity gun for washing and scouring manhole walls and floors and produce at least 4,000-psi pressure. The gun shall be capable of producing flows from a fine spray to a solid stream. The equipment shall carry its own water tank, auxiliary engines, pumps, and hydraulically driven hose reel.

Mechanically Powered Equipment or Bucket machines used by the CONTRACTOR shall be in pairs with sufficient power to perform the work in an efficient manner. Machines shall be belt operated or have an overload device. Machines with direct drive that could cause damage to the pipe will not be allowed. The power rodding machine shall be either a sectional or continuous rod type capable of holding a minimum of 750 feet of rod. The rod shall be specifically heat-treated steel. To ensure safe operation, the machine shall be fully enclosed and have an automatic safety clutch or relief valve.

Hydraulically Propelled Equipment: The equipment used shall be of a movable dam type and be constructed in such a way that a portion of the dam may be collapsed at any time during the cleaning operation to protect against flooding of the sewer. The movable dam shall be equal in diameter to the pipe being cleaned and shall provide a flexible scraper around the outer periphery to insure removal of grease. If sewer cleaning balls or other equipment which cannot be collapsed is used, special precautions to prevent flooding of the sewers and public or private property shall be taken.

2.02 TELEVISION INSPECTION EQUIPMENT

A. Television inspection equipment used by the Contractor shall conform to the requirements of Section 02752 – Television Survey.

PART 3 - EXECUTION

3.01 SANITARY SEWER SYSTEM CLEANING

The CONTRACTOR shall notify the local fire department and the OWNER to obtain approval and water meter, if required, before using fire hydrants.

During sewer cleaning operations, satisfactory precautions shall be taken by the CONTRACTOR in the use of cleaning equipment. When hydraulically propelled cleaning tools (which depend upon water pressure to provide their cleaning force) or tools which retard the flow in the sewer line are used, precautions shall be taken to ensure that the water pressure created does not damage or cause flooding of public or private property being served by the owner. When possible, the flow of wastewater in the sewer shall be utilized to provide the necessary pressure for hydraulic cleaning devices. When additional water from fire hydrants is necessary to avoid delay in normal work procedures, the water shall be conserved and not used unnecessarily. No fire hydrant shall be obstructed in case of a fire in the area served by the hydrant.

The designated sewer manhole sections shall be cleaned by the CONTRACTOR using hydraulically propelled, high-velocity jet, or mechanically powered equipment. Selection of the equipment used shall be based on the conditions of lines at the time the work commences. The equipment and methods selected shall be satisfactory to the OWNER. The equipment shall be capable of removing dirt, grease, rocks, sand, and other materials and obstructions from the sewer lines and manholes. If cleaning of an entire section cannot be successfully performed from one manhole, the equipment shall be set up on the other manhole and cleaning again attempted. If, again, successful cleaning cannot be performed or the equipment fails to traverse the entire manhole section, it will be assumed that a major blockage exists and the cleaning effort shall be repeated with other types of equipment.

ALL sludge, dirt, sand, rocks, grease, and other solid or semi-solid material resulting from the cleaning operation shall be removed at the downstream manhole of the section being cleaned. Passing material from manhole section to manhole section, which could cause line stoppages, accumulations of sand in wet wells, or damage pumping equipment, shall not be permitted.

Under no circumstances shall sludge or other debris removed during these operations be dumped or spilled into the streets, ditches, storm drains or other sanitary sewers. The CONTRACTOR shall remove from the site and properly dispose of all solids or semi-solids recovered during the cleaning operation. The CONTRACTOR shall obtain permits and make arrangements as required to properly dispose of solids.

The CONTRACTOR is advised that he shall not dispose of this material by legal or illegal dumping on private or public property, by sale to others, or any means other than those given above.

The CONTRACTOR shall keep his haul route and work area(s) neat and clean and reasonably free of odor, and shall bear all responsibility for the cleanup of any spill which occurs during the transport of cleaning/surface preparation by-products and the cleanup of any such material which is authorized by or pursuant to this contract and in accord with applicable law and regulations. The CONTRACTOR shall immediately cleanup any such spill, or waste. If the CONTRACTOR fails to cleanup such spill or waste immediately, the OWNER shall have the right to cleanup or arrange for its cleanup and may charge to the CONTRACTOR all costs, including administrative costs and overhead, incurred by the OWNER in connection with such cleanup. The OWNER may also charge to the CONTRACTOR any costs incurred or penalties imposed on the OWNER as a result of any spill, dump or discard. Under no circumstances is this material to be discharged into the waterways or any place other than where authorized to do so by the appropriate authority. The term "CONTRACTOR" as used in this section shall include the CONTRACTOR'S subcontractors and other Contractors.

The general requirements for vehicles hauling such waste materials are as follows: Transport vehicles must be of type(s) approved for this application by the political jurisdictions involved. General requirements are that the vehicles have watertight bodies, that they be properly equipped and fitted with seals and covers to prohibit material spillage of drainage, and that they be cleaned as often as is necessary to prevent deposit of material on roadways. Vehicles must be loaded within legal weight limits and operated safely within all traffic and speed regulations.

The routes used by the CONTRACTOR for the conveyance of this material on a regular basis shall be subject to approval by the governing authority having jurisdiction over such routes.

3.02 ROOT REMOVAL

A. Roots shall be removed by the CONTRACTOR from sections designated to be relined. Special attention shall be used during the cleaning operation to ensure complete removal of roots from the joints. Any roots which could prevent the traveling of the packer or could prevent the proper application of chemical sealants, or could prevent the proper seating and application of cured-in-place, fold-and-formed or sectional cured-in-place liners, shall be removed. Procedures may include the use of mechanical equipment such as rodding machines, bucket machines and winches using root cutters and porcupines, and equipment such as high-velocity jet cleaner. When specifically directed, chemical root treatment shall be used before the root removal operation, and grouting will take place after root removal in accordance with Section 02763 – Chemical Grouting. CONTRACTOR shall capture and remove all roots from the line.

3.03 DISPOSAL OF MATERIALS

A. All solids or semi-solids resulting from the cleaning operations shall be removed from the site and disposed of in accordance with applicable regulations. All materials shall be removed from the site no less often than at the end of each workday. Under no circumstances shall the CONTRACTOR be allowed to accumulate, debris etc., on the site beyond the stated time, except in totally enclosed containers and as approved by the OWNER. The CONTRACTOR shall submit a plan for disposal of solids to the OWNER.

3.04 TELEVISION INSPECTION

A. Television inspection shall be performed by the CONTRACTOR in accordance with requirements of Section 02752 - Television Survey.

3.05 FINAL ACCEPTANCE

Acceptance of sewer line cleaning shall be made upon the successful completion of the television inspection by the CONTRACTOR and shall be to the satisfaction of the ENGINEER. If a TV inspection shows the cleaning to be unsatisfactory, the CONTRACTOR shall be required to reclean and re-inspect the sewer line until the cleaning is shown to be satisfactory. In areas where television inspection is not performed, the OWNER may require the CONTRACTOR to pull a double squeegee (with each squeegee the same diameter as the sewer) through each manhole section as evidence of adequate cleaning. If lining is to follow the television inspection, particular attention shall be given to the adequacy of the cleaning to ensure that proper seating of the liner can be achieved. It is the CONTRACTOR'S responsibility to assure that the lines are properly cleaned to accept the liner.

In addition, on all those lines which have sags or dips, to an extent that the television camera lens becomes submerged for three (3) or more feet during the television inspection, the CONTRACTOR shall pull double squeegee and/or sponges through the line in order to remove the water from those dips or sags, or draft the

water by means of high-velocity jet cleaners. Water removal shall be performed until the television camera lens will no longer be submerged. This requirement may be waived by the OWNER if the water in which the camera lens is submerged is clear enough to allow the identification of pipe defects, cracks, holes and location of service taps.

END OF SECTION

SECTION 02752

TELEVISION SURVEY

PART 1 - GENERAL

1.01 WORK INCLUDED

The work consists of furnishing all labor, materials, accessories, equipment, tools, transportation, services and technical competence for performing all operations required to execute the internal closed circuit television survey to inspect the entire barrel of sewers up to 36 inches in diameter and sewer service laterals.

The survey shall show all defects and determine amount of infiltration entering the sewer system.

Prior to any testing, all lines and laterals shall be cleaned of debris, cleaned of tuberculations through mechanical removal and flushed clean. Debris shall be caught and removed from the lines and laterals and shall not be flushed into existing live sanitary sewers.

1.02 GENERAL

After cleaning as specified in Section 02730 – Preparatory Cleaning and Root Removal, and before and after rehabilitation operation/replacement work, the pipe sections and laterals shall be visually surveyed by means of closed-circuit television in the presence of the OWNER. The survey shall be performed one manhole-to-manhole section or one lateral at a time and the flow in the section being surveyed shall be suitably controlled as described in Section 02750 – Wastewater Flow Control.

Pre and post-construction survey video on CD-ROM shall be delivered to the OWNER on a “one line per CD-ROM” basis with the pre-construction video immediately preceding the post-construction video, accompanied with the corresponding work orders, and pre- and post-TV logs, for each sewer line and lateral surveyed. The video on CD-ROM shall be direct from a live video source into video file, format MPEG1.

1.03 EQUIPMENT

A. Sewer Main

The television camera used for the survey shall be one specifically designed and constructed for such survey and shall be of the pan and tilt type. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. Then camera shall be operative in 100% humidity conditions. The camera, television monitor, and other components of the video system shall be capable of producing a minimum 700 line resolution color video picture. The CONTRACTOR shall maintain camera in clear focus at all times. Picture quality and definition shall be to the satisfaction of the OWNER; and if unsatisfactory, equipment shall be removed and replaced with adequate equipment at no additional cost to the OWNER.

The video camera shall include a titler feature capable of showing on the tape the following information:

City and State

Date/Time

CONTRACTOR's Name

Line Size, Material, and Depth

Manhole Identification (both manholes) and direction of video

Lateral identification.

On-going Footage Counter

B. Service Lateral

The television camera used for the lateral survey shall be one specifically designed and constructed for such survey.

A Sonde locating device shall be attached to the camera. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. The camera shall be operative in 100% humidity conditions.

The camera, television monitor, and other components of the video system shall be capable of producing a minimum 700 line resolution color video picture. The CONTRACTOR shall maintain camera in clear focus at all times. Picture quality and definition shall be to the satisfaction of the OWNER; and if unsatisfactory, equipment shall be removed and replaced with adequate equipment at no additional cost to the OWNER.

The camera system shall be able to inspect 3-, 4-, and 6- inch lateral connections up to 70 feet from the sewer mainline. The launcher shall be mounted on a tread tractor that moves through main sewers and positions the inspection camera launcher opposite the lateral line connection.

The camera system shall have mini black and white or color, fixed position, “positioning” camera to observe and place the mini color, push, “inspection” camera at the lateral. The inspection camera shall be attached to an

80-foot long push cable with a fiberglass rod core for cable rigidity. The camera head shall point forward while traveling through the sewer mainline.

The camera used from a cleanout shall be able to be launched from the cleanout and travel down to the sewer mainline, up to 100 feet. The camera system shall be able to inspect 3-, 4-, and 6-inch lateral connections. The video camera shall include a titler feature capable of showing on the tape the following information:

City and State

Date/Time

CONTRACTOR's Name

Pipe size and material

Upstream Manhole Number & Distance to Lateral

On-going Footage Counter

6. A Sonde shall be provided for locating unmarked sewer laterals. A sonde is a transmitter tied on a line and moved through a sewer or duct. A receiver on the surface follows its movement, documenting the line location. The pipe position is then marked on the ground. The sonde is pushed farther into the pipe, the receiver relocates the sonde and the pipe position is marked again. This process is repeated until the desired section of pipe is traced. It is pulled out on completion of the locate.

1.04 SUBMITTALS

A. The CONTRACTOR shall submit shop drawings and other information in accordance with Section 01300 – Submittals. The CONTRACTOR's submittals shall include description of the software to be used and a sample of the video titles to be used, along with a sample of the television survey log to be used.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

3.01 PRE-CONSTRUCTION SURVEY

A. Procedure for Sewer Main

Prior to any repair work, the entire sewer line (from manhole to manhole) shall be televised. The camera shall be placed at the center of the manholes and videotaping shall commence prior to entering the pipe. The CONTRACTOR shall show the inside of the manhole walls and the pipe connection to the wall at both the upstream and downstream manhole.

The camera shall be moved through the lines in either direction at a moderate rate, stopping when necessary to permit proper documentation of the sewer's condition. In no case shall the television camera be pulled at a speed greater than 30 feet per minute. Manual winches, power winches, TV cable, powered rewinds and tractors or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions shall be used to move the camera through the sewer line. If the camera is being pulled through the sewer line by a

hydraulic cleaning unit hose, the cleaning nozzle shall be located a minimum of eight (8) feet away from the camera to allow a clear, unobstructed view. Jet nozzle shall be used in front of camera while televising through a dip to draft out water. If, during the survey operation, the television camera will not pass through the entire manhole section, the CONTRACTOR shall set up his equipment so that the survey can be performed from the opposite manhole. In addition the CONTRACTOR shall stop camera at all point repairs, sectional repairs, and reinstated laterals, and inspect entire repaired pipe section.

Whenever non-remote powered and controlled winches are used to pull the television camera through the line, telephones or other suitable means of communication shall be set up between the two manholes of the section being surveyed to insure good communications between each member of the crew.

Measurement for location of defects shall be above ground by means of a meter device. Marking on the cable, or the like, which would require interpolation for depth of manhole, will not be allowed. Measurement meters shall be accurate to tenths of a foot over the length of the section being surveyed. Accuracy of the distance meter shall be checked by use of a walking meter, roll-a-tape, electronic distance meter or other suitable device. Manhole numbers and linear footage shall be shown on screen during taping.

Movement of the television camera shall be temporarily halted for a minimum of ten seconds at each visible point source of infiltration and/or inflow until the leakage rate from that source is quantified. The camera shall be stopped at all service connections and the service lateral shall be inspected with the pan and tilt camera. The camera shall also be stopped at active service connections where flow is discharging. If the discharge

persists, the property involved shall be checked to determine whether or not the discharge is sewage. If no flows are being discharged from the building, it shall be considered that the observed flow is infiltration/inflow.

Procedure for Service Lateral

Prior to any repair work, the entire service lateral (from mainline to property line/cleanout, whichever is farther from the mainline) shall be televised.

Measurement for location of defects shall be above ground by means of a meter device. Measurement meters shall be accurate to tenths of a foot over the length of the section being surveyed. Accuracy of the distance meter shall be checked by use of a walking meter, roll-a-tape, or other suitable device. Linear footage shall be shown on screen during recording.

Movement of the television camera shall be temporarily halted for a minimum of ten seconds at each visible point source of infiltration and/or inflow until the source and flow rate from that point are determined.

The inspection shall be performed from either the main sewer or the cleanout with proper equipment specified. If the CONTRACTOR chooses to perform the inspection from the cleanout and the cleanout is either inaccessible or does not exist, he shall install a cleanout to facilitate the inspection. All costs of material equipment, labor, and other costs due to unspecified field conditions shall be borne by the CONTRACTOR. Payment for cleanout installation shall be made by the OWNER as indicated in Section 01025, Measurement and Payment.

Above ground horizontal location of lateral shall be marked every (5) feet utilizing surveyor's paint on an asphalt or concrete surface and surveyor's flags in grass. Approximate depth of laterals at these locations shall be recorded on the TV logs.

Field Documentation

1. Television Inspection Forms (Survey Logs).

Sewer Main: Printed and electronically stored location records shall be kept by the CONTRACTOR and will clearly show the location in relation to an adjacent manhole of each infiltration point observed during survey. Upstream footage at face of manhole (0) and downstream footage at face of manhole (e.g. 250 shall be shown on the log. The television inspection forms to be utilized by the CONTRACTOR shall be those mandated by NASSCO's (National Association of Sewer Survey Companies) PACP (Pipe Line Assessment and Certification Program). Both the "Header" and "Details" information of the form shall be entered as indicated in the PACP standards. The survey logs shall include, but not be limited to the following information:

Correct pipe segment/manhole numbers/lateral identification

Correct address of manhole/lateral location

Pipe/Lateral size, length and material

Manhole depth (up and downstream)

Lift station service area number

CD number and index

Footage locations, descriptions and estimated leak rates for visible point sources of infiltration inflow.

Footage locations and descriptions of structural defects such as obstructions, any remaining root intrusion, offset joints, cracked pipe, fractured pipe, holes, collapses, sags, protruding service connections and/or blockages in the pipe.

The terminology to be used shall follow NASSCO's PACP standards. All information will be recorded and a copy of such electronic records and a hard copy will be supplied to the OWNER.

Service Laterals: Location of the lateral by indicating the upstream manhole number, distance from the upstream manhole, lateral connection to the main line (left, center or right), and address of the customer serviced by the lateral, shall be noted on the television survey log. Printed and electrically stored location records shall be kept by the CONTRACTOR and will clearly show the location, in relation to the cleanout or the mainline of each infiltration point observed during survey. Footage shall be shown on the log. In addition, other points of significance such as unusual conditions, roots, broken pipe, presence of scale and corrosion, and other discernible features will be recorded and a copy of such records will be supplied to the OWNER.

Photographs. Digital photographs of the television picture of problems shall be taken by the CONTRACTOR upon request of the OWNER.

Video Recordings. The purpose of video (CD-ROM) recording shall be to supply a visual and audio record of problem areas of the lines that may be replayed. CD-ROM recording playback shall be at the same speed that it was recorded. Slow motion or stop motion playback features shall be supplied by the CONTRACTOR.

Once recorded, the CD-ROM becomes property of the OWNER. The CONTRACTOR shall have all CD-ROM and necessary playback equipment readily accessible for review by the OWNER during the Project. Audio. All CD-ROM shall have audio record. State date, time, operator's name, area, upstream manhole number to downstream manhole number, pipe size and material, upstream manhole depth, and TV survey will be from up- to downstream, or down- to upstream. The CONTRACTOR shall verbally state station and position of all laterals and defects.

3.02 POST-CONSTRUCTION SURVEY

A. Procedure

The same procedures shall be used as indicated in Section 3.01 PRE-CONSTRUCTION SURVEY.

In addition, the CONTRACTOR shall stop camera at all point repairs, sectional repairs, and reinstated laterals, and inspect entire repaired pipe section.

The CONTRACTOR shall invert white foreground to black as needed in the line section with light background.

B. Documentation

1. The same documentation shall be provided as indicated in Section 3.01 PRECONSTRUCTION SURVEY.

3.03 LOCATION OF A LATERAL FROM RESIDENCE

A. Procedure

1. Run a sonde through a roof vent to locate cleanout as well as unmarked sewer lateral. A sonde is a transmitter tied on a line and moved through a sewer or duct. A receiver on the surface follows its movement, documenting the line location. The pipe position is then marked on the ground. The sonde is pushed farther into the pipe, the receiver relocates the sonde and the pipe position is marked again. This process is repeated until the desired section of pipe is traced. It is pulled out on completion of the locate.

B. Documentation

1. Above ground horizontal location of lateral shall be marked every (5) feet utilizing surveyor's paint on an asphalt or concrete surface and surveyor's flags in grass. Approximate depth of laterals at these locations shall be recorded on the TV logs. Location of buried cleanouts, or location for the purposes of installing a new cleanout shall be marked by two measured distances to permanent recoverable objects. CONTRACTOR shall furnish a schematic of these locations with sufficient detail to be able to relocate from above ground, at a later date.

END OF SECTION

SECTION 02760,

PREPARATORY CLEANING AND ROOT REMOVAL

PART 1 GENERAL

1.01 Scope

This Section covers the preparatory cleaning and root removal from sanitary sewer mains prior to the internal inspection of the sewer lines by closed-circuit television and rehabilitation. This section also addresses the cleaning of the receiving lift station wet well prior to the start of cleaning operations and again after all liner installations served by that lift station have been installed and trimmed out. The Contractor shall furnish all necessary materials, labor, equipment, and services required for cleaning the sanitary mains and lift stations, including the removal of roots and debris.

1.02 General

Sewer Line Cleaning – The intent of sewer line cleaning is to remove dirt, grease, rocks, tuberculation, sand, and other foreign materials from the lines and restore the sewer to a minimum of 95% of the original carrying capacity. Since the success of other phases of work depends on the cleanliness of the lines, the importance of this phase of the operation is emphasized. It is recognized that there are some conditions such as broken pipe and major blockages that prevent cleaning from being accomplished or where additional damage would result if cleaning were attempted or continued. Should such conditions be encountered, the Contractor will not be required to clean those specific segments of the sewer line. If, in the course of normal cleaning operations, damage does result from preexisting and unforeseen conditions such as broken pipe, the Contractor will not be held responsible. However, the Contractor is required to provide flow transfer and may be directed to assist the County in the repair.

Lift Station Cleaning – The purpose of cleaning the lift station wet well(s) prior to the start of line cleaning operations is to ensure the wet well is free of debris and other objects which may be dislodged by the additional flows entering the wet well(s) as a result of the cleaning and lining operations. The lift station wet wells shall be cleaned as work in the area served by the lift station is finished and prior to starting work in another area.

1.03 Hydraulic Cleaning Equipment

Hydraulically Propelled Equipment – The equipment used shall be of a removable dam type and be constructed in such a way that a portion of the dam may be collapsed at any time during the cleaning operation to protect against flooding in the sewer. The moveable dam shall be equal in diameter to the pipe being cleaned and shall provide a flexible scraper around the outer periphery to insure removal of the grease. If sewer cleaning balls or other equipment, which cannot be collapsed, are used, special precautions to prevent flooding of the sewers and public or private property shall be taken.

High-Velocity Jet (Hydro-Cleaning) Equipment – All high-velocity sewer cleaning equipment shall be constructed for ease and safety of operation. The equipment shall have a selection of two or more high-velocity nozzles. The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all line sizes designated to be cleaned. The equipment shall carry its own water tank, auxiliary engines, pumps and hydraulically driven hose reel.

The wet well shall be pumped down by County personnel. The equipment used for cleaning lift station wet wells shall not damage the wet well and shall carry its own water tank, auxiliary engines, pumps, hoses, and nozzles. The vac-truck shall be used to remove any materials and debris from the wet wells. County personnel shall be present during all phases of the wet well cleaning to manage/operate the lift station pumps. **All wet well cleaning operations shall be completed and the lift station returned to normal operation prior to 3:30 PM.** The Contractor shall coordinate the cleaning operations with the County five (5) business days in advance.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.01 General

The cleaning equipment shall be capable of removing dirt, grease, rocks, tuberculation, sand, and other materials and obstructions from the sewer lines and lift stations.

When cleaning the sanitary mains, if an entire segment of the main cannot be successfully performed from one manhole, the equipment shall be set up in the opposing manhole and cleaning attempted again. If after reversing the setup, successful cleaning cannot be performed or the equipment fails to traverse the entire length of the main segment, it will be assumed that a major blockage exists and the cleaning effort shall be abandoned. The Contractor shall document the cause of the blockage if possible.

3.02 Cleaning Precautions

During the cleaning and preparation operations all necessary precautions shall be taken to protect the sanitary system from damage. During these operations, precautions shall also be taken to insure that no damage is caused to the lift station or to public or private property adjacent to, or served by, the sewer or its branches.

Satisfactory precautions shall be taken in the use of cleaning equipment. When hydraulically propelled cleaning tools (which depend upon water pressure to provide their cleaning force) or tools which retard the flow of the sewer line are used, precautions shall be taken to insure that the water pressure created does not damage or cause flooding of public or private property being served by the sewer. When possible, the flow of sewage in the sewer shall be utilized to provide the necessary pressure for hydraulic cleaning devices. When additional water from fire hydrants is necessary to avoid delay in normal work procedures, the water shall be conserved and not used unnecessarily. No fire hydrant shall be obstructed in case of a fire in the area served by the hydrant.

If a source of water is needed, the Contractor shall obtain one or more hydrant water meter(s) from the County. A refundable deposit and service charge is required for each meter. The most current information and fee schedule may be obtained by contacting the Customer Service Department at (813) 272-5977.

3.03 Material Removal

All sludge, dirt, sand, rocks, grease, roots and other solid or semisolid material shall be removed from the wet wells prior to and after the cleaning and lining operations. Additionally, all sludge, dirt, sand, rocks, grease, roots and other solid or semisolid material resulting from the cleaning operation shall be removed at the downstream manhole of the segment being cleaned. Passing material from segment to segment (or into the wet wells) which could cause line stoppages, accumulations of sand in wet wells, or damage pumping equipment, shall not be permitted.

Under no circumstances shall sludge or other debris removed during these operations be dumped or spilled into the streets, ditches, storm drains or other sanitary sewers.

3.04 Disposal of Materials

All solids or semisolids resulting from the cleaning operations shall be removed from the site and disposed of by the Contractor in a legal and sanitary manner as approved by appropriate authorities, at the Contractor's cost.

At the pre-construction conference, the Contractor shall identify the facility which will be accepting the materials removed from the sanitary system. The Contractor shall submit a letter to the Project Manager identifying the facility, the cost per unit, and the method for quantifying the amount disposed of (e.g. cost/ton, cost/cubic yard, etc.). The Contractor's letter shall be accompanied by a letter from the facility which will accept the materials removed from the sanitary sewers, acknowledging the material will be originating in Hillsborough County and will be removed by the Contractor under contract with the County. The facility letter shall be on company letterhead and bear the signature and title of an authorized facility representative.

3.05 Root Removal

Special attention should be used during the cleaning operation to assure complete removal of roots from the joints. Any roots which could prevent the proper application of chemical sealant, or could prevent the proper seating and application of the liners shall be removed. All roots shall be captured and removed from the line segments.

3.06 Protruding Service Taps

Protruding taps shall be trimmed to allow the insertion of the liner and the restoration of the full capacity of the line segment.

3.07 Acceptance of Cleaning Operations

Acceptance of sewer line cleaning shall be made upon the successful completion of the CCTV inspection. If the CCTV inspection shows the cleaning to be unsatisfactory, the Contractor shall be required to re-clean and re-inspect the sewer line until the cleaning is shown to be satisfactory. If the Contractor proceeds with lining a segment which is determined to be unsatisfactorily cleaned, the liner shall be removed and replaced at no additional cost to the County.

In addition, for those lines which have sags or dips, to an extent that the television camera lens becomes submerged for three (3) or more feet during the television inspection, the Contractor shall pull a double squeegee and/or sponge through the line in order to remove the water from the dips or sags. Water removal through squeegees and/or sponges shall be performed until the television camera lens is no longer submerged. This requirement may be waived by the Project Manager/Inspector if the water in which the camera lens is submerged, is clear enough to allow the identification of pipe defects, cracks, holes and location of service taps.

- END OF SECTION -

SECTION 02763

CHEMICAL GROUTING

PART 1- GENERAL

1.01 SCOPE

A. The work specified in the Section includes all labor, materials, accessories, equipment and tools necessary for chemical grouting, sealing, and air testing sanitary sewer pipe joints, pursuant to ASTM F2304-03.

1.02 GENERAL

Chemical Root Treatment

When so directed by the ENGINEER, the CONTRACTOR shall perform chemical root treatment.

The CONTRACTOR shall schedule his work to perform chemical root treatment a minimum of 8 weeks prior to performing the work specified under this Section.

When so directed by the ENGINEER, prior to performing chemical grouting, the CONTRACTOR shall remove roots and clean the sewer in accordance with Section 02730 – Preparatory Cleaning and Root Removal.

Leak Testing

Sewer line joint testing shall be accomplished by applying air pressure to each sewer joint, and monitoring the pressure in the void over a one-minute period. The intent of joint testing is to identify defective joint prior to the joint sealing process and check the effectiveness of the seal.

Testing cannot be performed and shall not be required on cracked, structurally unsound, or broken pipe, severely corroded or out-of-round pipe, or on visibly leaking joints.

Leak Sealing

Sources, or possible sources, of infiltration within the sewer system, are to be sealed to eliminate infiltration.

The application of the sealing grout within the pipe shall be by means of remote-controlled equipment designed to be positioned at

the specific joint or crack to be sealed and to apply the grout under sufficient pressure for the grout to pass through the opening and fill voids outside the pipe as well as the opening in the pipe wall. Control of the device and review of the results shall be by operating the closed-circuit television camera and van-mounted monitor conforming to the requirements of Section 02752 – Television Survey. The method of sealing used shall not damage the pipe or change pipe alignment, and the original cross sectional area shall not be permanently reduced or changed.

1.03 QUALIFICATIONS

A. The qualifications of the Grouting CONTRACTOR shall be submitted. These Qualifications shall include detailed descriptions of the following:

Name, business address and telephone number of the CONTRACTOR.

Name(s) of all supervisory personnel to be directly involved with Grouting for this project.

The CONTRACTOR shall sign and date the information provided and certify that to the extent of his knowledge, the information is true and accurate, and that the supervisory personnel will be directly involved with and used on this project. Substitutions of personnel and/or methods will not be allowed without written authorization of the ENGINEER.

Specialty technicians shall be certified by the equipment manufacturer and/or its authorized representative. Certifications shall be submitted to the ENGINEER.

The CONTRACTOR shall provide his references of previous project lists going back three (3) years including his customers' names, addresses, and telephone numbers.

To be qualified, the CONTRACTOR shall have a minimum of three (3) years previous experience in grouting.

PART 2- PRODUCTS

2.01 CHEMICAL JOINT SEALING MATERIALS

A. Chemical joint sealing materials used on this project shall be AV-118 Duriflex, or AV-100 plus activators, initiators and inhibitors recommended by the manufacturer, Avanti International, or an approved equal.

In those lines which had root removal performed, a chemical root inhibitor shall be added to the grout prior to sealing the joints. CONTRACTOR shall submit the chemical to be used for ENGINEER's approval prior to utilization.

PART 3- EXECUTION

3.01 LEAK TESTING EQUIPMENT

The basic equipment used shall consist of a television camera, joint testing device such as a packer, and test monitoring equipment. In combinations, the equipment shall be constructed in such a way as to provide means for introducing a test medium under pressure, into the Void area created by the expanding ends of the joint testing device. The testing equipment shall also have the means for regulating the flow rate of the test medium Void area in conjunction with the means for continuously measuring the actual static pressure of the test medium at and within the Void area only. The packer device shall be constructed in such a manner as to allow some flow to pass through its center annulus.

Void pressure data shall be transmitted electrically and without the use of the test medium or hoses. All test monitoring shall be above ground and in a location to allow for simultaneous continued observation of the television monitor and test monitoring equipment by the CONTRACTOR. The ENGINEER shall witness the testing operation.

Sewer line joint testing shall be accomplished before and after the grouting operation by applying a positive pressure to each sewer joint and monitoring the pressure in the Void. The intent of joint testing is to identify defective joints prior to the joint sealing process and determine the effectiveness of the seal repaired.

3.02 CONTROL TEST PROCEDURES

A. Prior to and during the joint testing phases of the work, the CONTRACTOR shall perform Control, Intermediate, and Final testing in accordance with the latest edition of ASTM F2304.

3.03 JOINT TESTING PROCEDURE

A. Sewer line joints shall be individually tested at a test pressure equal to $\frac{1}{2}$ psi per vertical foot of pipe depth, but in no case exceeding a pressure of 10 psi and in accordance with the following procedures:

The packer or testing device shall be positioned within the line in such a manner as to straddle the joint to be tested. The packer ends or testing device ends shall be expanded so as to isolate the joint from the remainder of the line and create a Void area between the packer or testing device and the pipe joint. The ends of the testing device shall be expanded against the pipe with sufficient inflation pressure to contain the test medium within the Void without leakage past the expanded end.

The test medium shall be introduced into the Void area until a pressure or flow rate equal or greater than the required test pressure is observed with the Void pressure monitoring equipment.

Air Test – After the void pressure is observed to be equal to or greater than the required test pressure, the airflow shall be stopped and the air test supply line vented. The operator will observe this void pressure for a period of 15 s, if the pressure is maintained, with a pressure drop of less than 1 psi (7 kPa), then the joint will be considered as having passed the test. If the pressure shows additional decay during the time period, it will be considered as having failed and shall be sealed. Upon completion of the sealing, the joint will be retested at the established test criteria (posttest).

Water Test – A liquid (water) shall be introduced into the void area until a pressure equal to or greater than the required test pressure is observed with the void pressure monitoring equipment. If the required test pressure cannot be developed (due to joint leakage), the joint will have failed the test and shall be sealed as specified. The flow rate of the test liquid shall then be regulated to a rate at which the void pressure is observed to be the required test pressure for a period of 30 seconds. A reading of the test liquid flow meter shall then be taken. If the flow rate exceeds $\frac{1}{4}$ gallon per minute (due to joint leakage), the joint will have failed the test and shall be sealed as specified.

4. The test medium shall be air or liquid.

3.04 TEST RECORDS

A. During the joint testing procedure, complete records shall be kept, to include the following data:

Identification of the manhole section tested.

Type of pipe.

Diameter of pipe.

Length of pipe sections between joints.

Depth of pipe to surface.

Test pressure used and duration of test.

Statement indicating the pass/fail test results for each joint tested, Location (stationing) of each joint tested and location of any joints not tested with an explanation for not testing. B. In the case of "passing" joint, a single

pressure reading may be recorded. In the case of a "failing" joint requiring grout, three pressures shall be recorded: the initial "failing" pressure; the zero pressure after grout has been injected and the packer deflated; and the final pressure after the grout has been injected and the packer reinflated.

3.05 JOINT SEALING EQUIPMENT

The basic equipment shall consist of a closed circuit television system, necessary chemical sealant containers, pumps, regulators, valves, hoses, etc., and joint sealing packers for the various sizes of sewer pipe. The packer shall be a cylindrical case of a size less than pipe size, with the cables at either end used to pull it through the line. The packer device shall be constructed in such a manner as to allow a restricted amount of sewage to flow at all times. Generally, the equipment shall be capable of performing the specified operations in lines where flows do not exceed the maximum line flows as specified in Section 02750-Wastewater Flow Control. When the packer is inflated, two widely spaced annular bladders shall be formed, each having an elongated shape and producing an annular void around the center portion of the packer.

Before starting the work, a performance test demonstration verifying the accuracy and repeatability of the void pressure meter and fluid pumping equipment should be performed. If these test demonstrations fail to show that the readings are accurate, ± 0.5 psi (3 kPa) for void pressure repeatability, and ± 0.1 gal (0.4 L) of chemical pumped into a measured container, the CONTRACTOR shall be required to make the required repair or adjustments to the equipment and gages and retest until the results are satisfactory to the OWNER's representative. The test demonstration may be required at each work shift during the sealing operation.

3.06 JOINT SEALING PROCEDURE

In the preparation and application of the sealing grout, the recommendations of the manufacturer of the grout materials shall be followed. Before joint sealing, chemical grout gel times should be measured and recorded. Gel times should also be measured and recorded. Gel times should also be measured and recorded whenever a new batch is made and at the end of the shift these gel times' measurements are a very effective and meaningful quality assurance procedure.

Joint sealing shall be accomplished by forcing chemical sealing materials into or through infiltration points by a system of pumps, hoses, and sealing packers. Jetting or driving pipes from the surface that could damage or cause undermining of the pipe lines, will not be allowed. Excavating the pipe, which would disrupt traffic, undermine adjacent utilities and structures, will not be allowed. The packer shall be positioned over the area of infiltration by means of a metering device and the closed circuit television in the line. It is important that the procedure used by the CONTRACTOR for positioning the packer be accurate to avoid over-pulling the packer and thus not effectively sealing the point of infiltration. The packer sleeves shall then be expanded using precisely controlled pressures. The pneumatically expanded sleeve or elements shall seal against the inside periphery of the pipe to form a void area at the point of infiltration, now completely isolated from the remainder of the pipe line. Into this isolated area, sealant materials shall be pumped through the hose system at controlled pressures, which are in excess of groundwater pressures. The pumping, metering, and packer device shall be integrated so that the proportions and quantities of materials can be regulated in accordance with the type and size of the leak being sealed.

The grout must be injected beyond the joint interface into the soil surrounding the pipe joint.

A color additive (dye) should be added to the grout so that a visual residual layer of grout rings the joint providing confirmation the packer was located over the joint and the void was filled during the sealing operation.

No joint shall be considered sealed unless, while under continual pressure, an attempt is made to pump grout to "refusal" (up to $\frac{1}{2}$ gallon per inch diameter pipe size). This is to insure that sufficient chemical has been dispersed into the soil surrounding the joint and that a temporary seal has not been made by applying a minimum amount of chemical grout to the void and the joint area inside the pipe. When chemical grout cannot be pumped to "refusal" within a volume less than or equal to $\frac{1}{2}$ gallon per inch diameter pipe size due to latent physical conditions, no additional work shall be undertaken until authorization to proceed has been given by the OWNER/OWNER's representative.

Upon completing the sealing of each individual joint, the packer shall be deflated; moved at least one packer length in either direction, and then repositioned over the joint; with the void pressure meter reading zero pressure, then reinflated and tested as specified in subsection 3.03 – Joint

Test Procedure. Should the void pressure meter not read zero, the CONTRACTOR shall clean his equipment of residual grout material or make the necessary equipment repairs to provide for an accurate void pressure

reading. Joints that fail to meet the specified test criteria shall be resealed and retested until the test criteria can be met in order to receive payment.

All testing shall be performed by the CONTRACTOR in the presence of the ENGINEER. It shall be the responsibility of the CONTRACTOR to completely seal every leak authorized for sealing to the extent determined by the ENGINEER. If, in the ENGINEER's opinion, it is not necessary to continue with a particular leak, the crew shall move to the next joint or leak. The CONTRACTOR shall remove any small excess sealing grout inside the sewer line. CONTRACTOR shall operate his equipment with care and shall be responsible for any damage to the sewer system or other facilities caused by his operations, and shall repair such damage at his expense and without delay as instructed by the ENGINEER.

3.07 JOINT SEALING RECORDS

A. Included in the records for joint sealing shall be:

The test pressure before and after sealing and the duration of the test.

The volume of grout material used to seal each joint.

The volume of grout placed per section.

The gel set time used.

The barrel test results.

The grouting material used including additives and their respective quantities.

3.08 LATERAL SEALING PROCEDURE

A. The following shall apply to the sealing of all reinstalled laterals after the main has been lines.

The total batch shall be no more than 50 gallons. That means reducing the water in each tank by 5 gallons. This will increase the strength of the "gel" by increasing the solids to 12 percent.

The "gel" time shall be 10 seconds longer than the time required by the pumps to fill the inside packer void at no time shall the "gel" time be less than 20 seconds.

3.09 TELEVISION SURVEY

A. Television survey, including Preconstruction Survey, Post Construction Survey, and Warranty Survey, as indicated in Section 02752 – Television Survey, is required for all grouted lines.

3.10 WARRANTY

A. All chemical grouting work described herein shall be guaranteed against faulty workmanship and/or materials for a period of 3 years after the completion of the work.

END OF SECTION

SECTION 02765

CURED-IN-PLACE PIPE LINER

PART 1 - GENERAL

1.01 WORK INCLUDED

It is the intent of this specification to provide for the reconstruction of pipelines and conduits by the installation of a resin-impregnated flexible tube which is formed to the original conduit by use of a hydrostatic head. The resin is cured using hot water under hydrostatic pressure within the tube. The Cured-In-Place Pipe (CIPP) will be continuous and tight fitting.

The work specified in this Section includes all labor, materials, accessories, equipment and tools necessary to install and test cured-inplace pipe lining in main lines and in service laterals.

1.02 GENERAL

The finished pipe in place shall be fabricated from materials which when cured will be chemically resistant to withstand internal exposure to domestic sewage.

This specification references ASTM F1216 (Rehabilitation of pipelines by the inversion and curing of a resin-impregnated tube), ASTM F1743 (Rehabilitation of pipelines by pulled-in-place installation of a cured-in-place thermosetting resin pipe) and ASTM D790 (Test methods for flexural properties of unreinforced plastics) which are made a part hereof by such reference and shall be the latest edition and revision thereof. In case of conflicting requirements between this specification and these referenced documents, this specification will govern.

1.03 SUBMITTALS

The CONTRACTOR shall submit manufacturer's Certificate of Compliance certifying compliance with the

The CONTRACTOR shall submit certified copies of test reports of factory tests required by the applicable standards and this Section.

The CONTRACTOR shall submit Manufacturer's installation instructions and procedures and insertion runs.

The CONTRACTOR shall submit procedures and materials for service reinstatement including time and duration of sewer service unavailability.

The CONTRACTOR shall submit liner sizing and wall thickness calculation data.

1.04 DELIVERY, STORAGE, AND HANDLING

The CONTRACTOR shall be responsible for delivery, storage, and handling of products.

Products shall be kept safe from damage. Damaged products shall be removed from the job site promptly. Damaged products shall be replaced with undamaged products.

1.05 PRODUCT AND INSTALLER ACCEPTABILITY

Since sewer products are intended to have a 50 year design life, and in order to minimize the OWNER's risk, only proven products with substantial successful long term track records will be approved.

Products seeking approval must meet all of the following criteria to be deemed commercially acceptable:

For a product to be considered commercially proven, a minimum of 1,000,000 linear feet or 4,000 manhole-to-manhole line sections of successful wastewater collection system installations in the U.S must be documented to the satisfaction of the OWNER to assure commercial viability. In addition, at least 250,000 linear feet of the product shall have been in successful service within the State of Florida for a minimum of five years.

For an installer to be considered as commercially proven, the installer must satisfy all insurance, financial, and bonding requirements of the OWNER, and must have had at least three (3) years active experience in the commercial installation of the product. In addition, the installer must have successfully installed at least 150,000 feet of the product in wastewater collection systems in Florida. Acceptable documentation of these minimum installations must be submitted to the OWNER.

Sewer rehabilitation products submitted for approval must provide third party test results supporting the long term performance and structural strength of the product and such data shall be satisfactory to the OWNER. Test

samples shall be prepared so as to simulate installation methods and trauma of the product. No product will be approved without independent third party testing verification.

Documentation for products and installers must be satisfactory to the OWNER and must be submitted with the bid.

PART 2 - PRODUCTS

2.01 MATERIALS FOR MAIN LINES

The sewn tube shall consist of one or more layers of absorbent nonwoven felt fabric and meet the requirements of ASTM F1216 or ASTM F1743, Section 5. The tube shall be constructed to withstand installation pressures, have sufficient strength to bridge missing pipe, and stretch to fit irregular pipe sections.

The wetout tube shall have a uniform thickness that when compressed at installation pressures will meet or exceed the Design thickness.

The tube shall be sewn to a size that when installed will tightly fit the internal circumference and length of the original pipe. Allowance should be made for circumferential stretching during inversion. Overlapped layers of felt in longitudinal seams that cause lumps in the final product shall not be utilized.

The outside layer of the tube (before wetout) shall be coated with an impermeable, flexible membrane that will contain the resin and facilitate monitoring of resin saturation during the resin impregnation (wetout) procedure.

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.

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.

Seams in the tube shall be stronger than the unseamed felt.

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 Manufacturers name or identifying symbol. The tubes must be manufactured in the USA.

The resin system shall be a corrosion resistant polyester, vinyl ester, or epoxy and catalyst system that when properly cured within the tube composite meets the requirements of ASTM F1216 and ASTM F1743, the physical properties herein, and those which are to be utilized in the Design of the CIPP for this project. The resin shall produce CIPP which will comply with the structural and chemical resistance requirements of this specification.

The finished pipe liner in place shall be chemically resistant to and shall withstand internal exposure to domestic wastewater having a pH range of 5 to 11 and temperature of 150°F.

2.02 STRUCTURAL REQUIREMENTS

The CIPP shall be designed as per ASTM F1216, Appendix X1. The CIPP design shall assume no bonding to the original pipe wall.

The CONTRACTOR must have performed long-term testing for flexural creep of the CIPP pipe material installed by his company. Such testing results are to be used to determine the Long-term, time dependent flexural modulus to be utilized in the product design. This is a performance test of the materials (tube and resin) and general workmanship of the installation and curing. A percentage of the instantaneous flexural modulus value (as measured by ASTM D-790 testing) will be used in design calculations for external buckling. The percentage, or the long-term creep retention value utilized, will be verified by this testing. Values in excess of 50% will not be applied unless substantiated by qualified third party test data. The materials utilized for the contracted project shall be of a quality equal to or better than the materials used in the long-term test with respect to the initial flexural modulus used in design.

The layers of the cured CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or the probe or knife blade moves freely between the layers. If separation of the layers occur during testing of field samples, new samples will be cut from the work. Any reoccurrence may cause rejection of the work.

Cured pipe shall conform to the following initial minimum structural properties:

PROPERTY

TEST METHOD

RESULTS

Flexural Stress
Modulus of Elasticity

ASTM D-790
ASTM D-790

(short 4,500 psi term)
250,000 psi

The required structural CIPP wall thickness shall be based at a minimum, on the physical properties described above and in accordance with the design equations in the appendix of ASTM F1216, and the following design parameters:

Design Safety Factor	2.0
Retention Factor for Long-Term Flexural Modulus to be used in Design (as determined by Long-Term tests described in paragraph 2.02 B)	50%
*Ovality	5%
Groundwater Depth = Pipe Depth (above invert)*	ft.
Soil Depth (above crown)	ft.
Soil Modulus	700 psi
Soil Density	120 pcf
Live Load	Two H-20 passing trucks
Design Condition	Fully deteriorated
*Denotes information which can be provided here or in inspection video tapes or project construction plans. Multiple line segments may require a table of values.	

The lining manufacturer shall submit to the OWNER for review complete design calculations for the liner, signed and sealed by a Professional ENGINEER registered in the State of Florida and certified by the manufacturer as to the compliance of his material to the values used in the calculations. A safety factor of 2 shall be applied in the design calculation. The host pipe shall be considered fully deteriorated. The liner shall be designed to withstand a live load equivalent to two H-20 passing trucks plus all pertinent dead loads, hydrostatic pressure and grout pressure (if any). For design purposes, the water table shall be considered at grade elevation. The liner shall be designed in accordance with ASTM F1216. The buckling analysis shall account for the combination of dead load, live load, hydrostatic pressure and grout pressure (if any). The liner side support shall be considered as if provided by soil pressure against the liner. The existing pipe shall not be considered as providing any structural support. Modulus of soil reaction shall be 700, corresponding to a moderate degree of compaction bedding and a fine-grained sole as shown in AWWA Manual M45, Fiberglass Pipe Design.

Because of the nature of the calculations and constants utilized, the minimum liner thicknesses shall be 5 percent greater than the amount specified.

As part of the design calculation submittal, the liner manufacturer shall submit a tabulation of time versus temperature. This tabulation shall show the lengths of time that exposed portions of the liner will endure without self-initiated cure or other deterioration beginning. This tabulation shall be a five degree Fahrenheit increments ranging from 70 degrees F to 100 degrees F. This manufacturer shall also submit his analysis of the progressive effects of such "pre-cure" on the insertion and cured properties of the liner. This information shall be submitted in a timely fashion prior to the preconstruction conference so that the OWNER may set procedures for dealing with such an instance caused by construction delays. The minimum liner thickness is for material with characteristics as shown.

Liner shall neither be accepted nor installed until design calculations are acceptable to the OWNER. Liner shall be as manufactured by Insituform Technologies, Inc., 702 Spirit 40 Avenue, Chesterfield, MO 63005, Phone No. 800-325-1159, or approved equal.

2.03 MATERIALS FOR SERVICE LATERALS

Chemical Resistance – The CIPP shall meet the chemical resistance requirements of ASTM F1216, Appendix X2. CIPP samples for testing shall be of tube and resin system similar to that proposed for actual construction. It is required that CIPP samples with and without plastic coating meet these chemical testing requirements.

Hydraulic Capacity – Overall, the hydraulic profile shall be maintained as large as possible. The CIPP shall have a minimum of the full flow capacity of the original pipe before rehabilitation. Calculated capacities may be derived using a commonly accepted roughness coefficient for the existing pipe material taking into consideration its age and condition.

CIPP Field Samples – When requested by the OWNER, the CONTRACTOR shall submit test results from field installations in the USA of the same resin system and tube materials as proposed for the actual installation. These test results must verify that the CIPP physical properties specified in Section 2.02 D have been achieved in previous field applications.

2.04 MATERIALS FOR SERVICE LATERALS

Intent: It is the intent of this portion of this specification to provide for the reconstruction of lateral sanitary sewer pipelines with the installation of resin impregnated, flexible felt tubes. They shall be installed into the existing service using a pull rope or a push rod. Curing shall be accomplished with hot water or other methods approved by the OWNER, the curing method shall be suitable for the selected resin, such that the resin produces a hard, impermeable pipe wall. The cured-in-place pipe (CIPP) should extend throughout the service lateral in a jointless, continuous, tight-fitting, watertight pipe-within-a-pipe.

Structural Requirements: The structural performance of the finished pipe must be adequate to accommodate all anticipated loads throughout its design life. No CIPP reconstruction technology will be allowed that requires bonding to the existing pipe for any part of its structural strength. Since the pipe strength is related to the uniformity and density of the pipe wall, only resin vacuum impregnation will be allowed. Resin impregnation without vacuum entraps air and creates voids which weaken the pipe wall. If reinforcing materials (fiberglass, etc.) are used, the reinforcing material must be fully encapsulated within the resin to assure that the reinforcement is not exposed, either to the inside of the pipe or at the interface of the CIPP and the existing pipe.

Structural Design Methods: design methods are to be derived from traditionally accepted pipe formulae for various loading parameters and modes of failure. All equations will be modified to include ovality as a design parameter. The design method shall be submitted to the OWNER for review. Design calculations shall be signed and sealed by a Professional ENGINEER registered in the State of Florida.

Continuous Structure: The lateral CIPP must bridge breaks and missing sections of the existing pipe, substantially reducing or eliminating infiltration or exfiltration. The new joint less pipe-within-a-pipe must fit tightly against the old pipe wall and consolidate all disconnected sections into a single continuous conduit.

Useful Life: The lateral CIPP must have a minimum design life of fifty (50) years. The minimum design life may be documented by submitting life estimates by national and/or international authorities or specifying agencies. Otherwise, long-term testing and long-term in-service results (minimum ten (10) years) may be used, with the results extrapolated to fifty (50) years.

Materials: All constituent materials will be suitable for service in the environment intended. The final product will not deteriorate, corrode or lose structural strength that will reduce the projected product life.

Physical Strength: The design for the lateral CIPP wall thickness will be based on the following strengths as shown herein, unless otherwise submitted and approved by the OWNER.

PROPERTY	TEST METHOD	RESULTS
Flexural Stress	Modified ASTM D-790	4,500 psi
Modulus of Elasticity	Modified ASTM D-790	250,000 – 500,000 psi

H. Service lateral liner shall be neither accepted nor installed until design calculations are acceptable to the OWNER. Liner shall be as manufactured by Insituform of North America, Inc., or approved equal.

PART 3 - EXECUTION
3.01 GENERAL

All activities shall be performed in accordance with the manufacturer's recommendations and regulations established by OSHA. Particular attention shall be drawn to those safety requirements involving working with scaffolding and entering confined spaces.

The Contractor shall provide traffic control in accordance with the requirements of Section 01570 – Traffic Regulations and Maintenance of Traffic

It is the Contractors responsibility to notify in writing any property OWNER having a sewer service connection on the sewer being relined that such work is being performed. Notification shall be done 48 hours prior to performing relining work. The Contractor shall be solely responsible for any damage to private service lines or backups caused by relining operations.

The Contractor shall defend, indemnify, and hold harmless the OWNER and employees, the Engineer, and the OWNERs consultants from and against any and all claims, suits, actions, damaged loss, liability, or costs of any nature or description (including, without limitation, reasonable attorney's fees) arising from, or in any way attributable to or connected with the Work performed by the Contractor.

3.02 PREPARATION

The Contractor shall clean and inspect the existing sewer in conformance with Section 02751 – Preparatory Cleaning and Root Removal.

The Contractor shall perform point repairs as directed by the OWNER, for the sewer section scheduled for relining. If during pre-television inspection, the Contractor identifies sections requiring point repairs but not identified on the Plans, he shall request OWNER's approval prior to performing those point repairs.

The Contractor shall provide for the diversion of wastewater entering or passing through the pipe in conformance with Section 02600 – Wastewater Flow Control.

Conditions that may prevent proper installation shall be noted and brought to the attention of the OWNER, and as directed by the OWNER corrected by the Contractor.

All service connections shall be noted and brought to the attention of the OWNER.

The Contractor shall notify the local fire department and utility company to obtain approval and a water meter, if required, before using fire hydrants.

The Contractor shall designate a location where the reconstruction tube shall be vacuum impregnated prior to installation. The Contractor shall allow the OWNER to inspect the materials and "wet out" procedure. A catalyst system compatible with the resin and reconstruction tube shall be used. Sufficient excess resin will be provided to ensure a mechanical bond with the host pipe after curing.

3.03 LINER INSTALLATION FOR MAIN LINES

The Contractor shall install the pipe line in accordance with the manufacturer's specifications and as approved by the OWNER.

The wet out reconstruction tube shall be inserted through an existing manhole or other approved access by means of an inversion process and the application of a hydrostatic head sufficient to fully extend it to the next designated manhole or termination point. The reconstruction tube shall be inserted into the vertical inversion standpipe with the impermeable plastic membrane side out. At the lower end of the inversion standpipe, the reconstruction tube shall be turned inside out and attached to the standpipe so that a leak-proof seal is created. The inversion head will be adjusted to be of sufficient height to cause the impregnated tube to invert from manhole to manhole and hold the tube tight to the pipe wall, produce dimples at service lateral connections, and flared ends at the manholes. The use of a lubricant is recommended. Care shall be taken during the elevated curing temperature so as not to overstress the felt fiber. Care shall be taken to facilitate any resin spillage cleanup in the work area.

After inversion is completed, the Contractor shall supply suitable heat and water recirculation equipment. The equipment shall be capable of delivering hot water throughout the section by means of pre-strung hose to uniformly raise the water temperature above the temperature required to affect a cure of the resin. This temperature shall be determined by the resin/catalyst system employed, as required by the manufacturer.

The heat source shall be fitted with suitable monitors to gauge the temperature of the incoming and outgoing water supply. Another such gauge shall be placed between the impregnated reconstruction tube and the pipe invert at the remote manhole to determine the temperatures during the cure period as recommended by the resin manufacturer.

Initial cure shall be deemed to be completed when inspection of the exposed portions of cured pipe appears to be hard and competent and the remote temperature sensor indicates that the temperature is of a magnitude to realize an exotherm. The cure period shall be of a duration recommended by the resin manufacturer, as modified for the cured-in-place inversion process, during which time the recirculation of water and cycling of the heat exchange to maintain the temperature continues.

The Contractor shall cool the hardened pipe to a temperature below 100°F before relieving the static head in the inversion standpipe. Cool-down may be accomplished by the introduction of cold water into the inversion standpipe to replace water being drained from a small hole made in the downstream end. Care shall be taken in the release of the static head so that a vacuum will not be developed that could damage the newly installed pipe. The discharge water temperature shall not exceed the level allowed by state or local standards.

The finished pipe shall be continuous over the entire length of an inversion run and be as free as commercially practical from visual defects, such as foreign inclusions, dry spots, pinholes, and delamination. It shall also meet the leakage requirements or pressure test specified below.

If the liner fails to make a tight seal due to a broken or misaligned pipe, at the manhole wall, or any other reason the Contractor shall apply a seal at that point. The seal shall be of a resin mixture compatible with the pipe.

3.04 SEALING PIPE IN MANHOLE

A. If the installed pipe fails to make a tight seal in the manhole, the Contractor shall apply a sealant at that point by pressure injection or other means to ensure a watertight seal. The sealant shall be of a resin mixture compatible with that used in the inversion process. The repair shall be rechecked after 48 hours to ensure that the seal is holding. If the seal does not hold, the Contractor shall continue to work until a seal is made and there are no leaks. The Contractor shall seal the pipe in the manhole at no additional cost to the OWNER.

3.05 REINSTATEMENT OF SERVICE LATERALS

After the pipe has been cured-in-place, the Contractor shall reinstate the existing service connections. This shall be done from the interior of the pipe without excavation of the pavement areas and in the case of no manentry pipes, from the interior of the pipe by means of a 360° television camera and cutting device that reestablishes at least 95 and no more than 100% of the flow capacity of the service connection. The Contractor shall brush smooth all internal cuts to facilitate service lateral rehabilitation.

Only personnel experienced in the operation of cutting devices used for reinstatement of service laterals shall be allowed to operate such equipment.

The OWNER reserves the right to require reinstatement of service connections by excavation when a remote cut damages the pipe.

3.06 LINER INSTALLATION FOR SERVICE LATERALS

Site Disruption: The lateral CIPP usually require an access point to be established at the reconstruction termination point remote from the mainline pipe. The authorization for the access point a required location and excavation shall be obtained and performed by the OWNER of the system. The OWNER may install a clean-out, if required. The clean-out will be constructed of a polyvinyl chloride fitting or its equivalent with a riser pipe of equal diameter to the service pipe. The riser will be extended to the existing grade elevation and capped.

Internal Mainline Connection: The lateral CIPP shall be installed to affect a bond with the mainline invert-and-cure pipe to substantially reduce or eliminate the infiltration into the mainline pipe. The mainline pipe opening shall be prepared to accept the lateral CIPP. The lateral CIPP will protrude into the mainline pipe and form a seal with inside surface of the mainline invert-and-cure pipe surface. The bonding area of the lateral CIPP and the mainline invert-and-cure pipe shall be maximized to obtain the best possible bond. The protrusion shall not inhibit the closed circuit television post video inspection of the mainline or service lateral pipes.

Flow requirements: The lateral CIPP will provide at least 100 percent of the flow capacity of the host pipe before reconstruction. In lieu of actual measurements, calculated capacities may be derived using commonly accepted equations and values of the Manning flow coefficients (designated "n" coefficients). The original pipe material and condition at the time of reconstruction will determine the Manning coefficient used in the host pipe. A Manning coefficient of 0.009 for a jointless, relatively smooth-wall cured-in-place pipe will be used for the lateral CIPP flow calculation.

Inspection: The materials and processes must be reasonably available for pre-installation, installation and post-installation inspections. Areas which require inspection include, but are not limited to, the following:

Product materials should exhibit sufficient transparency to visually verify the quality of resin impregnation.

Temperature sensing devices, such as thermocouples, shall be located between the existing pipe and the lateral CIPP to ensure the quality of the cure of the wall laminate.

Time of construction: Construction schedules will be submitted and approved by OWNER. At no time shall any service lateral remain inoperative for more than an eight hour period. Any service that will be out of service for more than eight hours will be temporarily by-passed into a mainline sanitary sewer. This will be done at the CONTRACTOR's expense.

3.07 INSPECTION

A. After the completion of the lining process and reinstatement of appropriate service connections, the installation shall be television inspected in accordance with Section 02752 – Television Survey. All service entrances shall be accounted for. No infiltration shall be apparent. The finished pipe shall be continuous over the length of the installation and be free of dry spots, lifts, and delaminations. If the pipe is not acceptable to the OWNER, remedies shall be accomplished at the Contractor's expense and to the OWNER's satisfaction.

3.08 TESTING

After the installation procedures have been performed and prior to reinstatement of service connections, the Contractor shall perform a hydrostatic test on the sewer line to determine if it is watertight. The test shall be performed using the existing hydrostatic head provided by the inversion standpipe. The test time shall be 5 minutes during which time no makeup water shall be added to the standpipe. If at the end of the test period no significant water loss is observed in the standpipe, the water tightness of the cured-in-place pipe shall be considered satisfactory.

For installation, two liner samples shall be required: A section of cured pipe cut from the installation at an intermediate or terminal manhole and

which has been inserted through a like diameter pipe held in place by a suitable heat sink (such as sandbags); and a sample fabricated from material taken from the tube and the resin/catalyst system used and cured in a clamped 'plate' mold placed in the downtube. Each sample shall be large enough to provide a minimum of three specimens.

The initial tangent flexural modulus of elasticity and flexural stress shall be measured in accordance with ASTM D-790 and shall meet the requirements of this section.

Pipe failing to meet these requirements is subject to rejection and replacement at the Contractor's expense.

Upon acceptance of the installation work and testing, the Contractor shall reinstate service laterals in the project area affected by his operations.

After the work is complete, the Contractor shall provide the OWNER with a videotape showing the after installation, including a full circumferential view of the reinstated service lateral connections.

3.09 CLEANUP

A. After the installation work has been completed and all testing acceptable, the Contractor shall clean up the entire Project area. All excess material and debris not incorporated into the permanent installation shall be disposed of by the Contractor. The work area shall be left in a condition equal to or better than prior condition. Disturbed grassed areas shall be seeded or sod placed as directed by the OWNER at no additional cost to the OWNER. Refer to Section 02924 – Site Restoration.

3.10 WARRANTY

A. All liner installation will be warranted to be free from defects in materials and workmanship for a period of five (5) years from the date of rehabilitation. Should a defect occur during this five (5) year period that is attributable to the liner installation or materials, then this defect shall be repaired at no additional cost to the OWNER.

END OF SECTION