



11701 Community Center Drive
P.O. Box 330061
Northglenn, CO 80233-8061
Fax 303-450-8708

CITY OF NORTHGLENN

2012 SANITARY SEWER REHABILITATION BID NO. IFB 2012-08

ADDENDUM NO. TWO TO BID IFB 2012-08

DATED: March 16, 2012

TO: BIDDERS

The following adds to, supplements, amends or clarifies by way of explanation, portions of the Contract Documents, Specifications, and Drawings for the above named project.

NOTE: It will be the responsibility of the Bidder to acknowledge receipt of Addenda on the Bid Form as part of his/her submitted proposal. Failure to do so will be grounds for the City to reject the proposal.

The Contract Documents, including the Specifications and Drawings are hereby modified by the following items:

SPECIFICATIONS

- AD2-Item 1 REMOVE Section 330140, subsection 3.1 Preparation, Item C “Contractor shall apply chemical grout and pressure test joints where I/I is apparent in the video”
- AD2-Item 2 REMOVE Section 330140, subsection 3.2 Installation, Item R “If any of the service connections leak water between the host pipe and the installed liner, the connection mainline interface shall be sealed to provide a water tight connection”
- AD2-Item 3 CHANGE Invitation for Bid Cover Sheet “ Bids will be received until 3/21/2012 10:00 AM” to Bids will be received until 3/27/2012 2:00 PM”
- AD2-Item 4 CHANGE #3 – C Submission timeline “Bids received no later than 10:00 AM Mountain Daylight Time on 3/21/2012.” To “Bids received no later than 2:00 PM Mountain Daylight Time on 3/27/2012”

ALL ITEMS IN CONFLICT WITH THIS ADDENDUM ARE HEREBY DELETED.

Attachment: Section 330140

City of Northglenn

Gregory Yanker, CE1

Project Manager



City of Northglenn
11701 Community Center Dr Northglenn CO 80233
2012 Sanitary Sewer Rehabilitation

INVITATION FOR BID
BID NO 2012-08

DATE 2/8/2012
BID NUMBER 2012-08
BID TITLE **2012 Sanitary Sewer Rehabilitation**
BIDS WILL BE RECEIVED UNTIL 3/27/2012 2:00 PM
LOCATION City Clerk's Office
11701 Community Center Dr
Northglenn CO 80233
Or electronically at bids@northglenn.org
Or electronically at www.govbids.com

FOR ADDITIONAL INFORMATION
PLEASE CONTACT Gregory Yanker Civil Engineer 1
gyanker@northglenn.org
303-450-8780

Bidding instructions and drawings are available at the Rocky Mountain E-Purchasing website at:
<http://govbids.com/scripts/co1/public/home1.asp>.

PREBID CONFERENCE Mandatory
2/22/2012 9:00 AM
11701 Community Center Dr, WES Conf Room

The undersigned hereby affirms that (1) he/she is a duly authorized agent of the vendor, (2) he/she has read all terms and conditions and technical specifications which were made available in conjunction with this solicitation and fully understands and accepts them unless specific variations have been expressly listed in his/her offer, (3) that the offer is being submitted on behalf of the vendor in accordance with any terms and conditions set forth in this document, and (4) that the **vendor listed on the bid submission must match all contract and insurance documents submitted upon award.**

PRINT OR TYPE YOUR INFORMATION

Company Name: _____ Fax Number _____
Address: _____ City, State Zip _____
Contact Person: _____ Title _____
Email: _____ Phone _____
Signature (/s/ if electronic) _____
Print name _____

INSTRUCTIONS TO BIDDERS

BID NO 2012-08

1. **PURPOSE OF SOLICITATION:** This work includes the rehabilitation of sanitary sewer pipelines with trenchless point repairs and CIPP liner on specified streets around the City (refer to drawings for exact locations).
2. **SCHEDULE OF ACTIVITIES:** The following activities outline the process to be used to solicit vendor responses and to evaluate each vendor proposal.

2/8/2012	Bid Issuance
2/22/2012	Prebid Conference
3/2/2012	Information/Question Period Ends
3/27/2012	Bid Submission
Summer 2012	Anticipated Project Start

3. **BID SUBMITTAL REQUIREMENTS:** Vendors must provide the following information.
 - A. **Cover Sheet.** Include the completed Cover Sheet from this Invitation to Bid.
 - B. **Prices.** Prices must be provided on the Bid Summary page. The Vendor shall not alter this form (e.g. add or modify categories for posting prices offered) unless expressly permitted to do so. No other form shall be accepted.
 - C. **Submission Timeline.** It is the responsibility of the submitting Vendors to ensure timely receipt by the City. The City reserves the right to reject any late submittals. Bids must be received no later than 2:00 PM Mountain Daylight Time on 3/27/2012
4. **COMPLIANCE:** All participating bidders, by their signature hereunder agree to comply with all of the conditions, requirements and instructions of this bid as stated or implied. Upon submitting a bid proposal, the Bidder warrants that he/she is familiar with all provisions of the contract documents, and agrees to comply with them.
5. **INTERPRETATION OF DOCUMENTS AND SPECIFICATIONS:** If any person contemplating submitting a bid for the proposed contract is in doubt as to the true meaning of any part of Specifications, Schedules and Information Sheets or the proposed Contract Documents, he may submit to the Engineer, a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt and actual delivery. Any interpretation of such documents will be made only by an addendum duly issued, and a copy of such addendum will be mailed or delivered to each person receiving a set of such documents. The City will not be responsible for any explanation or interpretation of such documents which anyone presumes to make on behalf of the City before expiration of the ultimate time set for the receipt of bids.

Wherever the word "Contract" appears, it shall be held to include all the documents as listed in the Bid Document. No less than all of the parts of the Contract Documents shall constitute the formal Contract.

6. **PROPOSAL/BID:** All proposals/bids must be made on the forms provided in this bid. All bids not submitted via e-mail attachment must be legibly written in ink. No alterations in bids or in the printed forms thereof, by erasures, deletions, or interpolations will be acceptable unless each alteration is signed or initialed by the bidder; if initialed, the City may require the bidder identify the alteration so

initialed. If mailed or delivered, each bid shall be enclosed in a sealed envelope, endorsed on the outside of the envelope with the words **2012 Sanitary Sewer Rehabilitation – 2012-08**. The bids will be submitted to the City of Northglenn, Office of the City Clerk, 11701 Community Center Drive, Northglenn, Colorado 80233-8061. E-mail attachment is the preferred method of bid submission.

7. **SIGNATURES OF BIDDERS:** Each Bidder shall sign his proposal, using his legal signature and giving his full business address. The person signing the proposal must be an officer of the company or partnership. Bids by partnerships shall be signed with the partnership name by one of the members of the partnership or by an authorized representative, followed by the signature and designation of the President, Secretary, or other persons authorized to bind it in the matter. The names of all persons signing should also be printed below the signature. A bid by a person who affixes to his signature the word, "President", "Secretary", "Agent" or other designation without disclosing his principal, may be held to be a bid of the individual signing. When requested by the City, satisfactory evidence of the authority of the officer signing in behalf of the corporation shall be furnished. Bids submitted electronically are to be signed “/s/Your Name Here” in lieu of written signature. See the cover letter for a signature example.
8. **QUALIFICATIONS OF BIDDERS:** Bidders may be requested to submit satisfactory evidence that they have a practical knowledge of the particular work bid upon, and that they have the necessary financial resources to complete the proposed work.
 - A. Each bidder may be required to show that former work performed by him has been handled in such manner that there are no just or proper claims pending against such work. No Bidder will be acceptable if he is engaged in any other work which impairs his ability to finance this Contract or provide proper equipment for the proper execution of the same. The City may request a list of other projects, if deemed necessary.
 - B. Bidders shall provide a minimum of three Owner references (Government Entities preferred) of work completed with similar scope and size to demonstrate Bidders ability to complete the work stipulated. Work for references shall have occurred within the last 10 years. Additional references may be required upon request.
9. **LOCAL CONDITIONS AFFECTING WORK:** Each Bidder shall visit the site of the work and thoroughly inform himself relative to maintenance hazards and procedure, labor, materials required, and all other conditions and factors, local and otherwise, which would affect the prosecution and completion of the work and the cost thereof, including the availability and cost of labor, and available facilities for transportation, handling and storage of materials and equipment. It must be understood and agreed that all such factors have been properly investigated and considered in the preparation of every proposal submitted as there will be no subsequent financial adjustment to any Contract awarded there under, which is based on the lack of such prior information or its effect on the cost of the work.
10. **STATE SALES TAX:** The successful contractor receiving the bid award and any subcontractor shall obtain a Certificate of Sales Tax Exemption (Form DR 172) from:

Department of Revenue
1375 Sherman Street, Denver CO
Phone (303) 534-1208

The sales tax is exempt on construction or building materials for use in the building, erection, alteration or repair of structures, construction of streets, sewers, and related appurtenances, and other

facilities owned and used by the City of Northglenn, and are exempted under House Bill 1451 passed June 7, 1979.

The Contractor shall contact the City Finance Department at 303-450-8729 for instructions on processing the sales tax exemption form.

11. **WITHDRAWAL OF BID:** No Bidder may withdraw his Bid for a period of sixty (60) days after the date and hour set for the opening herewith. A Bidder may withdraw his Bid at any time prior to the expiration of the period during which Bids may be submitted, by written request of the Bidder, which request must be signed in the same manner and by the same persons or person who signed the Bid.
12. **BID TO REMAIN OPEN SUBJECT TO ACCEPTANCE:** All bids shall remain open for sixty (60) days after the day of the bid opening, but the City may, in its sole discretion, release any bid and return the Bid Bond prior to that date.
13. **MISTAKES IN BIDDING INSTRUCTIONS:** If the City makes a mistake in drafting the bidding instructions or any other contract documents, the City reserves the right to reject any or all bids, or to require that Bidders submit an alternate bid with adjustments made to correct the error(s). Such errors will be set forth in an addendum. If the Bidder has already been selected and has started performing work under the contract, and the City then discovers a mistake in the contract documents for which the City is responsible, the City may opt to reform the contract. If the mistake causes the Bidder to receive compensation for materials not used in the Work or for labor that would not be required for the Work, the contract price shall be decreased proportionally. If the mistake causes the Bidder to fail to bid on work which must be performed in order to properly complete the contract, the City may increase the contract price to equal the proportionate increase in the cost of required materials and labor caused to the Bidder. In the alternative, the City may solicit bids for such additional work, or the City may reassign such additional work to another Bidder, as the City deems appropriate. Nothing in this provision shall apply to mistakes made by the Bidder in completing the bid form or in performing the contract.
14. **PAYMENTS:** Payment for all work performed under this Contract will be made by check, by the City within thirty (30) days after completion and acceptance of the work covered by the Contract. Partial estimates may be issued and paid as provided in the General Conditions.
15. **APPEAL OF AWARD:** Solicitations will be awarded based on multiple criteria, price being just one of the conditions. Bidders can review the Solicitation's Special Terms and Conditions for information on evaluation criteria. Bidders may appeal the Notice of Intent to Award decision by submitting, in writing, to the City of Northglenn purchasing, a request for reconsideration within 7 calendar days after the posting of the Notice of Intent to Award, provided that the appeal is sought by the Bidder prior to the City finalizing a contract with the selected Bidder. Bidders who were deemed non-responsive are ineligible to participate in the Appeal of Award process.
16. **DEFENSE OF SUITS:** In case any action at law or suit in equity is brought against the City, any officer, employee, or agent thereof, for or on account of the failure, omission, or neglect of the Contractor to do and perform any of the covenants, acts, matters, or things by this Contract undertaken to be done or performed, or for the injury or damage caused by the negligence of the Contractor or his Subcontractors or his or their agents, or in connection with any claim or claims based on the lawful demands of subcontractors, workmen, material, men or suppliers or machinery and parts thereof, equipment, power tools and supplies incurred in the fulfillment of Contract, the Contractor shall indemnify and save harmless the City, officers, employees, and agents of the City,

of and from all losses, damages, costs (including attorney's fees), expenses, judgments, or decrees whatever arising out of such action of suit that may be brought as aforesaid.

17. BONDS:

- A. Bid Bond – Not Required
- B. Performance, Payment and Maintenance Bond – Prior to commencement of performance, the successful Bidder must furnish a Performance, Payment and Maintenance Bond complying with applicable Colorado statutes, for the amount of one hundred (100) percent of the total Contract price, from a surety company in accordance with the General Conditions and conditioned that such contractor shall at all times promptly make payments of all amounts lawfully due to all persons supplying or furnishing him or his subcontractors with labor or material used or performed in the prosecution of the work provided for in such Contracts. The Bond shall be held by the City and shall be in effect for TWO years, from date of Contract or two year from the date of acceptance, whichever is longer. Contractor shall obtain such bond on the City's behalf, separate and apart from any similar bonds or surety or warranty agreements entered into independently between the City and any manufacturer or supplier.
- C. Warranties and Guarantees. Contractor hereby represents, warrants and guarantees to the City all workmanship, equipment and materials on or made a part of the Project and its structures for a period of two (2) years from and after the date of final acceptance of the work by the City as provided by this Agreement.

18. ACCEPTANCE OF BIDS: The City of Northglenn reserves the right to reject any or all bids, to waive formalities, and to accept the bid which appears to be in the City's best interest.

19. BID RESULTS: Bidders desiring to know bid results must enclose a self-addressed, stamped envelope with their bid. A bid summary sheet will be mailed after the bid opening. No bid results will be given over the telephone. Bidders attending the Bid Opening will receive a copy of the results at the end of the opening of the bids. A copy of the bid tabulation will be available for viewing on the Rocky Mountain E-Purchasing website.

BID FORM
BID NO 2012-08.

City of Northglenn
11701 Community Center Drive
Northglenn, Colorado 80233-8061

BID: Pursuant to the “advertisement for Bids” for the above named project, and being familiar with all contractual requirements therefore, the undersigned Bidder hereby proposes to furnish all labor, materials, tools, supplies, equipment, transportation, services and all other things necessary for the completion of the contractual work, and perform the work in accordance with the requirements and intent of the Contract Documents, within the time of completion set forth herein, for, and in consideration of the following prices.

Proposal of _____ (hereinafter called **BIDDER**) organized and existing under the laws of the State of _____ doing business as _____*. To the **CITY OF NORTHGLENN** (hereinafter called **CITY**).

In compliance with your Advertisement for Bids, **BIDDER** hereby proposes to perform **WORK** on

2012 Sanitary Sewer Rehabilitation 2012-08

in strict conformance with the **CONTRACT DOCUMENTS**, within the time set forth therein, and at the prices stated below.

By submission of this **BID**, each **BIDDER** certifies, and in case of a joint **BID** each party thereto certifies as to his own organization that this **BID** has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this **BID** with any other **BIDDER** or with any competitor.

BIDDER hereby agrees to commence **WORK** under this contract on or before a date to be specified in the **NOTICE TO PROCEED** and to fully complete the **PROJECT** as indicated in the General Conditions.

BIDDER acknowledges receipt of the following **ADDENDUM**:

*Insert "a corporation," "a partnership," or "an individual" as applicable.

BID SUMMARY
BID NO 2012-08

(Company Name)

Hereby submits to the City of Northglenn, Colorado the following bid items complete and in place as specified for the 2012 Sanitary Sewer Rehabilitation 2012-08.

2012 SANITARY SEWER REHABILITATION					
Item #	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
1	Mobilization/Demobilization	LS	1		
2	Traffic Control	LS	1		
3	Materials Testing	EA	32		
4	Varese Sanitary Sewer Point Repair	EA	1		
5	Tancred Sanitary Sewer Point Repair	EA	3		
6	Quivas Sanitary Sewer Point Repair	EA	4		
7	Melody Sanitary Sewer Point Repair	EA	2		
8	Tancred 8" Sanitary Sewer Structural Rehabilitation	LF	2109		
9	Romblon 8" Sanitary Sewer Structural Rehabilitation	LF	377		
10	Melody 8" Sanitary Sewer Structural Rehabilitation south of 104 th to Lou Dr and North of Kennedy to 112 th	LF	2926		
11	West 101 st Pl 8" Sanitary Sewer Structural Rehabilitation	LF	2539		

TOTAL FOR ALL ITEMS _____

TOTAL IN WORDS _____

BID ALTERNATIVES					
Item #	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Alt 1	Dewatering	Day	1		
Alt 2	By Pass Pumping	Day	1		
Alt 3	Unclassified Excavation	CY	1		
Alt 4	Structural Fill (flowfill)	CY	1		
Alt 5	CDOT Class 1 Structural Backfill	CY	1		
Alt 6	CDOT Class 2 Structural Backfill	CY	1		
Alt 7	Tap Restoration for point repairs	EA	1		

Sub-contractors (if any): Work they will perform:

1. _____ Email: _____

2. _____ Email: _____

3. _____ Email: _____

Please provide a complete and accurate list of at least three references and contact phone numbers

:
1. _____ Phone: _____

Email: _____

2. _____ Phone: _____

Email: _____

3. _____ Phone: _____

Email: _____

In submitting this Bid, the undersigned hereby agrees to adhere to the above stated unit prices for the calendar years of 2012 and 2013. It is understood that the City of Northglenn reserves the right to increase or decrease quantities at the unit price to insure completion of this Contract within budget.

(Seal, if Bid is by a Corporation)

Respectfully submitted,

Signature

Address

Title

Attest

Date

License Number
(If Applicable Signature)

Phone Number

**PROSPECTIVE CONTRACTOR'S CERTIFICATE REGARDING EMPLOYING OR
CONTRACTING WITH AN ILLEGAL ALIEN**

FROM: _____
(Prospective Contractor)

TO: CITY OF NORTHGLENN
11701 Community Center Drive
Northglenn, Colorado 80233

Project Name _____

Bid Number _____ Project No. _____

As a prospective contractor for the above-identified bid, I (we) do hereby certify that, as of the date of this certification, I (we) do not knowingly employ or contract with an illegal alien and that I (we) have confirmed or attempted to confirm the employment eligibility of all employees who are newly hired for employment in the United States through participation in the basic pilot program administered by the United States Department of Homeland Security.

Executed this _____ day of _____, 2012.

Prospective Contractor _____

By: _____

Print name _____

Title: _____

AFFIDAVIT

1. Check and complete one:

I, _____, am a sole proprietor doing business as _____ . I do not currently employ any individuals. Should I employ any individuals during the term of my Agreement with the City, I certify that I will comply with the lawful presence verification requirements outlined in that Agreement.

OR

I, _____, am an owner/member/shareholder of _____, a _____ [specify type of entity-*i.e.*, corporation, limited liability company], that does not currently employ any individuals. Should I employ any individuals during the term of my Agreement with the City, I certify that I will comply with the lawful presence verification requirements outlined in that Agreement.

2. Check one.

I, _____, am a United States citizen or legal permanent resident.

The City must verify this statement by reviewing one of the following items:

- o *A valid Colorado Driver’s license or a Colorado identification card*
- o *A United States military card or a military dependent’s identification card*
- o *A United States Coast Guard Merchant Mariner card*
- o *A Native American tribal document or*
- o *In the case of a resident of another state, the driver’s license or state-issued identification card from the state of residence, if that state requires the applicant to prove lawful presence prior to the issuance of the identification card*
- o *Any other documents or combination of documents listed in the City’s “Acceptable Documents for Lawful Presence Verification” chart that prove both the contractor’s citizenship/lawful presence and identity.*

OR

I am otherwise lawfully present in the United States pursuant to federal law.

Contractor must verify this statement through the federal systematic alien verification of entitlement program, the “SAVE” program, and provide such verification to the City.

Signature

Date

**ACCEPTABLE DOCUMENTS FOR
LAWFUL PRESENCE VERIFICATION**

Documents that Serve to Prove Citizenship/Lawful Presence and Identification:

- Colorado Driver's License or Identification Card
- Out of State drivers license from: AL, AZ, AR, CA, CT, DE, DC, FL, GA, ID, IN, IA, KS, KY, LA, ME, MN, MS, MO, MT, NV, NH, NJ, NY, ND, OH, OK, PA, RI, SC, SD, VA, WV, WY
- A United States Military Card of a Military Dependent's Identification Card
- A United States Coast Guard or Merchant Mariner Card
- A Native American Tribal Document
- Certificate of Naturalization with Photograph
- Certificate of U.S. Citizenship with Photograph
- U.S. Passport (less than 5 years old)
- Northern Mariana Identification Card with Photograph

OR

Documents that Only Serve to Prove Citizenship/Lawful Presence:

- U.S. Birth Certificate
- Certification of Report of Birth from Department of State
- Report of Birth Abroad of a U.S. Citizen
- U.S. Citizen Identification Card
- Final Adoption Decree
- Evidence of U.S. Civil Service Employment before June 1, 1976
- Statement Provided by U.S. Consular Officer Certifying Citizenship
- Religious Records Recorded in the 50 states, D.C., or a U.S. Territory Showing Birth Date or Child's Age and Location of Birth in U.S.
- Early School Records
- Census Records
- Other Documents that Establish a U.S. Place of Birth or in Some Way Indicates U.S. Citizenship

AND

Documents that Serve to Prove Identification:

- A Driver's License or Identification Card Regardless of the State of Issuance
- School Identification Card with Photograph
- Identification Card Issued by Federal, State or Local Government
- A Driver's License Issued by a Canadian Government Authority

SECTION 330140 - CURED IN PLACE PIPE (CIPP)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract apply to this Section.

1.2 REFERENCES

- A. The following documents form a part of this specification to the extent stated herein and shall be the latest editions thereof. Where differences exist between codes and standards, the requirements of these specifications shall apply.
- B. ASTM - F1216 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube
- C. ASTM - F1743 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pull in and inflate and Curing of a Resin-Impregnated Tube
- D. ASTM - D543 Standard and Practice for Evaluating the Resistance of Plastics to Chemical Reagents
- E. ASTM - D638 Standard Test Method for Tensile Properties of Plastics
- F. ASTM - D790 Standard Test Methods for Flexural Properties of Un-reinforced and
- G. ASTM - D792 Standard Test Methods for Density and Specific Gravity of Plastics by displacement.
- H. ASTM - F2019-03 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled in Place Installation of Glass Reinforced Plastic (GRP) Cured-in-Place Thermosetting Resin Pipe (CIPP)
- I. ASTM - D2122-98(2004) Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings
- J. ASTM - D2990 Standard Test Methods for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics
- K. ASTM - D3567-97(2002) Standard Practice for Determining Dimensions of Fiberglass (Glass-Fiber-Reinforced Thermosetting Resin) Pipe and Fittings
- L. ASTM - D3681 Standard Test Method for Chemical Resistance of "Fiberglass (Glass Fiber Reinforced Thermosetting Resin) Pipe in a Deflected Condition
- M. ASTM - D5813 Standard Specification for Cured-in Place Thermosetting Resin Sewer Pipe

1.3 SUMMARY

- A. These Specifications include the minimum requirements for the rehabilitation of sanitary sewer pipelines by the installation of Cured-In-Place Pipe (CIPP) within the existing, deteriorated pipe as shown on the plans included as part of these contract documents.
- B. The rehabilitation of pipelines shall be done by the installation of a resin-impregnated flexible tube which, when cured, shall be continuous and tight-fitting throughout the entire length of the original pipe. The CIPP shall extend the full length of the original pipe and provide a structurally sound, jointless and water-tight new pipe within a pipe.
- C. The Contractor is responsible for proper, accurate and complete installation of the CIPP using the system selected by the Contractor.
- D. Neither the CIPP system, nor its installation, shall cause adverse effects to any of the City's processes or facilities. The Contractor is responsible for legally disposing of all chemicals and materials used in the CIPP process and any resulting by-products. Disposal will not be permitted in the sewer system. The Contractor shall cleanup, restore existing surface conditions and structures, and repair any of the CIPP system determined to be defective. The Contractor shall conduct installation operations and schedule cleanup in a manner to cause the least possible obstruction and inconvenience to traffic, pedestrians, businesses, and property owners or tenants.

1.4 ACTION SUBMITTALS

- A. Fabric Tube – including the manufacturer and description of product components.
- B. Flexible membrane (coating) material – including recommended repair (patching) procedure if applicable.
- C. Raw Resin Data - including the manufacturer and description of product components.

1.5 INFORMATIONAL SUBMITTALS

- A. Manufacturers' shipping, storage and handling recommendations for all components of the CIPP System.
- B. All MSDS sheets for all materials to be furnished for the project.
- C. Tube wet-out & cure method including: A complete description of the proposed wet-out procedure for the proposed technology, and the Manufacturer's recommended cure method - for each diameter and thickness of CIPP liner to be installed. The PWS shall contain a detailed curing procedure detailing the curing medium and the method of application.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. These Specifications cover all work necessary to furnish and install, the (CIPP). The Contractor shall provide all materials, labor, equipment, and services necessary for traffic control, bypass pumping and/or diversion of sewage flows, cleaning and television inspection of sewers to be lined, liner installation, reconnection of service connections, all quality controls, provide samples

for performance of required material tests, final television inspection, testing of lined pipe system and warranty work, all as specified herein.

- B. The product furnished shall be a complete CIPP system including all materials, applicable equipment and installation procedures. The CIPP system manufacturer may submit, a minimum of 14 calendar days in advance of the bid date, required information to the Owner to obtain pre-approval status. Those CIPP systems that have been pre-approved will not be required to furnish information as required in the submittal section of these specifications unless specifically requested to do so by the Owner or if any of the CIPP system components have changed from those preapproved by the Owner. All other CIPP systems or multi-component products will be required to meet the submittal requirements as contained herein.
- C. The CIPP shall be continuous and jointless from manhole to manhole or access point to access point and shall be free of all defects that will affect the long term life and operation of the pipe.
- D. The CIPP shall fit sufficiently tight within the existing pipe so as to not leak at the manholes, at the service connections or through the wall of the installed pipe. If leakage occurs at the manholes or the service connections the Contractor shall seal these areas to stop all leakage using a material compatible with the CIPP as directed by the Owner at the price bid therefore in the Proposal. If leakage occurs through the wall of the pipe the liner shall be repaired or removed as recommended by the CIPP manufacturer. Final approval of the liner installation will be based on a leak tight pipe.
- E. The CIPP shall be designed for a life of 50 years or greater.
- F. The CIPP may be designed as a liner to rehabilitate the existing pipe or as a fully structural stand alone pipe-within-a-pipe. Where specified in the contract documents the installed CIPP shall be a structurally designed pipe within a pipe, meet or exceed all contract specified physical properties, fitting tightly within the existing pipe all within the tolerances specified. The installed CIPP shall withstand all applicable surcharge loads (soil overburden, live loads, etc.) and external hydrostatic (groundwater) pressure, if present, for each specific installation location.
- G. The installed CIPP shall have a long term (50 year) corrosion resistance to the typical chemicals found in domestic sewage.
- H. All existing and confirmed active service connections and any other service laterals to be reinstated as directed by the Owner shall be re-opened robotically or by hand in the case of man-entry size piping, to their original shape and to 95% of their original capacity. All over-cut service connections will be properly repaired to meet the requirements of these specifications.
- I. All materials furnished, as part of this contract shall be marked with detailed product information, stored in a manner specified by the manufacturer and tested to the requirement of this contract.
- J. Testing and warranty inspections shall be executed by the Owner. Any defects found shall be repaired or replaced by the Contractor.
- K. The Contractor shall furnish all samples for product testing at the request of the Owner. The Owner shall take possession of the samples for testing and shall maintain the chain of custody, deliver the samples to an approved laboratory and pay for all material and product testing performed under this contract.
- L. MATERIALS
 - 1. The CIPP System must meet the chemical resistance requirements of these contract documents.

2. All materials, shipped to the project site, shall be accompanied by test reports certifying that the material conforms to the ASTM standards listed herein. Materials shall be shipped, stored, and handled in a manner consistent with written recommendations of the CIPP system manufacturer to avoid damage. Damage includes, but is not limited to, gouging, abrasion, flattening, cutting, puncturing, or ultra-violet (UV) degradation. On site storage locations, shall be approved by the Owner. All damaged materials shall be promptly removed from the project site at the Contractor's expense and disposed of in accordance with all current applicable agency regulations

M. FABRIC TUBE

1. The fabric tube shall consist of one or more layers of absorbent non-woven felt fabric, felt/fiberglass or fiberglass and meet the requirements of ASTM F 1216, ASTM F 1743, ASTM D 5813 & ASTM F2019. The fabric tube shall be capable of absorbing and carrying resins, constructed to withstand installation pressures and curing temperatures and have sufficient strength to bridge missing pipe segments, and stretch to fit irregular pipe sections. The contractor shall submit certified information from the felt manufacturer on the nominal void volume in the felt fabric that will be filled with resin.
2. The wet-out fabric tube shall have a uniform thickness and excess resin distribution that when compressed at installation pressures will meet or exceed the design thickness after cure.
3. The fabric tube shall be manufactured to a size and length that when installed will tightly fit the internal circumference, meeting applicable ASTM standards or better, of the original pipe. Allowance shall be made for circumferential stretching during installation. The tube shall be properly sized to the diameter of the existing pipe and the length to be rehabilitated and be able to stretch to fit irregular pipe sections and negotiate bends. The Contractor shall determine the minimum tube length necessary to effectively span the designated run between manholes. The Contractor shall verify the lengths in the field prior to ordering and prior to impregnation of the tube with resin, to ensure that the tube will have sufficient length to extend the entire length of the run. The Contractor shall also measure the inside diameter of the existing pipelines in the field prior to ordering liner so that the liner can be installed in a tight-fitted condition.
4. The outside and/or inside layer of the fabric tube (before inversion/pull-in, as applicable) shall be coated with an impermeable, flexible membrane that will contain the resin and facilitate, if applicable, vacuum impregnation and monitoring of the resin saturation during the resin impregnation (wetout) procedure. No material shall be included in the fabric tube that may cause de-lamination in the cured CIPP. No dry or unsaturated layers shall be acceptable upon visual inspection as evident by color contrast between the felt fabric and the activated resin containing a colorant.
5. 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. The hue of the color shall be dark enough to distinguish a contrast between the fully resin saturated felt fabric and dry or resin lean areas.
6. Seams in the fabric tube, if applicable, shall meet the requirements of ASTM D5813.
7. The outside of the fabric tube shall be marked every 5 feet with the name of the manufacturer or CIPP system, manufacturing lot and production footage.
8. The minimum length of the fabric tube shall be that deemed necessary by the installer to effectively span the distance from the starting manhole to the terminating manhole or access point, plus that amount required to run-in and run-out for the installation process.
9. The nominal fabric tube wall thickness shall be constructed, as a minimum, to the nearest 0.5 mm increment, rounded up from the design thickness for that section of installed CIPP. Wall thickness transitions, in 0.5 mm increments or greater as appropriate, may be fabricated into the fabric tube between installation entrance and exit access points.
10. The quantity of resin used in the impregnation shall be sufficient to fill all of the felt voids for the nominal felt thickness.

N. RESIN

1. The resin shall be a corrosion resistant polyester or vinyl ester resin and catalyst system that when properly cured within the tube composite meets the requirements of ASTM F1216, ASTM F1743 or F2019, 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 or exceed the structural and chemical resistance requirements of this specification.

O. STRUCTURAL REQUIREMENTS

1. The physical properties and characteristics of the finished liner will vary considerably, depending on the types and mixing proportions of the materials used, and the degree of cure executed. It shall be the responsibility of the Contractor to control these variables and to provide a CIPP system which meets or exceeds the minimum properties specified herein:
2. The CIPP shall be designed as per ASTM standards. The CIPP design shall assume no bonding to the original pipe wall.
3. The design engineer shall set the long term (50 year extrapolated) Creep Retention Factor at 33% of the initial design flexural modulus as determined by ASTM D-790 test method. This value shall be used unless the Contractor submits long term test data (ASTM D2990) to substantiate a higher retention factor.
4. The cured pipe material (CIPP) shall, at a minimum, meet or exceed the structural properties, as listed below.

P. MINIMUM PHYSICAL PROPERTIES

Property	Test Method	Cured Composite Per ASTM F1216	Cured Composite Per Design
Flexural Modulus of Elasticity (Short Term)	ASTM D-790	250,000 psi	Contractor Value
Flexural Strength (Short Term)	ASTM D-790	4,500 psi	Contractor Value

1. The required structural CIPP wall thickness shall be based, as a minimum, on the physical properties of the cured composite and per the design of the Professional Engineer and in accordance with the Design Equations contained in the appendix of the ASTM standards, and the following design parameters:

Design Safety Factor	2.0 (1.5 for pipes 36" or larger)
Creep Retention Factor	33%
Ovality	2% or as measured by field inspection
Constrained Soil Modulus	Per AASHTO LRFD Section 12 and AWWA Manual M45
Groundwater Depth	As specified or indicated on the Plans
Soil Depth (above the crown)	As specified or indicated on the Plans
Live Load	Highway, railroad or airport as applicable
Soil Load (assumed)	120 lb/cu. Ft.
Minimum service life	50 years

2. The Contractor shall submit, prior to installation of the lining materials, certification of compliance with these specifications and/or the requirements of the pre-approved CIPP system. Certified material test results shall be included that confirm that all materials conform to these specification and/or the pre-approved system. Materials not complying with these requirements will be rejected.
3. The design soil modulus may be adjusted based on data determined from detailed project soil testing results as provided by the Owner in the contract documents.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Preparation, cleaning, inspection, sewage by-passing and public notification. The Contractor shall clean the interior of the existing host pipe prior to installation of the CIPP liner. All debris and obstructions, that will effect the installation and the final CIPP product delivery to the Owner, shall be removed and disposed of.
- B. Cleaning of Pipe Lines - The Contractor shall remove all internal debris from the pipe line that will interfere with the installation and the final product delivery of the CIPP as required in these specifications. Solid debris and deposits shall be removed from the system and disposed of properly by the Contractor. Moving material from manhole section to manhole section shall not be allowed. As applicable the contractor shall either plug or install a flow bypass pumping system to properly clean the pipe lines. Precaution shall be taken, by the Contractor in the use of cleaning equipment to avoid damage to the existing pipe. The repair of any damage, caused by the cleaning equipment, shall be the responsibility of the Contractor. The Owner will designate a site for the disposal of all debris removed, from the Owner's sewer system, as a direct result of the cleaning operation. Unless otherwise specified by the Owner, the Contractor shall dispose of all debris at no charge.

3.2 INSTALLATION

- A. The CIPP liner shall be constructed of materials and methods, that when installed, shall provide a jointless and continuous structurally sound liner able to withstand all imposed static, and dynamic loads on a long-term basis.
- B. The Contractor may, under the direction of the Owner, utilize any of the existing manholes in the project area as installation access points. If a street must be closed to traffic because of the location of the sewer, the Contractor shall furnish a detailed traffic control plan and all labor and equipment necessary. The plan shall be in conformance with the requirements of the local agency having jurisdiction over traffic control.
- C. By-passing Existing Sewage Flows - The Contractor shall provide for the flow of existing mainline and service connection effluent around the section or sections of pipe designated for CIPP installation. Service connection effluent may be plugged only after proper notification to the affected residence and may not remain plugged overnight. Installation of the liner shall not begin until the Contractor has installed a sewage by-pass system and all pumping facilities have been installed and tested under full operating conditions including the bypass of mainline and side sewer flows. Once the lining process has begun, existing sewage flows shall be maintained, until the resin/felt tube composite is fully cured, cooled down, full televised and the CIPP ends finished. The Contractor shall coordinate sewer bypass and flow interruptions with the Owner at least 14 days in advance and with the property owners and businesses at least 3 business days in advance. The pump and bypass lines shall be of adequate capacity and size to handle peak flows. The Contractor shall submit a detail of the bypass plan and design to the Owner before proceeding with any CIPP installation. Compensation for by-pass pumping and all associated plans and approvals shall be at the price bid therefore in the Proposal.
- D. Contractor shall perform post-cleaning video inspections of the pipelines. Only PACP certified personnel trained in locating breaks, obstacles and service connections by closed circuit television shall perform the inspection. The Contractor shall provide the Owner a copy of the pre-cleaning and post-cleaning video and suitable log, and/or in digital format for review prior to installation of the CIPP and for later reference by the Owner.

- E. Line Obstructions - It shall be the responsibility of the Contractor to clear the line of obstructions that will interfere with the installation and long-term performance of the CIPP. If pre-installation inspection reveals an obstruction, misalignment, broken or collapsed section or sag that was not identified as part of the original scope of work and will prohibit proper installation of the CIPP, the Contractor may be directed by the Owner to correct the problem(s) prior to lining by utilizing open cut repair methods. The Contractor shall be compensated for this work under a contingency pay item designated for open cut point repairs. Removal of any previously unknown obstructions shall be considered as a changed condition. The cost of removal of obstructions that appeared on pre-bid video documentation and made available to the Contractor, prior to the bid opening, shall be compensated for on a unit price basis in accordance with the contract documents.
- F. The Contractor shall be responsible for confirming the locations of all branch service connections prior to installing and curing the CIPP.
- G. The Contractor shall be allowed use water from an owner-approved fire hydrant in the project vicinity. Use of an approved double check backflow assembly shall be required. Contractor shall provide his own approved assembly. Contractor shall pay current market price for all water usage.
- H. The CIPP Liner shall be installed and cured in the host pipe per the manufacturer's specifications.
- I. CIPP installation shall be in accordance with the applicable ASTM standards with the following modification:
- J. The wet-out tube shall be positioned in the pipeline using the method specified by the manufacturer. Care should be exercised not to damage the tube as a result of installation. The tube should be pulled-in or inverted through an existing manhole or approved access point and fully extend to the next designated manhole or termination point.
- K. Prior to installation and as recommended by the manufacturer remote temperature gauges or sensors shall be placed inside the host pipe to monitor the temperatures during the cure cycle. Liner and/or host pipe interface temperature shall be monitored and logged during curing of the liner.
- L. Curing shall be accomplished by utilizing the appropriate medium in accordance with the manufacturer's recommended cure schedule. The curing source or in and output temperatures shall be monitored and logged during the cure cycles. The manufacturer's recommended cure schedule shall be used for each line segment installed, and the liner wall thickness and the existing ground conditions with regard to temperature, moisture level, and thermal conductivity of soil, per ASTM as applicable, shall be taken into account by the Contractor.
- M. The Contractor shall cool the CIPP in accordance with the approved CIPP manufacturer's recommendations as described and outlined in the PWS.
- N. Temperatures and curing data shall be monitored and recorded, by the Contractor, throughout the installation process to ensure that each phase of the process is achieved as approved in accordance with the CIPP System manufacturer's recommendations. 3.4 FINISH
- O. The installed CIPP shall be continuous over the entire length of a sewer line section and be free from visual defects such as foreign inclusions, dry spots, pinholes, major wrinkles and delamination. The lining shall be impervious and free of any leakage from the pipe to the surrounding ground or from the ground to inside the lined pipe.
- P. Any defect, which will or could affect the structural integrity or strength of the linings, shall be repaired at the Contractor's expense, in accordance with the procedures submitted under Section 1.7 CIPP Repair/Replacement.

- Q. The beginning and end of the CIPP shall be sealed to the existing host pipe. The sealing material shall be compatible with the pipe end and shall provide a watertight seal.
- R. If the wall of the CIPP leaks, it shall be repaired or removed and replaced with a watertight pipe as recommended by the manufacture of the CIPP system.

3.3 CONNECTIONS

- A. A seal, consisting of a resin mixture or hydrophilic seal compatible with the installed CIPP shall be applied at manhole walls in accordance with the CIPP System manufacturer's recommendations.
- B. Existing services shall be internally or externally reconnected unless indicated otherwise in the contract documents
- C. Reconnections of existing services shall be made after the CIPP has been installed, fully cured, and cooled down. It is the CONTRACTOR'S responsibility to make sure that all active service connections are reconnected.
- D. External reconnections are to be made with a tee fitting in accordance with CIPP System manufacturer's recommendations. Saddle connections shall be seated and sealed to the new CIPP using grout or resin compatible with the CIPP.
- E. A CCTV camera and remote cutting tool shall be used for internal reconnections. The machined opening shall be at least 95 percent of the service connection opening and the bottom of both openings must match. The opening shall not be more than 100 percent of the service connection opening. The edges of the opening shall not have pipe fragments or liner fragments, which may obstruct flow or snag debris.
- F. In the event that service reinstatements result in openings that are greater than 100 percent of the service connection opening, the Contractor shall install a CIPP type repair, sufficiently in size to completely cover the over-cut service connection. No additional compensation will be paid for the repair of over-cut service connections.
- G. Coupons of pipe material resulting from service tap cutting shall be collected at the next manhole downstream of the pipe rehabilitation operation prior to leaving the site. Coupons may not be allowed to pass through the system 3.5.8 Compensation shall be at the actual number of services re-connected using either internal or external means as contained in the Proposal. The unit price bid per service line reconnected shall include all materials, labor, equipment and supplies necessary to complete the work as required in these specifications.

3.4 FIELD QUALITY CONTROL

- A. TESTING OF INSTALLED CIPP
 - 1. The physical properties of the installed CIPP shall be verified through field sampling and laboratory testing. All materials for testing shall be furnished by the Contractor to the Owner for testing. All materials testing shall be performed at the Owner's expense, by an independent third party laboratory selected by the Owner as recommended by the CIPP manufacturer. All tests shall be in accordance with applicable ASTM test methods to confirm compliance with the requirements specified in these contract documents.
 - 2. The Contractor shall provide samples for testing to the Owner from the actual installed CIPP liner. Samples shall be provided, at a minimum from one location per 1000 linear

feet of CIPP installed. The sample shall be cut from a section of cured CIPP that has been inverted or pulled through a like diameter pipe which has been held in place by a suitable heat sink, such as sandbags. All curing, cutting and identification of samples will be witnessed by the Owner and transmitted by the Owner to the testing laboratory. On pipelines greater in diameter than is practical to produce restrained samples, the Owner may at its discretion, require plate samples cured with the CIPP or designate a location in the newly installed CIPP where the Contractor shall take a sample. The Opening produced from the sample shall be repaired in accordance with manufacturers recommended procedures.

3. The laboratory results shall identify the test sample location as referenced to the nearest manhole and station. Final payment for the project shall be withheld pending receipt and approval of the test results. If properties tested do not meet minimum requirements, the CIPP shall be repaired or replaced by the Contractor, at no additional cost to the Owner.
4. Chemical resistance - The CIPP system installed shall meet the chemical resistance requirements of ASTM standards. CIPP samples tested shall be of fabric tube and the specific resin proposed for actual construction. It is required that CIPP samples without plastic coating meet these chemical testing requirements.
5. Hydraulic Capacity - Overall, the hydraulic capacity shall be maintained as large as possible. The installed CIPP shall at a minimum be equal to the full flow capacity of the original pipe before rehabilitation. In those cases where full capacity cannot be achieved after liner installation, the Contractor shall submit a request to waive this requirement, together with the reasons for the waiver request. Calculated capacities may be derived using a commonly accepted roughness coefficient for the existing pipe material taking into consideration its age and condition.
6. The installed CIPP thickness shall be measured for each line section installed. If the CIPP thickness does not meet that specified in the contract and submitted as the approved design by the Contractor then the liner shall be repaired or removed. The liner thickness shall have tolerance of minus 5% plus 10%. In man-entry size piping the Contractor shall remove a minimum of one sample or one sample every line section of installed CIPP, not meeting the specified design thickness, to be used to check the liner thickness. The samples shall be taken by core drilling 2-inch diameter test plugs at random locations selected by the Owner. As an alternative the Contractor may use industry proven, non-destructive methods for confirming the thickness of the installed CIPP.

3.5 FINAL ACCEPTANCE

- A. All CIPP sample testing and repairs to the installed CIPP as applicable, shall be completed, before final acceptance, meeting the requirements of these specifications and documented in written form.
- B. The Contractor shall perform a detailed closed-circuit television inspection in accordance with ASTM standards, in the presence of the Owner after installation of the CIPP liner and reconnection of the side sewers. A radial view (pan and tilt) TV camera shall be used. The camera shall be panned 360 degrees around the circumference of the pipe and along the wall of the finished pipe at 10 foot intervals. The finished liner shall be continuous over the entire length of the installation and shall be free of significant visual defects, damage, deflection, holes, leaks and other defects. Unedited digital documentation of the inspection shall be provided to the Owner within ten (10) working days of the liner installation. The data shall note the inspection date, location of all reconnected side sewers, debris, as well as any other defects in the liner, including, but not limited to, gouges, cracks, bumps, or bulges. If post installation inspection documentation is not submitted within Ten (10) working days of the liner installation, the Owner may at its discretion suspend any further installation of CIPP until the post-installation documentation is submitted. As a result of this suspension, no additional working days will be added to the contract, nor will any adjustment be made for increase in cost. Immediately prior to conducting the closed

circuit television inspection, the Contractor shall thoroughly clean the newly installed liner removing all debris and buildup that may have accumulated.

- C. Bypass pumping or plugging from the upstream manhole shall be utilized to minimize sewage from entering the line during the inspection. In the case of bellies in the line, the pipe shall be cleared of any standing water to provide continuous visibility during the inspection.
- D. Where leakage is observed through the wall of the pipe, the contractor shall institute additional testing including but not limited to air testing, localized testing and any other testing that will verify the leak-proof integrity of the installed CIPP to the satisfaction of the Owner.

END OF SECTION 330140