



OAKLAND COUNTY EXECUTIVE, DAVID COULTER

COMPLIANCE OFFICE
PURCHASING

Compliance Office | Purchasing
248-858-0511 | purchasing@oakgov.com

Buyer: EJT

CONTRACT NUMBER:005952

Event # 004793

CONTRACT between the **COUNTY OF OAKLAND** and **CONTRACTOR**

Not To Exceed Amount: \$500,000.00		Effective Date: 1/21/2020	Expiration Date:1/20/2023
Contract Description:	E-Sewer Lining/Repairs - M		
Contractor Information:		Contract Administrator:	
PIPELINE MANAGEMENT CO INC 2673 E Maple Road Milford, MI 48381 Vendor No: 15328		PIPELINE MANAGEMENT CO INC Jacob Di Ponio 348/685-1500 jake@pipeline.us.com	
Compliance Purchasing Office Information:		County Contract Administrator and Using Department:	
Edward Tucker OAKLAND COUNTY 2100 Pontiac Lake Rd., Bldg. 41W Waterford, MI 48328-0462 248-858-0511 purchasing@oakgov.com		Ben Lewis OAKLAND COUNTY WRC One Public Works Dr. Waterford, MI 48328 248-858-1539 lewisbe@oakgov.com	

The Parties agree to the attached terms and conditions:

FOR THE CONTRACTOR:

SIGN: Jacob A. Di Ponio
Jacob A. Di Ponio (Feb 5, 2020)

FOR THE COUNTY:

SIGN: Ben Lewis
Ben Lewis (Feb 5, 2020)

Contract Administrator

cjs

SIGN: Scott N. Guzy
Scott N. Guzy (Feb 5, 2020)

Pamela L. Weipert, CPA, CIA, Compliance Officer
or

Scott N. Guzy, CPPO, MBA, Purchasing Administrator

This Contract is organized and divided into the following Sections for the convenience of the Parties.

- Section 1. Contract Definitions
- Section 2. Contract Term and Renewal
- Section 3. Contract Administration and Amendments
- Section 4. Contract Termination
- Section 5. Scope of Deliverables and Financial/Payment Obligations
- Section 6. Contractor's Warranties and Assurances
- Section 7. Liability
- Section 8. Contractor Provided Insurance
- Section 9. Intellectual Property
- Section 10. Confidential Information
- Section 11. County Data
- Section 12. Information Technology Standards
- Section 13. General Terms and Conditions

§1. CONTRACT DEFINITIONS

The following words when printed with the first letter capitalized shall be defined and interpreted as follows, whether used in the singular or plural, nominative or possessive case, and with or without quotation marks:

- 1.1. **"Amendment"** means any change, clarification, or modification to this Contract.
- 1.2. **"Business Day"** means Monday through Friday from 8:00 a.m. to 5:00 p.m., excluding County designated holidays.
- 1.3. **"Claims"** means any loss; complaint; demand for relief or damages; lawsuit; cause of action; proceeding; judgment; penalty; costs or other liability of any kind which is imposed on, incurred by, or asserted against the County or for which the County may become legally or contractually obligated to pay or defend against, whether commenced or threatened, including, but not limited to, reimbursement for reasonable attorney fees, mediation, facilitation, arbitration fees, witness fees, court costs, investigation expenses, litigation expenses, or amounts paid in settlement.
- 1.4. **"Confidential Information"** means all information and data that the County is required or permitted by law to keep confidential, which includes computer software, cybersecurity assessments and plans and measures to protect the County's security.
- 1.5. **"Contract"** means this document and any other documents expressly incorporated herein.

- 1.6. **“Contractor”** means the entity or person listed under “Contractor” on the first page of this Contract.
- 1.7. **“Contractor Employee”** means any employee; officer; director; member; manager; trustee; volunteer; attorney; licensee; contractor; subcontractor; independent contractor; subsidiary; joint venture; partner or agent of Contractor; and any persons acting by, through, under, or in concert with any of the above, whether acting in their personal, representative, or official capacities. Contractor Employee shall also include any person who was a Contractor Employee at any time during the term of this Contract but, for any reason, is no longer employed, appointed, or elected in that capacity.
- 1.8. **“Contract Documents”** mean the following documents, which this Contract includes and incorporates:
- Exhibits (Applicable if Checked)**
- 1.8.1. ☒ Exhibit I: Contractor Insurance Requirements
- 1.8.2. ☐ Exhibit II: Business Associate Agreement (Health Insurance Portability and Accountability Act Requirements)
- 1.8.3. ☐ Exhibit III: Requirements for Contractors with Access to County PII (Personally Identifiable Information)
- 1.8.4. ☐ Exhibit IV: Requirements for Contractors with Access to Criminal Justice Information
- 1.8.5. ☐ Exhibit V: Federally Funded Contract Requirements
- 1.8.6. ☐ Exhibit VI: Software License(s)
- 1.8.7. ☐ Exhibit VII: License for Use of County Servicemark
- 1.8.8. ☐ Exhibit VIII: Acknowledgement of Independent Employment Status
- 1.8.9. ☒ Exhibit IX: Scope of Contractor Deliverables/Financial Obligations
- 1.9. **“County”** means the County of Oakland, a Municipal and Constitutional Corporation, its departments, divisions, authorities, boards, committees, and “County Agents” as defined below.
- 1.10. **“County Agent”** means any elected and appointed officials; directors; board members; council members; commissioners; employees; and volunteers of the County; whether acting in their personal, representative, or official capacities. “County Agent” shall also include any person who was a “County Agent” anytime during the term of this Contract but, for any reason, is no longer employed, appointed, or elected and in that capacity.
- 1.11. **“County Data”** means information or data collected, used, processed, stored, or generated in any format, by or on behalf of the County, in connection with the Deliverables, which shall include, but not be limited to: (a) personal health information (PHI) as defined under the Health Insurance Portability Act (HIPPA) and Exhibit II, (b) personally identifiable information (PII) as defined in Exhibit III, and (c) Criminal Justice Information defined in Exhibit IV if the Exhibit(s) are incorporated into the Contract. County Data includes Confidential Information as defined in this Contract.

- 1.12. **“County Network”** means County owned, leased, or licensed equipment, hardware, and software that is interconnected via fiber optic, wireless, or other communication mediums for the purposes of County hosting, processing, using, sharing, and/or transporting data, video, voice, or any other form of information.
- 1.13. **“Day”** means any calendar day, which shall begin at 12:00:00 a.m. and end at 11:59:59 p.m.
- 1.14. **“Deliverables”** mean goods and/or services provided under this Contract, whether tangible or intangible, and may be more specifically described in the Exhibits.
- 1.15. **“Effective Date”** means midnight on the date listed on the first page of this Contract.
- 1.16. **“Expiration Date”** means 11:59.59 p.m. on the date listed on the first page of this Contract.
- 1.17. **“E-Verify”** means an Internet based system operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration (SSA) that allows participating employers to electronically verify the employment eligibility of their newly hired employees. Information and the registration process are found at the E-Verify website:
<https://e-verify.uscis.gov/enroll>.
- 1.18. **“Intellectual Property”** means any developments, improvements, designs, innovation, and materials that may be the subject of a trademark/servicemark, copyright, patent, trade secret, which includes ideas, concepts, inventions, and processes related to the development and operation of computer software and systems.
- 1.19. **“Iran-Linked Business”** is defined in the Michigan Compiled Laws (MCL), specifically MCL 129.312, being Section 2 of Public Act 517 of 2012.
- 1.20. **“Not to Exceed Amount”** means the dollar amount listed on the first page of this Contract, unless amended. The “Not to Exceed Amount” is not the County’s financial obligation under this Contract, but the maximum amount that can be paid to Contractor during the term of this Contract.
- 1.21. **“Proposal”** means Contractor’s response or bid to the County’s Request for Proposal, Request for Qualifications, or Request for Quotes.
- 1.22. **“Purchase Order”** means the County’s written request to Contractor for Deliverables pursuant to this Contract. The Purchase Order may include terms regarding delivery schedule, payment, and transportation.
- 1.23. **“Purchasing”** means the Purchasing Unit of the Oakland County Compliance Office.

§2. CONTRACT TERM AND RENEWAL

- 2.1. **Contract Term.** This Contract shall begin on the Effective Date and shall end on the Expiration Date.
- 2.2. **Contract Renewal.** Unless otherwise provided herein, the Parties are under no obligation to renew or extend this Contract after the Expiration Date. This Contract may only be extended by an Amendment.

- 2.3. **Legal Effect.** This Contract shall be effective and binding when all of the following occur: (a) this Contract is signed by a Contractor Employee, legally authorized to bind Contractor; (b) this Contract is signed by an authorized County Agent; (c) all Contractor certificates of insurance, required by this Contract, are submitted and accepted by Purchasing; and (d) any other conditions precedent to this Contract have been met.

§3. CONTRACT ADMINISTRATION AND AMENDMENTS

- 3.1. **Contract and Purchase Order Issuance.** Purchasing shall issue this Contract and any Purchase Orders that may be required. Purchasing is the sole point of contact in the County regarding all procurement and contractual matters relating to this Contract and any Purchase Orders. Purchasing is the only County office/department authorized to make any Amendments to this Contract or Purchase Orders.
- 3.2. **Purchase Orders.** Purchase Orders issued under this Contract are governed by the terms and conditions of this Contract and are included and incorporated herein.
- 3.3. **Project Managers.** Each Party may designate an employee or agent to act as a Project Manager. If Project Managers are selected, they shall be listed, along with their duties, in Exhibit IX. Unless otherwise stated in Exhibit IX, the County's Project Manager has no authority to amend this Contract.
- 3.4. **Contract Administrators.** The County shall designate an employee or agent to act as Contract Administrator(s). Contractor may designate its employee or agent to act as Contract Administrator(s). The Contract Administrators shall be listed on the first page of this Contract. The County's Contract Administrator(s) shall be responsible for monitoring and coordinating day-to-day activities under this Contract, reviewing Deliverables and invoices, and submitting requests for Amendments to Purchasing. The County's Contract Administrator(s) have no authority to amend this Contract.
- 3.5. **Contract Amendments.** All Amendments to this Contract must be in writing. This Contract shall not be amended by any packing slip, Purchase Order, invoice, click through license agreement, or Contractor policies or agreements published on Contractor's website or otherwise. Amendments to this Contract shall be issued only by Purchasing. The Amendment shall be effective when signed by an authorized Contractor Employee and an authorized County Agent.
- 3.6. **Unauthorized Changes.** Contract changes shall not be effective until an Amendment containing the change is executed according to the procedures described in this Contract. If the Contractor is directed to perform work that Contractor believes is a change in the Contract/Deliverables, then Contractor must notify Purchasing that it believes the requested work is a change to the Contract before performing the requested work. If Contractor fails to notify Purchasing before beginning the requested work, then Contractor waives any claims for additional compensation for performing the requested work. If Contractor begins work that is outside the scope of this Contract or begins work before an Amendment is executed and then stops performing that work,

Contractor must, at the request of the County, undo any out-of-scope work that the County believes would adversely affect the County.

- 3.7. **Precedence of Contract Documents.** In the event of a conflict, the terms and conditions contained in Sections 1 through 13 of this Contract shall prevail and take precedence over any allegedly conflicting provisions in all Contract Documents, Exhibits, Purchase Orders, Amendments, and other documents expressly incorporated herein. Terms and conditions contained in Contractor invoices, packing slips, receipts, acknowledgments, click-through licenses, and similar documents shall not change the terms and conditions of this Contract.

§4. CONTRACT TERMINATION

- 4.1. **County Termination.** In addition to any other legal rights the County may have to terminate or cancel this Contract, the County may terminate the Contract as follows:
- 4.1.1. **Immediate Termination.** The County may terminate or cancel this Contract, in whole or in part, immediately, upon notice to Contractor, if any of the following occur: (a) Contractor, officer of Contractor, or an owner of a 25% or greater share of Contractor is convicted of a criminal offense; or (b) if any third-party funding for this Contract is reduced or terminated.
- 4.1.2. **Termination for Convenience.** The County may terminate or cancel this Contract, in whole or part, at any time, upon ninety (90) Days' notice to Contractor, for any reason, including convenience without incurring obligation or penalty of any kind. The effective date for termination or cancellation shall be clearly stated in the notice.
- 4.2. **Contractor Termination.** Contractor may terminate or cancel this Contract, in whole or part, upon one hundred and eighty (180) Days' notice to the County, if the County breaches any duty or obligation contained herein and within such notice period has failed or has not attempted to cure the breach. The effective date of termination or cancellation and the specific alleged default shall be clearly stated in the notice to the County.

County's Obligations Upon Termination. The County's sole obligation in the event of termination or cancellation of this Contract is for payment of the actual Deliverables provided to the County before the effective date of termination. Under no circumstances shall the County be liable for any future loss of income, profits, any consequential damages, any loss of business opportunities, revenues, or any other economic benefit Contractor may have realized but for the termination or cancellation of this Contract. The County shall not be obligated to pay Contractor any cancellation or termination fee if this Contract is cancelled or terminated as provided herein. If the County chooses to terminate the Contract in part, then the charges payable under this Contract must be equitably adjusted to reflect those Deliverables that are terminated.

- 4.3. **Contractor's Obligations Upon Termination.** If the County terminates this Contract, for any reason, then Contractor must do the following: (a) cease providing all Deliverables as specified at the time stated in the notice of termination; (b) take any action necessary, or as the County may direct, to preserve and protect Deliverables or other property derived or resulting from the

Contract that is in Contractor's possession; (c) return all materials and property provided to Contractor by the County; (d) unless otherwise directed by the County, transfer title in and deliver to the County all Deliverables in the possession of Contractor or Contractor Employees (which Deliverables are transferred to the County "As-Is", except to the extent the amounts paid by the County for these Deliverables include warranties or warranty services and, in that situation, the Deliverables will be transferred with the warranty or warranty services and not "As-Is"); and (e) take any action to mitigate and limit any potential damages, including terminate or limit, as applicable, those subcontracts and outstanding orders for materials and supplies connected with or related to this Contract.

- 4.4. **Assumption of Subcontracts.** If Contractor is in breach of this Contract and the County terminates this Contract, then the County may assume, at its option, any subcontracts and agreements for Deliverables provided under the Contract and may pursue completion of the Deliverables by replacement Contract or otherwise as the County, in its sole judgment, deems expedient.

§5. SCOPE OF DELIVERABLES AND FINANCIAL/PAYMENT OBLIGATIONS

- 5.1. **Performance of Deliverables.** Contractor shall provide all Deliverables identified in and as set forth in Exhibit IX, any Purchase Orders, or any Amendments to this Contract.
- 5.2. **Software License(s).** If this Contract includes a Software License(s) as described in Exhibit VI, then the Parties shall follow the terms and conditions therein. Any applicable third-party Software License(s) are also provided in Exhibit VI. Unless specifically agreed to by County, if County Agents are required to accept click through license terms to access any of the Deliverables in this Contract, the terms and conditions of those click through licenses are without force and effect.
- 5.3. **Financial Obligations.** Except as otherwise set forth in this Contract, the County's sole financial obligation under this Contract shall be set forth in Exhibit IX. The amount and manner of payment of the financial obligation shall be set forth in Exhibit IX and may be in the Software License Exhibit VI, if applicable, or a Purchase Order.
- 5.4. **Payment Obligations.** Except as otherwise set forth in the Exhibits, Contractor shall submit an invoice to the County's Contract Administrator itemizing amounts due and owing under this Contract, as of the date of the invoice. Invoices shall contain the following information: (a) County Contract Number; (b) dates of Deliverables; (c) itemized list of Deliverables; (d) Contractor Tax ID Number (federal and State); (e) licenses; and (f) any other information requested by Purchasing. The County shall have no obligation to make a payment under this Contract until an invoice is submitted in the form set forth herein and shall have no obligation to pay for Deliverables, which have not been invoiced (as required herein) within sixty (60) Days of Contractor's performance. Unless otherwise set forth in the Exhibits, the County shall only pay Contractor for Deliverables under this Contract and not any subcontractors or assignees of Contractor.

- 5.5. **Not to Exceed Amount.** The amount due and owing to Contractor, under this Contract, shall not exceed the "Not to Exceed Amount." If Contractor can reasonably foresee that the total financial obligation for the Contract will exceed the "Not to Exceed Amount," then Contractor shall provide Purchasing with notice of this fact at least ten (10) Days before this event.
- 5.6. **No Obligation for Penalties/Costs/Fines.** The County shall not be responsible for any cost, fee, fine, penalty; or direct, indirect, special, incidental, or consequential damages incurred or suffered by Contractor in connection with or resulting from the performance of this Contract under any circumstances.
- 5.7. **Set-Off of County Costs.** If the County incurs any costs associated with the duties or obligations of Contractor under this Contract, then the County has the right to set-off those costs from any amounts due and owing Contractor. This set-off includes withholding payment in an amount equal to the cost of any County-provided equipment, supplies, or badges that are not returned by Contractor upon completion, termination, or cancellation of this Contract.
- 5.8. **In-Kind Services.** Unless expressly provided herein, this Contract does not authorize any in-kind services by either Party.

§6. CONTRACTOR'S WARRANTIES AND ASSURANCES

- 6.1. **Full Knowledge of Contract Expectations.** Contractor warrants that before submitting its Proposal and/or entering into this Contract, it had a full opportunity to review all County requirements and/or expectations for this Contract. Contractor is responsible for being adequately and properly prepared to execute this Contract. Contractor has satisfied itself in all material respects that it will be able to perform the Contract as specified herein.
- 6.2. **Complete and Accurate Representations.** Contractor certifies that all statements, assurances, records, and materials submitted to the County in connection with seeking and obtaining this Contract have been truthful, complete, and accurate.
- 6.3. **Access to Contractor Policies.** If the Parties agree in this Contract to follow any Contractor policies, such as acceptable use or privacy policies, then Contractor shall retain each version of such policy with the effective dates and shall promptly provide such to the County, if requested.
- 6.4. **Grant Compliance.** If any part of this Contract is supported or paid for with any State, federal, or other third-party funds granted to the County, then Contractor shall comply with all applicable grant requirements. Upon request of Contractor, the County shall provide Contractor with a copy of the applicable grant requirements.
- 6.5. **Contractor Incidental Expenses.** Except as otherwise expressly provided in this Contract, Contractor shall be solely responsible and liable for all costs and expenses associated or needed to perform this Contract, including, but not limited to, any professional dues, association fees, license fees, fines, taxes, and penalties.

- 6.6. **Equipment and Supplies.** Contractor is responsible for providing all equipment and supplies to perform this Contract, which are not expressly required to be provided by the County.
- 6.7. **Contractor Employees.**
- 6.7.1. **Number and Qualifications of Contractor Employees.** Contractor shall employ and assign qualified Contractor Employees as necessary and appropriate to perform this Contract. Contractor shall ensure all Contractor Employees have the knowledge, skill, and qualifications to perform this Contract and possess any necessary licenses, permits, certificates, and governmental authorizations as may be required by law.
- 6.7.2. **Control and Supervision of Contractor Employees.** Contractor shall solely control, direct, and supervise all Contractor Employees with respect to all Contractor obligations under this Contract. Contractor will be solely responsible for and fully liable for the conduct and supervision of any Contractor Employees.
- 6.7.3. **Removal or Reassignment of Personnel at the County's Request.** Contractor shall remove a Contractor Employee performing work under this Contract at the County's request provided that the County's request is based on legitimate, good-faith reasons. Replacement personnel for the removed person must be fully qualified for the position. If the removal of a Contractor Employee results in an unanticipated delay, which is attributable to the County, then this delay shall not be considered a breach of the Contract and the terms and conditions of this Contract effected by the removal will be adjusted accordingly.
- 6.7.4. **Contractor Employee Identification.** If requested by the County, Contractor Employees shall wear and display a County-provided identification badge at all times while working on County premises. In order to receive a County identification badge, a Contractor Employee shall sign the "Acknowledgement of Independent Contractor Status" form, Exhibit VIII to this Contract. Contractor shall return all County-provided identification(s) upon completion of Contractor's obligations under this Contract.
- 6.7.5. **Background Checks.** At the County's request, Contractor Employees performing work under this Contract shall be subject to a background check by the County. The scope of the background check is at the discretion of the County and the results will be used to determine Contractor Employee's eligibility to perform work under this Contract. Any request for background checks will be initiated by the County and will be reasonably related to the type of work requested. Contractor and Contractor Employees shall provide all information or documents necessary to perform the background check.
- 6.7.6. **Contractor Employee Expenses.** All Contractor Employees shall be employed at the Contractor's sole expense (including employment-related taxes and insurance). Contractor warrants that all Contractor Employees shall fully comply with and adhere to the terms of this Contract. Contractor shall be solely liable for all applicable Contractor Employees' federal, state, or local payment withholdings or contributions and/or all Contractor Employee related pension or

welfare benefits plan contributions under federal or state law. Contractor shall indemnify and hold the County harmless for all Claims against the County by any Contractor Employee, arising out of any contract for hire or employer-employee relationship between Contractor and any Contractor Employee including, but not limited to, Worker's Compensation, disability pay, or other insurance of any kind.

- 6.7.7. **Contractor's Compliance with the Patient Protection and Affordable Care Act.** If Contractor is subject to the Patient Protection and Affordable Care Act ("ACA"), PL 111-148, 124 Stat 119, then Contractor shall ensure that all Contractor Employees, under assignment to the County, and their dependents, as defined by the ACA, are provided with or have access to insurance as required by the ACA. If Contractor is subject to the ACA, Contractor warrants it offers group health coverage to Contractor Employees and their dependents that is affordable, that provides minimum essential coverage and value, and that each offer of coverage meets the timing requirements of the ACA. Contractor warrants, whether or not it is subject to the ACA, that it will pay all applicable fees, taxes, or fines, as set forth in the employer mandates of the ACA under Tax Code §4980H and related regulations for any Contractor Employee, whether the fee, tax, or fine is assessed against the Contractor or the County.
- 6.8. **Acknowledgment of Independent Contractor Status.**
- 6.8.1. **Independent Contractor.** Nothing in this Contract is intended to establish an employer-employee relationship between the County and Contractor or any Contractor Employee. In no event, shall Contractor Employees be deemed employees, agents, volunteers, or subcontractors of the County. Contractor shall ensure that Contractor Employees are apprised of their status and the limitations independent contractors have of this status.
- 6.8.2. **Contractor/Contractor Employee Representations.** Contractor and/or Contractor Employees shall not represent themselves as County employees. Contractor shall ensure that Contractor Employees do not represent themselves as County employees.
- 6.8.3. **County Benefits and Plans.** Contractor and Contractor Employees shall not be entitled to participate in any County employee benefit plans and programs, including but not limited to, retirement, deferred compensation, insurance (including without limitation, health, disability, dental, and life), and vacation pay. This limitation includes access to benefit plans and programs that are not described by a written plan. However, Contractor Employees who are retired County Employees may receive vested post-employment benefits such as retiree health care and pension benefits from Oakland County.
- 6.8.4. **County Reliance.** The County entered into this Contract in reliance of the representations made by Contractor regarding its understanding of the role of independent contractors, its stated relationship to Contractor Employees, and other representations Contractor has made regarding the management and performance oversight of Contractor Employees.

- 6.8.5. **Independent Employment Status.** If Contractor provides Contractor Employees for staffing and/or leasing services to County, those Contractor Employees shall sign Exhibit VIII, Acknowledgement of Independent Employment Status, prior to performing services for the County.
- 6.9. **Permits and Licenses.** Contractor shall be responsible for obtaining and maintaining, throughout the term of this Contract, all licenses, permits, certificates, governmental authorizations, and business/professional licenses necessary to perform this Contract. Upon request by the County, Contractor shall furnish copies of any permit, license, certificate, or governmental authorization necessary to perform this Contract.
- 6.10. **E-Verify.** In accordance with Miscellaneous Resolution No.09116 (BOC Minutes, July 30, 2009, pp 37-38), unless otherwise exempted, all service contractors who wish to contract with the County to provide services must first certify they have registered with, will participate in, and continue to utilize, once registered, the E-Verify Program (or any successor program implemented by the federal government or its departments or agencies) to verify the work authorization status of all newly hired employees employed by the Contractor. Breach of this term or condition is considered a material breach of this Contract. Contractor's execution of this Contract constitutes a certification that they are authorized to certify on behalf of Contractor and do hereby certify on behalf of Contractor that the Contractor has registered with, has and will participate in, and does and will continue to utilize once registered and throughout the term of this Contract and any permissible extension hereof, the E-Verify Program (or any successor program implemented by the federal government or its departments or agencies) to verify the work authorization status of all newly hired employees employed by the Contractor.
- 6.11. **Iran-Linked Business Certification.** Contractor certifies that it is not an Iran-Linked Business. Contractor further certifies that it was not an Iran-Linked Business at the time it submitted its Proposal for this Contract. Contractor must promptly notify the County, if Contractor becomes an Iran-Linked Business at any time during this Contract.
- 6.12. **Foreign Adversary Certification.** If Contractor supplies technology or equipment to County, Contractor certifies that the technology and/or equipment was not produced, assembled or manufactured by a foreign adversary, as defined, and as prohibited by the federal government.
- 6.13. **Taxes.**
- 6.13.1. **Contractor Taxes.** Contractor shall collect and pay its local, state, and federal taxes, including but not limited to, all employment taxes, sales taxes, personal property taxes, and real property taxes. The County shall not be liable to or required to reimburse Contractor for any local, state, or federal tax of any kind.
- 6.13.2. **County Tax-Exempt.** The County is exempt from state and local sales tax, personal property tax, and real property tax. Prices under this Contract shall not include taxes, unless the County is not tax-exempt for a specific Deliverable. Exemption certificates for sales tax will be furnished upon request.

- 6.14. **Warranty for Services.** Contractor warrants that all Deliverables that are services shall be performed in compliance with all applicable laws, statutes, regulations, ordinances, and professional standards.
- 6.15. **Warranty for Goods.** All Deliverables that are goods shall be subject to the following warranties:
- 6.15.1. **Warranty of Merchantability.** Goods provided by Contractor pursuant to this Contract shall: (a) be merchantable; (b) be of good quality; (c) be fit for their ordinary purpose; (d) be adequately contained and packaged; and (e) conform to the specifications and descriptions contained in this Contract.
- 6.15.2. **Warranty of Fitness for a Particular Purpose.** If Contractor knows or has reason to know that the goods will be used for a particular purpose and the County is relying on Contractor's skill or judgment to select or furnish the goods, then there is a warranty that the goods are fit for a particular purpose.
- 6.15.3. **Warranty of Title.** All goods conveyed to the County shall be conveyed and transferred: (a) with good title; (b) free from any security interest, lien, or encumbrance that the County did not have knowledge of when the Contract was executed; and (c) free of any rightful claim of infringement or similar claim by a third-party.
- 6.16. **ADA and Section 508 Compliance.** If Contractor is providing a Deliverable that requires County Agents or the public to use a software application or to access a website, Contractor warrants that end users can utilize the software or access the website in accordance with the accessibility requirements of the ADA and the Rehabilitation Act of 1973. Contractor's Deliverable will conform, where relevant, to level AA of the World Wide Web Consortium (W3C) Web Content Accessibility Guidelines (WCAG) 2.0. Contractor may provide a description of conformance with the above-mentioned specifications by means of a completed Voluntary Product Accessibility Template for WCAG 2.0 (WCAG 2.0 VPAT) or another comparable document. Any additional compliance requirements shall be specified in the Scope of Contractor's Deliverables Exhibit IX.

§7. LIABILITY

- 7.1. **Contractor Indemnification.** Contractor shall indemnify, defend, and hold the County harmless from all Claims, incurred by or asserted against the County by any person or entity, which are alleged to have been caused directly or indirectly from the acts or omissions of Contractor or Contractor's Employees. The County's right to indemnification is in excess and above any insurance rights/policies required by this Contract.
- 7.2. **No Indemnification from the County.** Contractor shall have no rights against the County for indemnification, contribution, subrogation, or any other right to be reimbursed by the County, except as expressly provided herein.
- §8. CONTRACTOR PROVIDED INSURANCE.** At all times during this Contract, Contractor shall obtain and maintain insurance according to the requirements listed in Exhibit I.

§9. INTELLECTUAL PROPERTY

- 9.1. **Contractor Use of County Licensed Software.** In order for Contractor to perform this Contract, the County may permit Contractor or Contractor Employees to access certain Software licensed to the County. Contractor or Contractor Employees shall not transfer, remove, use, copy, or otherwise provide or make available such Software or documentation to any other person or entity, for any purpose, without the prior written consent of the County and/or the licensor. Furthermore, neither Contractor nor Contractor Employee shall produce a source listing, decompile, disassemble, or otherwise reverse engineer any Software. Neither Contractor nor Contractor Employee shall use any Software contrary to the provisions of any applicable Software license agreement or state or federal law.
- 9.2. **Contractor License to Use County Servicemarks.** If this Contract involves the use of County servicemarks, then Contractor is granted a license to use the servicemarks subject to the terms listed in Exhibit VII. Contractor shall only use the servicemarks as directed by the County in Exhibit VII.
- 9.3. **Assignment of Rights.** In consideration for the performance of this Contract and the fees paid to Contractor, Contractor agrees to the following: (a) Contractor shall have no copyright, patent, trademark, or trade secret rights in County Intellectual Property; (b) any and all programs, inventions, and other work or authorship developed by Contractor while providing Deliverables to the County are works made for hire, created for, and owned exclusively by the County, unless otherwise specified in the Contract; (c) Contractor assigns to the County all rights and interest in County Intellectual Property, which Contractor has made or conceived or may make and conceive, either solely or jointly with others, either on or off County premises while performing this Contract or with the use of the time, material, or facilities of the County; and (d) Contractor and its applicable Contractor Employees shall sign any documents necessary for the County to register patents, copyrights, or trademarks with federal or state agencies. Contractor shall ensure Contractor Employees assign their rights and interests in County Intellectual Property to the County.
- 9.4. **Infringement Remedies.** If, in either Party's opinion, any of the services or Deliverables supplied by Contractor or Contractor Employees is likely to become the subject of a copyright, patent, trademark, or trade secret infringement claim, Contractor shall at its own expense: (a) procure for County the right to continue using the services or Deliverables, or if this option is not reasonably available to Contractor; (b) replace or modify the same so that it becomes non-infringing; or (c) accept its return by County with appropriate credits to County and reimburse County for any losses or costs incurred as a consequence of County ceasing its use and returning it.

§10. CONFIDENTIAL INFORMATION

- 10.1. **Contractor Use of Confidential Information.** Contractor and Contractor Employees shall use appropriate safeguards to protect the confidentiality and integrity of Confidential Information. Contractor shall not reproduce, provide, disclose, or give access of Confidential Information to any Contractor Employee or third-party not having a legitimate need to know. Contractor and

Contractor Employees shall only use the Confidential Information for performance of this Contract. Notwithstanding the foregoing, Contractor may disclose the Confidential Information, if required by law, statute, or other legal process; provided that Contractor: (a) gives the County prompt written notice of the impending disclosure; (b) provides reasonable assistance to the County in opposing or limiting the disclosure; and (c) makes only such disclosure as is compelled or required. This Contract imposes no obligation upon Contractor with respect to any Confidential Information which Contractor can establish by legally sufficient evidence: (a) was in possession of or was known by Contractor, prior to its receipt from the County, without any obligation to maintain its confidentiality; or (b) is obtained by Contractor from a third-party having the right to disclose it, without an obligation to keep such information confidential.

- §11. COUNTY DATA.** If Contractor uses or possesses County Data in the performance of this Contract, then the following provisions contained in this section apply:
- 11.1. **Use of County Data.** Contractor and Contractor Employees shall have a limited license to County Data, including a license to collect, process, store, generate and display County Data but only to the extent necessary to provide services under this Contract. Contractor and Contractor Employees may not use, sell, rent, transfer, distribute, or otherwise disclose or make available County Data for Contractor's own purposes or for the benefit of anyone other than the County, without the County's prior written consent, unless otherwise provided for within an Exhibit to this Contract.
- 11.2. **Unauthorized Access/Disclosure or Theft of County Data.** Contractor or Contractor Employees shall notify the County's Chief Information Officer as soon as practicable but no later than forty-eight (48) hours of "Discovery" of suspected unauthorized access, acquisition, disclosure, or theft of County Data (a "Security Breach"). "Discovery" means the first day on which the Security Breach is known to Contractor or Contractor Employees or should have been known by exercising reasonable diligence. Upon Discovery of a Security Breach, Contractor shall do the following: (a) take reasonable measures to promptly cure the deficiencies relating to the Security Breach in order to secure County Data; (b) cooperate with the County in investigating the occurrence, including making available all relevant records, logs, files, and data reporting materials required upon request by the County; and (c) comply with all applicable federal or state laws and regulations pertaining to unauthorized disclosures or as otherwise directed by the County. If Contractor uses or possesses County Data described in in Exhibit II (HIPPA), Exhibit III (PII), or Exhibit IV (CJIS), Contractor shall follow the procedures in the applicable Exhibits governing the unauthorized access/disclosure or theft of County Data.
- 11.3. **Storage of County Data.** Contractor shall only store and process County Data at and from data centers located within the United States. Contractor shall not permit Contractor Employees to store County Data on portable devices, including personal computers, except for portable devices that encrypt data at rest and are used and kept within the U.S. Contractor shall permit its Contractor Employees to access County Data remotely only as required to provide technical support.

- 11.4. **Requirements for PCI Data.** If Contractor possesses, stores, processes, or transmits County Data that is considered Payment Card Industry (PCI) Data by the PCI Security Standards Council, Contractor shall comply with PCI Data Security Standard (DSS) and shall provide the County with a copy of its PCI DSS Attestation of Compliance and its Certificate of Compliance with PCI Data Security Standard. Contractor warrants that it will keep its Certification of Compliance with PCI Data Security Standard current.
- 11.5. **Response to Legal Request for County Data.** If the County receives a Court Order, a Freedom of Information Act (FOIA) request, or other legal request to provide County Data held by Contractor, then Contractor shall provide County Data to the County, in a format directed by the County, within the time frame required by law.
- 11.6. **Obligations upon Expiration, Termination or Cancellation of Contract.** At the County's sole discretion, upon expiration, termination, or cancellation of this Contract, Contractor shall return County Data in a mutually agreeable format in a prompt and orderly manner or provide for the secure disposal of County Data as directed by County.
- §12. INFORMATION TECHNOLOGY STANDARDS.** If Contractor provides a technology application or requires the use of the Internet to access a Deliverable, the following sections apply:
- 12.1. **County Standards.** If Contractor and Contractor Employees that will be given access to the County Network, Contractor and Contractor Employees shall comply with the County Electronic Communications and Use of Technology Policy.
- 12.2. **Implementation of Security Measures.** Contractor shall implement and maintain appropriate administrative, technical, and organizational security measures to safeguard against unauthorized access to the County Network and County Data. Such measures shall be in accordance with security industry best practice and not less stringent than the measures Contractor applies to protect its own data of a similar kind.
- 12.3. **Completion of County Security Questionnaire.** Contractor warrants it has completed the County's security questionnaire. Each year, prior to the anniversary date of this Contract, and upon receipt of the County's security questionnaire, Contractor shall provide the County with the answers to the County's security questionnaire.
- §13. GENERAL TERMS AND CONDITIONS**
- 13.1. **Access to County Property or Facilities.** As set forth in this Contract, Contractor has access to and the right to use County property and facilities necessary to perform this Contract. Unless otherwise provided in this Contract or Contractor receives prior written permission from the County's Director responsible for the department requiring access outside of Business Days, Contractor may only access and use County property and facilities for performance of this Contract on Business Days.

- 13.2. **Signs on County Property or Facilities.** Contractor shall not place any signs or advertisements on County property or facilities without the prior written permission of the County's Director of Facilities Management or successor.
- 13.3. **Use of County Property or Facilities.** While performing this Contract, Contractor shall keep County property or facilities, and anything stored thereon in a clean, safe, and healthful condition and shall keep the property and facilities in a manner that will not prevent or interfere with the County's performance of its functions.
- 13.4. **Removal of Contractor's Personal Property.** At the expiration or termination of this Contract, Contractor shall leave County property or facilities in the same condition that Contractor found them and clean of all rubbish. Contractor shall remove all of its personal property within thirty (30) Days of expiration or termination of this Contract. If Contractor does not remove its personal property within the thirty (30) Day period, then the County shall dispose of it and bill Contractor for any costs associated with the removal and disposal.
- 13.5. **Damage to County Property or Facilities.** Contractor shall be responsible for any damage to any County property or a facility that is caused by Contractor or Contractor Employees. If damage occurs, the County shall make the necessary repairs and/or replacements or cause a third-party to make the necessary repairs or replacements, provided, however, that Contractor shall reimburse the County for all costs associated with repairing and/or replacing the damaged property or facilities.
- 13.6. **Damage to Contractor's Property.** Contractor shall be solely liable and responsible for any property loss or damage resulting from fire, theft, or other means to Contractor's personal property located, kept, or stored on or at County property or facilities during performance of this Contract.
- 13.7. **County's Right to Suspend Contract Performance.** Upon written notice, the County may require Contractor to suspend performance of this Contract if Contractor has failed to comply with federal, state, or local laws or any requirements contained in this Contract. The right to suspend performance of this Contract is in addition to the County's right to terminate and/or cancel this Contract. The County shall incur no penalty, expense, or liability to Contractor if the County suspends performance of this Contract under this Section.
- 13.8. **Discrimination.** Contractor, and its subcontractors under this Contract, shall not discriminate against an employee or an applicant for employment in hiring, any terms and conditions of employment or matters related to employment regardless of race, color, religion, sex, sexual orientation, gender identity or expression, national origin, age, genetic information, height, weight, disability, veteran status, familial status, marital status or any other reason, that is unrelated to the person's ability to perform the duties of a particular job or position, in accordance with applicable federal and state laws.
- 13.9. **Conflict of Interest.** Pursuant to Public Act 317 and 318 of 1968, as amended (MCL 15.301, *et seq.* and MCL 15.321, *et seq.*), no contracts shall be entered into between the County and any

County Agent. To avoid any real or perceived conflict of interest, Contractor shall disclose to the County the identity of all Contractor Employees and all relatives of Contractor Employees who: a) are employed by the County on the date the Contract is executed; and b) become employed by the County during the term of the Contract. Contractor shall also disclose to the County the identity of all County Agents and all relatives of County Agents who: a) are employed by Contractor on the date the Contract is executed; and b) become employed by Contractor during the term of the Contract.

- 13.10. **Access and Records.** Contractor will maintain accurate books and records in connection with performance of this Contract for thirty-six (36) months after the end of this Contract and Contractor shall provide the County with reasonable access to such books and records, upon request.
- 13.11. **Audit.** The County or an independent auditor hired by the County may perform contract audits (in its sole discretion) and shall have the authority to access all pertinent records and data and to interview any Contractor Employee during the term of this Contract and for a period of three years after final payment. Contractor shall explain any audit findings, questioned costs, or other Contract compliance deficiencies to the County within thirty (30) Business Days of receiving the draft audit report. Contractor's written response shall include all necessary documents and information that refute the draft audit report and an action plan to resolve the audit findings. A copy of Contractor's response will be included in the final report. Failure by Contractor to respond in writing within thirty (30) Business Days shall be deemed acceptance of the draft audit report and will be noted in the final report.
- 13.12. **Assignments/Delegations/Subcontracts.**
- 13.12.1. **Prior Written Consent Required.** Except by operation of law, neither Party may assign, delegate, or subcontract any of its duties, obligations, or rights under this Contract without the prior written consent of the other Party; provided, however, Contractor may assign, delegate, or subcontract this Contract to an affiliate or subsidiary as long as the affiliate or subsidiary is adequately capitalized and can provide adequate written assurances to the County that the affiliate or subsidiary can perform this Contract. The County may withhold consent, if the County determines that the assignment, delegation, or subcontract would impair performance of this Contract or the County's ability to recover damages under this Contract. Contractor shall also provide the County with adequate information to allow the County to make a determination regarding the assignment, delegation, or subcontract.
- 13.12.2. **Flow Down Clause Required.** Any assignment, delegation, or subcontract by Contractor must include a requirement that the assignee, delegee, or subcontractor will comply with the terms and conditions of this Contract. The assignment, delegation, or subcontract shall in no way diminish or impair performance of any term or condition of this Contract.
- 13.12.3. **Contractor Responsibility for Assigns/Delegates/Subcontractors.** If Contractor assigns, delegates, or subcontracts this Contract, in whole or in part, Contractor shall remain the sole point of contact regarding all matters under this Contract and shall remain liable for performance

of this Contract. Contractor is solely responsible for the management of assignees, delegees, and subcontractors.

- 13.12.4. **Performance Required.** If an assignee, delegee, or subcontractor fails to perform as required under this Contract, Contractor shall contract with another entity for such performance. Any additional costs associated with securing another assignee, delegee, or subcontractor shall be the sole responsibility of Contractor.
- 13.13. **Non-Exclusive Contract.** This Contract is a non-exclusive agreement. No provision in this Contract limits or is intended to limit, in any way, Contractor's right to offer and provide its services to the general public, other business entities, municipalities, or governmental agencies during or after the term of this Contract. Similarly, the County may freely engage other persons to perform the same work that Contractor performs. Except as provided in this Contract, this Contract shall not be construed to guarantee Contractor or any Contractor Employee any fixed or certain number of Deliverables.
- 13.14. **No Third-Party Beneficiaries.** Except as provided for the benefit of the Parties, this Contract does not and is not intended to create any obligation, duty, promise, contractual right or benefit, right to be indemnified, right to be subrogated to the Parties' right in this Contract, or any other right in favor of any other person or entity.
- 13.14.1. **Survival of Terms and Conditions.** The following terms and conditions shall survive and continue in full force beyond the termination or cancellation of this Contract (or any part thereof) until the terms and conditions are fully satisfied or expire by their nature: **Section 1.** Contract Definitions, **Section 5.** Scope of Deliverables and Financial/Payment Obligations, **Section 6.** Contractor's Warranties and Assurances, **Section 7.** Liability, **Section 8.** Contractor Provided Insurance, **Section 9.** Intellectual Property, **Section 10.** Confidential Information, **Section 11.** County Data, **Section 13.** General Terms and Conditions; and if incorporated into this Contract, Exhibit II: Business Associate Agreement (Health Insurance Portability and Accountability Act Requirements), Exhibit III: Requirements for Contractors with Access to County PII (Personally Identifiable Information) and Exhibit IV: Requirements for Contractors with Access to CJIS Data (Criminal Justice Information Security).
- 13.15. **Reservation of Rights.** This Contract does not, and is not intended to impair, divest, delegate, or contravene any constitutional, statutory, or other legal right, privilege, power, obligation, duty, or immunity of the County.
- 13.16. **Compliance with Laws.** Contractor shall comply with all federal, state, and local laws, statutes, ordinances, regulations, insurance policy requirements, and requirements applicable to its activities under this Contract.
- 13.17. **Force Majeure.** Notwithstanding any other term or condition of this Contract, neither Party shall be liable for failure to perform contractual duties or obligations caused by events beyond their reasonable control, including but not limited to: (a) acts of public enemies; (b) natural disasters;

(c) terrorism; (d) war; (e) insurrection or riot; (f) natural disasters; (g) strikes, lockouts, work stoppages, or other labor difficulties; or (h) compliance with law. Reasonable notice shall be given to the affected Party of such event. Contractor is expected, through insurance or alternative temporary or emergency service arrangements, to continue its contractual duties or obligations if a reasonably anticipated, insurable business risk, such as business interruption or any insurable casualty or loss occurs.

13.18. **Notices.**

13.18.1. **Written Notice.** All notices required under this Contract shall be in writing. Notices shall be effective: (a) the next Business Day, if personally delivered; (b) the third Business Day, if sent by U.S. mail, postage prepaid, return receipt requested; (c) the next Business Day, if sent by a nationally recognized overnight express courier with a reliable tracking system; or (d) the next Business Day with a receipt of confirmation, if sent by e-mail or fax.

13.18.2. **Notice to Contractor.** Unless otherwise specified, Notice to Contractor shall be addressed to the Contract Administrator listed on the first page of this Contract.

13.18.3. **Notice to County.** Unless otherwise specified herein, Notice to the County shall be addressed to Purchasing, the County Project Manager (if applicable), and the County Contract Administrator(s) listed on the first page of this Contract.

13.19. **Captions.** Section and subsection numbers, captions, and any index to sections or subsections contained in this Contract are intended for the convenience of the reader and are not intended to have any substantive meaning and shall not be interpreted to limit or modify any substantive provisions of this Contract. In this Contract, for any noun or pronoun, use of the singular or plural form, use of the nominative, possessive, or objective case, and any reference to gender (masculine, feminine, and neuter) shall mean the appropriate form, case, or gender as the context requires.

13.20. **Waiver.** Waiver of any term or condition under this Contract must be in writing and notice given pursuant to this Contract. No written waiver, in one or more instances, shall be deemed or construed as a continuing waiver of any term or condition of this Contract. No waiver by either Party shall subsequently affect its right to require strict performance of this Contract.

13.21. **Cumulative Remedies.** A Party's exercise of any remedy shall not preclude the exercise of any other remedies, all of which shall be cumulative. A Party shall have the right, in its sole discretion, to determine which remedies are to be exercised and in which order.

13.22. **Severability.** If a court of competent jurisdiction finds a term or condition of this Contract to be illegal or invalid, then the term or condition shall be deemed severed from this Contract. All other terms or conditions shall remain in full force and effect. Notwithstanding the above, if Contractor's promise to indemnify or hold the County harmless is found illegal or invalid, Contractor shall contribute the maximum it is permitted to pay by law toward the payment and satisfaction of any Claims against the County.

- 13.23. **Dispute Resolution.** All disputes arising under or relating to the execution, interpretation, performance, or nonperformance of this Contract involving or affecting the Parties may first be submitted to the respective Project Manager (if applicable) and Contract Administrators for possible resolution.
- 13.24. **Governing Laws/Consent to Jurisdiction and Venue.** This Contract shall be governed, interpreted, and enforced by the laws of the State of Michigan. Except as otherwise required by law or court rule, any action brought to enforce, interpret, or decide any Claim arising under or related to this Contract shall be brought in the Sixth Judicial Circuit Court of the State of Michigan, the 50th District of the State of Michigan, or the United States District Court for the Eastern District of Michigan, Southern Division, as dictated by the applicable jurisdiction of the court. Except as otherwise required by law or court rule, venue is proper in the courts set forth above. The choice of forum set forth above shall not be deemed to preclude the enforcement of any judgment obtained in such forum or taking action under this Contract to enforce such judgment in any appropriate jurisdiction.
- 13.25. **Entire Contract.** This Contract represents the entire agreement and understanding between the Parties. This Contract supersedes all other prior oral or written understandings, communications, agreements, or contracts between the Parties. The language of this Contract shall be construed as a whole according to its fair meaning and not construed strictly for or against any Party.

EXHIBIT I

CONTRACTOR INSURANCE REQUIREMENTS

During this Contract, the Contractor shall provide and maintain, at their own expense, all insurance as set forth and marked below, protecting the County against any Claims, as defined in this Contract. The insurance shall be written for not less than any minimum coverage herein specified. Limits of insurance required in no way limit the liability of the Contractor.

Primary Coverages

Commercial General Liability Occurrence Form including: (a) Premises and Operations; (b) Products and Completed Operations (including On and Off Premises Coverage); (c) Personal and Advertising Injury; (d) Broad Form Property Damage; (e) Broad Form Contractual including coverage for obligations assumed in this Contract;

\$1,000,000 – Each Occurrence Limit

\$1,000,000 – Personal & Advertising Injury

\$2,000,000 – Products & Completed Operations Aggregate Limit

\$2,000,000 – General Aggregate Limit

\$ 100,000 – Damage to Premises Rented to You (formally known as Fire Legal Liability)

Workers' Compensation Insurance with limits statutorily required by any applicable Federal or State Law and Employers Liability insurance with limits of no less than \$500,000 each accident, \$500,000 disease each employee, and \$500,000 disease policy limit.

1. ☒ Fully Insured or State approved self-insurer.
2. ☐ Sole Proprietors must submit a signed Sole Proprietor form.
3. ☐ Exempt entities, Partnerships, LLC, etc., must submit a State of Michigan form WC-337 Certificate of Exemption.

Commercial Automobile Liability Insurance covering bodily injury or property damage arising out of the use of any owned, hired, or non-owned automobile with a combined single limit of \$1,000,000 each accident. This requirement is waived if there are no company owned, hired or non-owned automobiles utilized in the performance of this Contract.

Commercial Umbrella/Excess Liability Insurance with minimum limits of \$2,000,000 each occurrence. Umbrella or Excess Liability coverage shall be no less than following form of primary coverages or broader. This Umbrella/Excess requirement may be met by increasing the primary Commercial General Liability limits to meet the combined limit requirement.

Supplemental Coverages – As Needed

1. ☐ **Professional Liability/Errors & Omissions Insurance** (i.e., Consultants, Technology Vendors, Architects, Engineers, Real Estate Agents, Insurance Agents, Attorneys, etc.) with minimum limits of \$1,000,000 per claim and \$1,000,000 aggregate shall be required when the Contractor provides professional services that the County relies upon.
2. ☐ **Cyber Liability Insurance** with minimum limits of \$1,000,000 per claim and \$1,000,000 aggregate shall be required when the Contractor has access to County IT systems and/or stores County data electronically.
3. ☐ **Commercial Property Insurance.** The Contractor shall be responsible for obtaining and maintaining insurance covering their equipment and personal property against all physical damage.
4. ☐ **Liquor Legal Liability Insurance** with a limit of \$1,000,000 each occurrence shall be required when liquor is served and/or provided by Contractor.
5. ☐ **Pollution Liability Insurance** with minimum limits of \$1,000,000 per claim and \$1,000,000 aggregate shall be required when storage, transportation and/or cleanup & debris removal of pollutants are part of the services utilized.
6. ☐ **Medical Malpractice Insurance** with minimum limits of \$1,000,000 per claim and \$1,000,000 aggregate shall be required when medically related services are provided.
7. ☐ **Garage Keepers Liability Insurance** with minimum limits of \$1,000,000 per claim and \$1,000,000 aggregate shall be required when County owned vehicles and/or equipment are stored and/or serviced at the Contractors facilities.
8. ☐ **Other Insurance Coverages** as may be dictated by the provided product/service and deemed appropriate by the County Risk Management Department.

General Insurance Conditions

The aforementioned insurance shall be endorsed, as applicable, and shall contain the following terms, conditions, and/or endorsements. All certificates of insurance shall provide evidence of compliance with all required terms, conditions and/or endorsements.

1. All policies of insurance shall be on a primary, non-contributory basis with any other insurance or self-insurance carried by the County;
2. The insurance company(s) issuing the policy(s) shall have no recourse against the County for subrogation (policy endorsed written waiver), premiums, deductibles, or assessments under any form. All policies shall be endorsed to provide a written waiver of subrogation in favor of the County;
3. Any and all deductibles or self-insured retentions shall be assumed by and be at the sole risk of the Contractor;
4. Contractors shall be responsible for their own property insurance for all equipment and personal property used and/or stored on County property;
5. The Commercial General Liability and Commercial Automobile Liability policies along with any required supplemental coverages shall be endorsed to name the County of Oakland and its officers, directors, employees, appointees and commissioners as additional insured where permitted by law and policy form;
6. If the Contractor's insurance policies have higher limits than the minimum coverage requirements stated in this document the higher limits shall apply and in no way shall limit the overall liability assumed by the Contractor under contract.
7. The Contractor shall require its contractors or sub-contractors, not protected under the Contractor's insurance policies, to procure and maintain insurance with coverages, limits, provisions, and/or clauses equal to those required in this Contract;
8. Certificates of insurance must be provided no less than ten (10) Business Days prior to the County's execution of the Contract and must bear evidence of all required terms, conditions and endorsements; and provide 30 days' notice of cancellation/material change endorsement.
9. All insurance carriers must be licensed and approved to do business in the State of Michigan along with the Contractor's state of domicile and shall have and maintain a minimum A.M. Best's rating of A- unless otherwise approved by the County Risk Management Department.

EXHIBIT II

BUSINESS ASSOCIATE AGREEMENT (Health Insurance Portability and Accountability Act Requirements)

Exhibit II is a Business Associate Agreement between Contractor ("Business Associate") and the County ("Covered Entity"). This Exhibit is incorporated into the Contract and shall be hereinafter referred to as "Agreement." The purpose of this Agreement is to facilitate compliance with the Privacy and Security Rules and to facilitate compliance with HIPAA and the HITECH Amendment to HIPAA.

- §1. DEFINITIONS.** The following terms have the meanings set forth below for purposes of the Agreement, unless the context clearly indicates another meaning. Terms used but not otherwise defined in this Agreement have the same meaning as those terms in the Privacy Rule.
- 1.1 **Business Associate.** "Business Associate" means the Contractor.
 - 1.2 **CFR.** "CFR" means the Code of Federal Regulations.
 - 1.3 **Contract.** "Contract" means the document with the Purchasing Contract Number.
 - 1.4 **Contractor.** "Contractor" means the entity or individual defined in the Contract and listed on the first page of this Contract.
 - 1.5 **Covered Entity.** "Covered Entity" means the County of Oakland as defined in the Contract.
 - 1.6 **Designated Record Set.** "Designated Record Set" is defined in 45 CFR 164.501.
 - 1.7 **Electronic Health Record.** "Electronic Health Record" means an electronic record of health-related information on an individual that is created, gathered, managed, and consulted by authorized health care clinicians and staff.
 - 1.8 **HIPAA.** "HIPAA" means the Health Insurance Portability and Accountability Act of 1996.
 - 1.9 **HITECH Amendment.** "HITECH Amendment" means the changes to HIPAA made by the Health Information Technology for Economic and Clinical Health Act.
 - 1.10 **Individual.** "Individual" is defined in 45 CFR 160.103 and includes a person who qualifies as a personal representative in 45 CFR 164.502(g).
 - 1.11 **Privacy Rule.** "Privacy Rule" means the privacy rule of HIPAA as set forth in the Standards for Privacy of Individually Identifiable Health Information at 45 CFR part 160 and part 164, subparts A and E.
 - 1.12 **Protected Health Information.** "Protected Health Information" or "PHI" is defined in 45 CFR 160.103, limited to the information created or received by Business Associate from or on behalf of Covered Entity.
 - 1.13 **Required By Law.** "Required By Law" is defined in 45 CFR 164.103.

- 1.14 **Secretary.** “Secretary” means the Secretary of the Department of Health and Human Services or his or her designee.
- 1.15 **Security Incident.** “Security Incident” is defined in 45 CFR 164.304.
- 1.16 **Security Rule.** “Security Rule” means the security standards and implementation specifications at 45 CFR part 160 and part 164, subpart C.
- §2. OBLIGATIONS AND ACTIVITIES OF BUSINESS ASSOCIATE.** Business Associate agrees to perform the obligations and activities described in this Section.
- 2.1 Business Associate understands that pursuant to the HITECH Amendment, it is subject to the HIPAA Privacy and Security Rules in a similar manner as the rules apply to Covered Entity. As a result, Business Associate shall take all actions necessary to comply with the HIPAA Privacy and Security Rules for business associates as revised by the HITECH Amendment, including, but not limited to, the following: (a) Business Associate shall appoint a HIPAA privacy officer and a HIPAA security officer; (b) Business Associate shall establish policies and procedures to ensure compliance with the Privacy and Security Rules; (c) Business Associate shall train its workforce regarding the Privacy and Security Rules; (d) Business Associate shall enter into a privacy/security agreement with Covered Entity; (e) Business Associate shall enter into privacy/security agreements with its subcontractors that perform functions relating to Covered Entity involving PHI; (f) Business Associate shall conduct a security risk analysis; and (g) Business Associate shall provide documentation upon request in relation to performance under this section.
- 2.2 Business Associate shall not use or disclose PHI other than as permitted or required by this Agreement or as required by law.
- 2.3 Business Associate shall use appropriate safeguards to prevent use or disclosure of the PHI. Business Associate shall implement administrative, physical, and technical safeguards (including written policies and procedures) that reasonably and appropriately protect the confidentiality, integrity, and availability of PHI that it creates, receives, maintains, or transmits on behalf of Covered Entity as required by the Security Rule.
- 2.4 Business Associate shall mitigate, to the extent practicable, any harmful effect that is known to Business Associate of a use or disclosure of PHI by Business Associate in violation of law or this Agreement.
- 2.5 Business Associate shall report to Covered Entity any known Security Incident or any known use or disclosure of PHI not permitted by this Agreement.
- 2.6 Effective September 23, 2009 or the date this Agreement is signed, if later, Business Associate shall do the following in connection with the breach notification requirements of the HITECH Amendment:
- 2.6.1 If Business Associate discovers a breach of unsecured PHI, as those terms are defined by 45 CFR 164.402, Business Associate shall notify Covered Entity without unreasonable delay but no later than ten (10) calendar days after discovery. For this purpose, “discovery” means the first day on which the breach is known to Business Associate or should have been known by exercising reasonable

diligence. Business Associate shall be deemed to have knowledge of a breach if the breach is known or should have been known by exercising reasonable diligence, to any person, other than the person committing the breach, who is an employee, officer, subcontractor, or other agent of Business Associate. The notification to Covered Entity shall include the following: (a) identification of each individual whose unsecured PHI has been breached or has reasonably believed to have been breached, and (b) any other available information in Business Associate's possession that the Covered Entity is required to include in the individual notice contemplated by 45 CFR 164.404.

- 2.6.2 Notwithstanding the immediate preceding subsection, Business Associate shall assume the individual notice obligation specified in 45 CFR 164.404 on behalf of Covered Entity where a breach of unsecured PHI was committed by Business Associate or its employee, officer, subcontractor, or other agent of Business Associate or is within the unique knowledge of Business Associate as opposed to Covered Entity. In such case, Business Associate shall prepare the notice and shall provide it to Covered Entity for review and approval at least five (5) calendar days before it is required to be sent to the affected individual(s). Covered Entity shall promptly review the notice and shall not unreasonably withhold its approval.
- 2.6.3 Where a breach of unsecured PHI involves more than five hundred (500) individuals and was committed by the Business Associate or its employee, officer, subcontractor, or other agent or is within the unique knowledge of Business Associate as opposed to Covered Entity, Business Associate shall provide notice to the media pursuant to 45 CFR 164.406. Business Associate shall prepare the notice and shall provide it to Covered Entity for review and approval at least five (5) calendar days before it is required to be sent to the media. Covered Entity shall promptly review the notice and shall not unreasonably withhold its approval.
- 2.6.4 Business Associate shall maintain a log of breaches of unsecured PHI with respect to Covered Entity and shall submit the log to Covered Entity within thirty (30) calendar days following the end of each calendar year, so that the Covered Entity may report breaches to the Secretary in accordance with 45 CFR 164.408. This requirement shall take effect with respect to breaches occurring on or after September 23, 2009.
- 2.7 Business Associate shall ensure that any agent or subcontractor to whom it provides PHI, received from Covered Entity or created or received by Business Associate on behalf of Covered Entity, agrees in writing to the same restrictions and conditions that apply to Business Associate with respect to such information. Business Associate shall ensure that any such agent or subcontractor implements reasonable and appropriate safeguards to protect Covered Entity's PHI.
- 2.8 Business Associate shall provide reasonable access, at the written request of Covered Entity, to PHI in a Designated Record Set to Covered Entity or, as directed in writing by Covered Entity, to an Individual in order to meet the requirements under 45 CFR 164.524.
- 2.9 Business Associate shall make any amendment(s) to PHI in a Designated Record Set that the Covered Entity directs in writing or agrees to pursuant to 45 CFR 164.526.

- 2.10 Following receipt of a written request by Covered Entity, Business Associate shall make internal practices, books, and records reasonably available to the Secretary in order to determine Covered Entity's compliance with the Privacy Rule. The afore mentioned materials include policies and procedures and PHI relating to the use and disclosure of PHI received from Covered Entity or created or received by Business Associate on behalf of Covered Entity.
- 2.11 Business Associate shall document disclosures of PHI and information related to such disclosures, to permit Covered Entity to respond to a request by an Individual for: (a) an accounting of disclosures of PHI in accordance with 45 CFR 164.528 or (b) effective January 1, 2011 or such later effective date prescribed by regulations issued by the U.S. Department of Health and Human Services, an accounting of disclosures PHI from an Electronic Health Record in accordance with the HITECH Amendment.
- 2.12 Following receipt of a written request by Covered Entity, Business Associate shall provide to Covered Entity or an Individual information collected in accordance with Section 2 to permit Covered Entity to respond to a request by an Individual for: (a) an accounting of disclosures of PHI in accordance with 45 CFR 164.528 or (b) effective as of January 1, 2011 or such later effective date prescribed by regulations issued by the U.S. Department of Health and Human Services, an accounting of disclosures of Protected Health Information from an Electronic Health Record in accordance with the HITECH Amendment.
- §3. PERMITTED USES AND DISCLOSURES BY BUSINESS ASSOCIATE.** Business Associate may use and disclose PHI as set forth in this Section.

- 3.1 Except as otherwise limited in this Agreement, Business Associate may use or disclose PHI to perform functions, activities, or services for or on behalf of Covered Entity as specified in the underlying service agreement between Covered Entity and Business Associate, provided that such use or disclosure shall not violate the Privacy Rule if done by Covered Entity or the minimum necessary policies and procedures of the Covered Entity. If no underlying service agreement exists between Covered Entity and Business Associate, Business Associate may use or disclose PHI to perform functions, activities, or services for or on behalf of Covered Entity for the purposes of payment, treatment, or health care operations as those terms are defined in the Privacy Rule, provided that such use or disclosure shall not violate the Privacy Rule if done by Covered Entity or the minimum necessary policies and procedures of the Covered Entity.
- 3.2 Except as otherwise limited in this Agreement, Business Associate may use PHI for the proper management and administration of the Business Associate or to carry out the legal responsibilities of the Business Associate.
- 3.3 Except as otherwise limited in this Agreement, Business Associate may disclose PHI for the proper management and administration of the Business Associate or to carry out the legal responsibilities of the Business Associate, provided that disclosures are Required by Law or Business Associate obtains reasonable assurances in writing from the person to whom the information is disclosed that: (a) the disclosed PHI will remain confidential and will be used or further disclosed only as

Required by Law or for the purpose for which it was disclosed to the person and (b) the person notifies the Business Associate of any known instances in which the confidentiality of the information has been breached.

- 3.4 Except as otherwise limited in this Agreement, Business Associate may use PHI to provide data aggregation services to Covered Entity as permitted by 45 CFR 164.504(e)(2)(i)(B).
- 3.5 Business Associate may use PHI to report violations of law to appropriate federal and state authorities, consistent with 45 CFR 164.502(j)(1).

§4. OBLIGATIONS OF COVERED ENTITY.

- 4.1 Covered Entity shall notify Business Associate of any limitation(s) of Covered Entity in its notice of privacy practices in accordance with 45 CFR 164.520, to the extent that such limitation may affect Business Associate's use or disclosure of PHI.
- 4.2 Covered Entity shall notify Business Associate of any changes in or revocation of permission by an Individual to use or disclose PHI, to the extent that such changes may affect Business Associate's use or disclosure of PHI.
- 4.3 Covered Entity shall use appropriate safeguards to maintain and ensure the confidentiality, privacy and security of PHI transmitted to Business Associate pursuant to this Agreement, the Contract, and the Privacy Rule, until such PHI is received by Business Associate, pursuant to any specifications set forth in any attachment to the Contract.
- 4.4 Covered Entity shall manage all users of the services including its qualified access, password restrictions, inactivity timeouts, downloads, and its ability to download and otherwise process PHI.
- 4.5 The Parties acknowledge that Covered Entity owns and controls its data.
- 4.6 Covered Entity shall provide Business Associate with a copy of its notice of privacy practices produced in accordance with 45 CFR Section 164.520, as well as any subsequent changes or limitation(s) to such notice, to the extent such changes or limitations may affect Business Associate's use or disclosure of PHI. Covered Entity shall provide Business Associate with any changes in or revocation of permission to use or disclose PHI, to the extent the changes or revocation may affect Business Associate's permitted or required uses or disclosures. To the extent that the changes or revocations may affect Business Associate's permitted use or disclosure of PHI, Covered Entity shall notify Business Associate of any restriction on the use or disclosure of PHI that Covered Entity has agreed to in accordance with 45 CFR Section 164.522. Covered Entity may effectuate any and all such notices of non-private information via posting on Covered Entity's web site.

§5. EFFECT OF TERMINATION.

- 5.1 Except as provided in Section 5, upon termination of this Agreement or the Contract, for any reason, Business Associate shall return or destroy (at Covered Entity's request) all PHI received from Covered Entity or created or received by Business Associate on behalf of Covered Entity. This provision shall apply to PHI that is in the possession of subcontractors or agents of Business Associate. Business Associate shall retain no copies of PHI.
- 5.2 If Business Associate determines that returning or destroying the PHI is infeasible, Business Associate shall provide to Covered Entity written notification of the conditions that make return or destruction infeasible. Upon receipt of written notification that return, or destruction of PHI is infeasible, Business Associate shall extend the protections of this Agreement to such PHI and shall limit further uses and disclosures of such PHI to those purposes that make the return or destruction infeasible, for so long as Business Associate maintains such PHI, which shall be for a period of at least six (6) years.

§6 MISCELLANEOUS.

- 6.1 This Agreement is effective when the Contract is executed or when Business Associate becomes a Business Associate of Covered Entity and both Parties sign this Agreement, if later. However, certain provisions have special effective dates, as set forth herein or as set forth in HIPAA or the HITECH Amendment.
- 6.2 **Regulatory References.** A reference in this Agreement to a section in the Privacy Rule or Security Rule means the section as in effect or as amended.
- 6.3 **Amendment.** The Parties agree to take action to amend this Agreement as necessary for Covered Entity to comply with the Privacy and Security requirements of HIPAA. If the Business Associate refuses to sign such an amendment, this Agreement shall automatically terminate.
- 6.4 **Survival.** The respective rights and obligations of Business Associate and Covered Entity under this Agreement shall survive the termination of this Agreement and/or the Contract.

EXHIBIT III

REQUIREMENTS FOR CONTRACTORS WITH ACCESS TO COUNTY PII (Personally Identifiable Information)

Exhibit III governs the requirements for Contractors with Access to Personally Identifiable Information (PII).

1. **DEFINITIONS**

- 1.1 **Security Breach** means the unauthorized access, acquisition, theft, or disclosure of PII.
- 1.2 **PII** (Personally Identifiable Information) means a name, number, or other information that is used for the purpose of identifying a specific person or providing access to a person's financial accounts, including, but not limited to, a person's name, address, telephone number, driver's license or state personal identification card number, social security number, place of employment, employee identification number, employer or taxpayer identification number, government passport number, health insurance identification number, mother's maiden name, demand deposit account number, savings account number, financial transaction device account number or the person's account password, any other account password in combination with sufficient information to identify and access the account, automated or electronic signature, biometrics, stock or other security certificate or account number, credit card number, vital record, or medical records or information as well as the first name or first initial and last name linked to a social security number, driver's license or state personal identification card or financial account number in combination with a code or password that would permit access to a person's financial account(s) and as otherwise may be defined by state or federal laws governing the unauthorized access to personal information.

2. **OBLIGATIONS**

- 2.1 Contractor shall not use or disclose PII other than as permitted or required by this Contract or as required by law.
- 2.2 Contractor shall implement administrative, physical, and technical safeguards (including written policies and procedures) that reasonably and appropriately protect the confidentiality, integrity, and availability of PII that it creates, receives, maintains or transmits on behalf of the County.
- 2.3 Contractor shall mitigate, to the extent practicable, any harmful effect known to Contractor of the use or disclosure of PII in violation of law or this Contract.
- 2.4 If Contractor or Contractor Employees discover a Security Breach, Contractor shall notify the County without unreasonable delay, but no later than within forty-eight (48) hours of discovery. For this purpose, "discovery" means the first day on which the Security Breach is known to Contractor or Contractor Employee or should have been known by exercising reasonable diligence. Contractor shall be deemed to have knowledge of a Security Breach if the Security Breach is known or should have been known by exercising reasonable diligence by any person, other than the person committing the Security Breach. The notification to the County shall include the

following: (a) describe the Security Breach in general terms; (b) describe the type of personal information that is the subject of the Security Breach; (c) identify each individual whose PII has been breached or has reasonably believed to have been breached; (d) describe in general terms, what Contractor has done to prevent additional Security Breaches; and (e) provide any other available information in Contractor or subcontractor's possession that may be necessary to comply with Security Breach notification laws.

- 2.5 If the County determines it will provide the notice of the Security Breach to the affected individuals and/or to governmental authorities, Contractor shall reimburse the County for: (a) its costs in notifying the affected individuals; (b) the cost of third-party credit and identify monitoring services to each of the affected individuals with compromised PII for no less than twenty-four (24) months following the date of notification to each individual; and (c) costs associated with the Security Breach, including but not limited to any costs incurred by the County in investigating and resolving the Security Breach, including reasonable fees associated with such investigation and resolution. Without limiting Contractor's obligations of indemnification as described in the Contract, Contractor shall indemnify, defend, and hold harmless the County for any and all claims, including reasonable attorneys' fees, costs, and incidental expenses, which may be suffered by, accrued against, charged to, or recoverable from the County in connection with the Security Breach. Contractor shall reimburse County for the applicable costs described above within thirty (30) days of receipt of an itemization of costs incurred by the County because of the Security Breach.
- 2.6 Within ten (10) calendar days of its discovery of the Security Breach, Contractor shall provide the County with a detailed plan describing the measures Contractor will undertake to prevent a future Security Breach. The County shall have the right to audit, inspect and test Contractor's new safeguards put in place because of the Security Breach. Contractor shall be responsible for recreating lost County Data in the manner and on the schedule set by the County without charge to the County.

EXHIBIT IV

REQUIREMENTS FOR CONTRACTORS WITH ACCESS TO CJIS DATA (Criminal Justice Information Security)

Exhibit IV governs the requirements for Contractors with Access to Criminal Justice Information governed by the CJIS Security Policy of the FBI.

1. Definitions

- 1.1 **Criminal Justice Information (CJI)** means data or information governed by the CJIS Security Policy.
- 1.2 **Criminal Justice Information Services (CJIS)** means the Criminal Justice Information Services, a division in the Federal Bureau of Investigation (FBI) that sets a minimum standard of security requirements to protect and safeguard CJI.
- 1.3 **CJIS Security Policy** means the Policy that governs the security of CJI. The CJIS Security Policy provides guidance for the creation, viewing, modification, transmission, dissemination, storage, and destruction of CJI. This Policy applies to every individual—contractor, private entity, noncriminal justice agency representative, or member of a criminal justice entity—with access to, or who operate in support of, criminal justice services and information.

2. Obligations

Contractor shall comply with the current version of the CJIS Security Policy, which may be amended from time to time by the CJIS Advisory Policy Board of the FBI. A link to the current FBI standards is available: <https://www.fbi.gov/services/cjis/cjis-security-policy-resource-center>

EXHIBIT V

FEDERALLY FUNDED CONTRACT REQUIREMENTS

Exhibit V sets forth additional provisions for all federally funded contracts. To the extent that this Contract is funded, in whole or in part, by any federal award, the following provisions apply:

1. **Termination.** In addition to the termination rights set forth in Section 4 of this Contract, the County may terminate this Contract, in whole or in part, for cause upon notice to Contractor if Contractor breaches any duty or obligation in the Contract and fails to cure the breach, to the County's satisfaction, if applicable.
 - 1.1 **Right to Cure.** If the Contractor breaches this Contract, and the County, in its sole discretion, determines that the breach is curable, then the County must provide the Contractor with written notice of the breach and a time period (not less than thirty (30) Days) to cure the breach. The notice of breach and opportunity to cure do not apply in the following circumstances: (1) for successive or repeated breaches; (2) if the County determines in its sole discretion that the breach poses a serious and imminent threat to the health or safety of any person or the imminent loss, damage, or destruction of any real or tangible personal property; or (3) if the County terminates the Contract under this Section or Section A above. The effective date for termination or cancellation shall be clearly stated in the written notice.
 - 1.2 **Termination Deemed for Convenience.** If the County terminates the Contract for cause and it is determined, for any reason, that Contractor was not in breach of Contract, then the termination for cause shall be deemed a termination for convenience, effective as of the same date specified in the notice of breach.
2. **Contractor's Obligations Upon Termination for Cause.** If the Contract is terminated for cause, the County may require Contractor to pay all costs incurred by the County in terminating the Contract, including but not limited to, administrative costs, reasonable attorneys' fees, court costs, and any reasonable additional costs the County may incur to procure the Deliverables required by the Contract from other sources. Re-procurement costs are not consequential, indirect or incidental damages and cannot be excluded by any other terms included in this Contract; however, such costs shall not exceed 50% of the County's financial obligation under this Contract.
3. **Compliance with Laws.** Contractor shall comply with the following, if applicable:
 - 3.1 The Davis-Bacon Act (40 U.S.C. 3141-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction");
 - 3.2 The Copeland "Anti-Kickback" Act (40 U.S.C. 3145 *et seq.*), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States");

- 3.3 The Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708) as supplemented by Department of Labor regulations (29 CFR Part 5);
- 3.4 The requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency;
- 3.5 All applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387);
- 3.6 All mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6201 *et seq.*); and
- 3.7 The Byrd Anti-Lobbying Amendment (31 U.S.C. 1352 *et seq.*)
- 4. **Debarment and Suspension.** Contractor certifies that it is not listed on the government-wide Excluded Parties List System in the System for Award Management (SAM). Contractor must promptly notify the County, if Contractor is listed in SAM at any time during the term, renewal, or extension of this Contract. If Contractor is listed in SAM, the County may terminate or cancel this Contract, in whole or in part, immediately, upon notice to Contractor.
- 5. **Equal Employment Opportunity.** If this Contract meets the definition of "Federally Assisted Construction Contract" under 41 CFR Part 60-1.3, then during the performance of this Contract, Contractor agrees as follows:
 - 5.1 The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
 - 5.2 The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.
 - 5.3 The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this Section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

- 5.4 The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- 5.5 The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- 5.6 In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of the said rules, regulations, or orders, this Contract may be cancelled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- 5.7 The Contractor will include the portion of the sentence immediately preceding paragraph E (1) and the provisions of paragraphs E (1) through E (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided, however*, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

EXHIBIT VII

LICENSE FOR USE OF COUNTY SERVICEMARK

County grants to Contractor the non-exclusive right to use its Servicemark (hereinafter “Mark”), described and listed in the Servicemark Guidelines (below), for programs and activities that are related to the governmental services provided by Oakland County, specifically:

The Mark may be used on: (Applicable if Checked):

- ☐ Printed materials
- ☐ Electronic materials
- ☐ Contractor’s website: [insert website address].

Contractor shall not use the Mark for any other purpose.

The Mark must be used by Contractor as shown in the Servicemark Guidelines, with no variations of color, font or proportion. Contractor acknowledges that the County has intellectual property rights in the Mark. Nothing in this Contract gives Contractor any right, title, or interest in the Mark. Contractor may not take any action that will interfere with County’s rights in the Mark.

The County may terminate Contractor’s rights under this Exhibit, if County notifies Contractor it has breached the terms of this Exhibit and Contractor fails to cure the breach within ten (10) business days of notice of breach. Following termination of this Exhibit, Contractor shall have ten (10) business days to remove the Mark from the materials and/or website authorized for use above. Contractor shall provide County with written confirmation that such actions have been taken. Upon termination of the Contract, Contractor shall cease all use of the Mark.

Servicemark Guidelines

The Guidelines for proper use of the Mark provided to the Contractor are as follows:

OAKLAND COUNTY, MICHIGAN

LOGO BRAND STANDARDS


PRIMARY LOGO

Oakland County has two logos that can be used interchangeably. Use the Horizontal Two Trees logo as your default choice. This is our primary logo. The Stacked Logo can be used whenever space or size is a consideration in your publication. Either logo is acceptable for all Oakland County publications.


However, **only one style of logo may be used per publication.** For instance, if you have the horizontal logo on the front of a publication, you can't use the stacked logo elsewhere in the document.

Pick one logo style for each publication and use it throughout, do not mixed styles.

HORIZONTAL "TWO TREES" LOGO



STACKED LOGO




BRAND COLORS

The primary Oakland County logos use the following brand colors.


Color	PMS	CMYK	RGB	HEX
Destination Oakland Blue	347	84, 15, 78, 2	0, 154, 102	#009A66
Prosper Orange	715	CMYK 0.54, 87, 0	RGB 245, 141, 48	
Black C	Black C	0, 0, 0, 100	0, 0, 0	#000000

Accent colors for the brand are pulled from two other major servicemarks for Oakland County. These colors may be used as secondary colors in publications.




WHITE SPACE

A prescribed amount of space around the logo must be maintained at all times.



LOGO VARIATIONS

Logos should appear in full color when used in a full color design, whenever possible. However, if the publication requires a single color version of the logo, choose either all-black or all-white. No other color is acceptable.



QUESTIONS

For questions or clarification on these brand standards, please contact:

Pam Tremble
Graphic Designer
County Executive Administration
(248) 858-8964 | tremblep@oakgov.com

Adobe Swatch Exchange
The official .ase file is available upon request

Do not provide copies to a third-party of any artwork provided to you by County and referenced in this Exhibit without the express consent of County.



EXHIBIT VIII

ACKNOWLEDGEMENT OF INDEPENDENT EMPLOYMENT STATUS

I, _____, acknowledge that I am an employee or subcontractor of
(Name of Contractor's Company): _____

(hereinafter "Company") under Contract #: _____, and

- At all times during my assignment at Oakland County, I will remain an employee or subcontractor of the Company
- I am not an employee of Oakland County; and,
- I may not represent myself as an employee of Oakland County.

I understand that:

- Company is responsible for establishing the conditions of my assignment to Oakland County; and
- Company is solely responsible for compensating me for my services; and
- I understand and agree that as an employee or subcontractor of Company, I am not eligible to participate in or accrue any benefits under any of Oakland County's employee benefits or benefit plans, including retirement, deferred compensation, insurance (including without limitation: health, disability dental and life insurance), vacation pay, and any other similar plans and programs. However, if I am a retired County employee, I may receive vested post-employment benefits such as retiree healthcare and pension benefits from Oakland County. I understand that the post-retirement benefits I receive from the County cannot be enhanced by my work for the above Contractor.

I acknowledge that:

- I have no copyright, patent, trademark or trade secret rights to any Oakland County Intellectual Property or any work developed by me while providing services to Oakland County; and,
- If I will be given access to the County Network, I will comply with the Oakland County Electronic Communications and Use of Technology Policy.
- I will comply with and sign the FBI Criminal Justice Information Services Security Addendum if I will have access to CJIS Data.

Signed: _____

Date: _____

Print Name: _____

Witness: _____

Date: _____

Print Name: _____

**Contractor or Contractor Employee must provide a copy of completed form to the Compliance Office - Purchasing Unit at Purchasing@oakgov.com to receive a County Identification badge.*

EXHIBIT IX

SCOPE OF CONTRACTOR DELIVERABLES/FINANCIAL OBLIGATIONS

1. General

WRC anticipates numerous maintenance and rehabilitation projects will be performed by one or more contractors during the duration of the Contract. The scope and duration of each project will be developed prior to assigning to the contractor. Based on the scope developed, for any individual project, WRC may request a project estimate from one or more of the contractors, based on the Contract rates/ unit prices or lump sum amounts. The project estimate may be used as a not to exceed amount for that particular project, as agreed upon between WRC and the Contractor. Project assignments will be made at the sole discretion of WRC.

2. Contractor Availability

The Contractor must be available for emergency services, with the ability to mobilize on site and be ready to work within 2 hours of being notified for any emergency maintenance or repair. In addition, the Contractor must have the ability to work flexible hours, including nighttime hours, and 4 day, ten hour per day work weeks, as determined necessary by WRC.

3. Inspection

WRC shall provide full time inspection, during the duration of each project. No operation(s) shall commence without WRC inspection, unless otherwise approved by WRC.

4. Work Cancellation

WRC will have complete discretion to cancel work due to weather and or other circumstances with no penalty to WRC. WRC will strive to provide reasonable notification of cancelled work.

5. Invoicing

Contractor invoicing shall be performed on a monthly basis or a mutually agreed upon schedule between WRC and the Contractor. Invoicing shall be itemized in accordance with the Contractor line items and segregated by the type of work and work order.

For each project, the contractor may bill only one mobilization charge.

Contractor shall provide back-up information such as purchase orders, invoices, delivery receipts and subcontractors a required by WRC for all subcontracted services and purchased material and supplies.

6. Non-productive Time

Non-productive time due to equipment failure or other Contractor determined cause will not be included in the Contractor's monthly invoice.

7. Grant Eligibility

Certain projects may have grant eligibility requirements which will be provided by the Contractor at no cost to WRC, unless otherwise agreed upon.

8. Safety

Contractor shall be responsible for adhering to all local, State, and Federal Safety Standards. No additional payment will be made for any items needed to adhere to all local, State and Federal Safety Standards.

9. Maintenance and Rehabilitation Services

(a) General

Bidders shall be capable of providing one or more of the services detailed below. All work shall be performed in a professional manner and shall be consistent with the practices of the trade and the attached specifications for each operation. *Specific information regarding items b-i will be found in Attachment C.*

(b) Thermal (Hot Water or Steam) Cured in Place Pipe Liner

Provide for the reconstruction of sewer pipes by the use of the Cured-in-Place Pipe (C.I.P.P.) process utilizing the trenchless method of installation of a resin-impregnated, flexible tube which is inverted into the existing sewer by hydrostatic head or steam and cured by means of thermally heated water or steam. Full length pipe liners, spot liners and lateral liners could be requested. When cured, the finished sewer lining shall be tight fitting and continuous from end to end. This operation shall be performed in accordance with the attached Thermal Cured in Place Pipe Specification or as otherwise agreed upon by WRC.

(c) UV Cured in Place Pipe Liner

Provide for the reconstruction of sewer pipes by the use of the Cured-in-Place Pipe (C.I.P.P.) process utilizing the trenchless method of installation of a resin-impregnated, flexible tube which is inverted into the existing sewer by hydrostatic head or steam pressure and cured by means of ultraviolet light. When cured, the finished sewer lining shall be tight fitting and continuous from end to end. This operation shall be performed in accordance with the attached UV Cured in Place Pipe Specification or as otherwise agreed upon by WRC.

(d) By-Pass Pumping and Dewatering

Provide by-pass pumping and dewatering services as determined necessary and agreed upon between WRC and the Contractor.

(e) Manhole and Pipe Rehabilitation by Spray Lining

Provide for the reconstruction of manholes and sewer pipes by the use of the Spray Lining Rehabilitation process, spraying a cementitious lining, epoxy lining or another approved material into an existing host manhole and/or pipe. This operation shall be performed in accordance with the attached Manhole and Pipe Rehabilitation and Spray Lining Specification or as otherwise agreed upon by WRC.

(f) Sewer Cleaning

The cleaning of small, moderate and large diameter sewers, complete with removal and disposal of debris resultant from the cleaning operation. Cleaning shall include, but not limited to, the removal of dirt, grease, rocks, roots, also other foreign solid or semi-solid material and obstructions from designated sewer lines and structures, including disposal of the materials. The work of this section shall conform to the applicable portions of the National Association of Sewer Service Companies (NASSCO) and performed in accordance with the attached Sewer Cleaning Specifications, or as otherwise approved by WRC.

(g) Sewer Pipe Joint Testing and Sealing

Sewer pipe joint testing is used to test the integrity (tightness or leakage) of individual pipe joints. The intent of pipe joint testing is to identify those sewer pipe

joints that are defective (allowing groundwater to enter the sewer system) and that can be successfully sealed by the internal pipe joint sealing process. Testing of joints which are visibly leaking (infiltrating) is unnecessary because the intent of testing is obviously attained. Testing cannot be performed and will not be required on cracked or broken pipe, building sewers, or sections of pipe between joints. Sealing is done by grouting of internal joints of sewer pipes which have failed the joint test criteria described in Sewer Pipe Joint Testing Specification. All grout shall contain root inhibitor unless specified otherwise.

(h) CCTV / Sewer Inspection

Sewer inspection shall include Closed Circuit TV (CCTV) and/or Walk through Inspections of large diameter sewers. Personnel viewing the live video feed in the televising van must be NASSCO certified and have at least three years of certified NASSCO grading experience. All work must be in PACP format. WRC uses GraniteNet software. The work of this section shall conform to the applicable portions of the National Association of Sewer Service Companies (NASSCO) and performed in accordance with the attached CCTV Inspection Specifications. All videos and reports shall be submitted on a portable hard drive or thumb drive and shall include work order numbers, footage and a video log. DVD's will not be accepted. Contractor shall keep copies of video and reports for one (1) year on a separate dedicated WRC hard drive. Video and reports shall be submitted with any payment request for WRC review prior to issuance of payment.

(i) Other as Needed Services

Other maintenance and rehabilitation services not identified in this RFP may be included in the Contractor's proposal. For these services the Contractor's proposal shall include a clear description of the proposed service, including applicable specifications and applicable pricing.

PART 1 General

1.01 SUMMARY

1.01.01 Section includes thermal cured in place pipe.

1.01.01.01 It is the intent of this specification to provide for the reconstruction of sewer pipes by the use of the Cured-in-Place Pipe (C.I.P.P.) process utilizing the trenchless method of installation of a resin-impregnated, flexible tube which is inverted into the existing sewer by hydrostatic head or air pressure and cured by means of heated water or air (WRC approval only). When cured, the finished sewer lining shall be tight fitting and continuous from end to end.

1.01.02 Referenced Specifications:

- 1.01.02.01 CCTV Inspection Sewer
- 1.01.02.02 Sewer Cleaning
- 1.01.02.03 Sewer Pipe Joint Testing
- 1.01.02.04 Sewer Pipe Joint Sealing
- 1.01.02.05 Chemical Sealing (Grout) Material
- 1.01.02.06 By-Pass Pumping
- 1.01.02.07 Manhole and Pipe Rehabilitation and Spray Lining

1.02 QUALITY CONTROL

1.02.01 All work for this section shall conform to the applicable portions of the latest Standard Specifications:

- 1.02.01.01 ASTM D 5813 – 04 (2008)
- 1.02.01.02 ASTM F 1216 – 09 (including Appendix X1)
- 1.02.01.03 ASTM F 2019-03
- 1.02.01.04 ASTM F 1743 – 96 (2003)

1.02.02 However, where the requirements of ASTM D 5813, ASTM F 1216, ASTM F 2019 or ASTM D 1743 conflict with the requirements of this section, this section shall govern.

1.03 SUBMITTALS

1.03.01 CCTV Inspection Sewer.

1.03.01.01 A CCTV inspection of the sewer before conditions and after conditions including the restore connections shall be completed per the CCTV Inspection Sewer specifications and turned over to the Owner and become their property.

1.03.02 Material Test

1.03.02.01 Material test shall be furnished to the Owner for review and approval prior to beginning the rehabilitation work, satisfactory written guarantee of compliance with the standards specifications for all materials, techniques, and installation methods being used in the rehabilitation process.

1.04 BY-PASS PUMPING PLAN

1.04.01.01 Submit a detailed sewer by-pass pumping plan to WRC for review fifteen (15) days prior to the beginning of work per the By-Pass Pumping specifications.

1.04.02 Request for Deviation

1.04.02.01 Any deviation in this specification or reference specifications must have prior approval from WRC.

1.05 DESIGN CONSIDERATIONS

1.05.01 Treat the pipe as full deteriorated host pipe always for your design.

1.05.02 Minimum CIPP Physical Properties:

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Property	Test Method	Material			
		Polyester	Enhanced Polyester	Vinyl Ester	Epoxy
Short Term Modulus of Elasticity	ASTM D790	350,000 psi	400,000 psi	350,000 psi	350,000 psi
Long Term Modulus of Elasticity	ASTM D790	150,000 psi	200,000 psi	125,000 psi	150,000 psi
Creep Retention Factor	ASTM D790	50%	50%	50%	50%
Flexural Stress	ASTM D790	4,500 psi	4,500 psi	4,500 psi	4,500 psi

1.05.02.01 Poisson's ratio = 0.30

1.05.02.02 Safety Factor = 2.0

1.05.02.03 Soil Density = 130 lbs/cft

1.05.02.04 Soil Modulus

1.05.02.04.01 700 psi for pipe inverts up to and including 15 feet deep.

1.05.02.04.02 1,000 psi for pipe inverts greater than 15 feet deep.

1.05.02.05 Surcharged Loading of HS-20 when any part of the sewer is under any roadway and E-80 when under any railroad.

1.05.03 The AWARDED VENDOR(S) shall determine the liner thickness and resin quantity per ASTM F 1216, Appendix X1.3.2 for the Fully Deteriorated Pressure Pipe condition and shall follow the requirements specified in this section. These detailed calculations shall provide the input data as well as the actual calculation for equations X1.1, X1.3, X1.4 and X1.7 of Appendix X1. of ASTM F1216. The design submittal shall also clearly identify the physical properties used for design and be sealed by a licensed Professional Engineer. These physical properties shall be the basis for acceptance of the final product.

PART 2 PRODUCTS

2.01 FELT LINER TUBE

2.01.01 The Tube shall consist of one or more layers of flexible, needled felt or an equivalent nonwoven material. The material shall be capable of carrying the specified resin, be able to withstand installation pressures and curing temperatures, and be compatible with the resin used.

2.01.02 The outer Tube coating shall consist of a translucent elastomer that allows for visual inspection and verification of proper resin impregnation. To help with this visual inspection a dye shall be placed in the resin and the color should be uniformed and must be approved by WRC. The plastic coating shall hold the resin inside the Tube without leakage, accommodate installation, and stretch to the size and shape of the existing sewer, and shall not delaminate before, during, or after curing.

2.01.03 The Tube shall have a uniform thickness that when compressed at installation pressure will meet or exceed the design thickness. The thickness of the Tube shall be

calculated based upon the resin system values given in this Section. The minimum roller gap shall be two times the design thickness plus the felt thickness.

2.01.04 The CIPP wall thickness shall be calculated from the equation in ASTM F 1216, Appendix X1, based upon the parameters given in this Section. The minimum CIPP wall thickness shall be not less than the value calculated by the equation. Any layers of the tube that are not saturated with resin and totally cured shall not be included in the CIPP wall thickness.

2.01.05 The Tube shall be fabricated to a size that when installed will tightly fit the internal circumference of the conduit to be lined as specified by the Engineer. Allowance for circumferential stretching of the pipe during insertion shall be made as per manufacturer's recommendations.

2.01.06 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 tube shall be constructed to withstand installation pressures and have sufficient strength to bridge missing pipe while meeting or exceeding the design wall thickness at all pipe location during installation conditions and pressures.

2.01.07 The wall color of the interior pipe surface of the CIPP after installation shall be a light reflective color so that a clear detail examination with closed circuit television inspection equipment may be made.

2.01.08 Seams in the Tube shall be stronger than the unseamed felt. Where the length requires joining along the circumference of the Tube, the sewer joint shall not be perpendicular to the long axis but spirally formed and sewn.

2.01.09 The outside of the Tube shall be marked for the distance at regular intervals along its entire length, not to exceed five (5) feet. Such marking shall include the manufacturers name and identifying symbol.

2.01.10 The length of the Tube shall be deemed necessary by the AWARDED VENDOR(S) to effectively carry out the insertion and seal the pipe at the inlet and outlet points. The AWARDED VENDOR(S) shall verify the lengths in the field before cutting the Tube to length. Lengths of sewer can be lined over one or more access points as determined in the field by the AWARDED VENDOR(S) and approved by the ENGINEER.

2.02 RESIN

2.02.01 Resin shall be enhanced polyester, vinyl ester, or epoxy. Resin selected shall be resistant to the chemical composition of the sewage.

2.02.02 Resin with higher than minimum physical properties may be required for AWARDED VENDOR(S) to meet minimum field cured physical properties of the completed liner.

2.02.03 The resin shall be thermosetting resin that is compatible with the lining process and shall meet the requirements of ASTM F 1216 except as otherwise specified in this section. The resin shall be able to cure in water with an initiation temperature for cure of not less than 120° F. The cured resin/felt system shall be suitable for the expected conditions within the existing sanitary sewer.

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2.02.04 If an epoxy resin is used and there is water present in the pipe a pre-liner must be used.

2.02.05 Fiberglass reinforced system should be about 50% resin and 50% fiberglass by volume where the rest are about 85% resin to 15% fabric by volume.

2.02.06 Alternate resins shall only be allowed per 1.02.03.04.01 of this specification.

2.03 FIELD CURED LINER

2.03.01 The completed liner as installed and fully cured in place shall meet the following minimum physical properties for short term flexural modulus and flexural strength given per 1.02.04 of this specification.

2.03.02 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 occurs during testing of field samples, new samples will be cut from the work. Any reoccurrence may cause rejection of the work.

PART 3 EXECUTION

3.01 SAFETY

3.01.01 The AWARDED VENDOR(S) shall carry out his operations in strict accordance with all OSHA, MIOSHA, traffic and manufacturer's safety requirements.

3.02 CLEANING OF PIPELINES

3.02.01 The AWARDED VENDOR(S) shall follow WRC's Sewer Cleaning specification.

3.03 PRE-REHABILITATION INSPECTION OF PIPELINE

3.03.01 The AWARDED VENDOR(S) shall follow WRC's CCTV Inspection Sewer specification. The location of any conditions which may prevent proper installation of the lining materials into the pipelines shall be noted and reported immediately to WRC and corrected by section 3.05.

3.04 BY-PASS PUMPING

3.04.01 The AWARDED VENDOR(S) shall follow WRC's By-Pass Pumping specification.

3.05 LINE OBSTRUCTIONS

3.05.01 It shall be the responsibility of the AWARDED VENDOR(S) to clear the line of any obstructions such as solids, dropped joints, protruding branches, roots, or broken pipe that will prevent proper insertion of the liner. If inspection reveals an obstruction that cannot be removed by conventional cleaning equipment, then the obstruction shall be removed by equipment operating with the pipeline.

3.05.02 Services shall not protrude more than ¼ inch on any size sewer line. Anything protruding more than that shall be ground down as flush as possible with the wall of the sanitary sewer. Grinding shall be done with equipment operation inside of the sewer and shall not cause damage to the sewer or the service being ground.

3.05.03 If the protruding service is in such condition that grinding is not possible or in condition that such a repair cannot be done from the inside then the AWARDED VENDOR(S) shall inform WRC that a spot repair is necessary and provide all the details. Once WRC gives its approval the AWARDED VENDOR(S) shall make a spot repair

excavation, to uncover, remove, and repair the obstruction. The use of a flail type reamer to remove protruding services is not allowed.

3.06 INSTALLATION OF RESIN IMPREGNATED TUBE

3.06.01 The AWARDED VENDOR(S) shall designate a location where the uncured resin in the original containers and the un-impregnated liner will be resin impregnated prior to installation. The AWARDED VENDOR(S) shall allow WRC's personal to inspect all materials and procedures and will not commence with any work without WRC's personal on site unless given written permission by WRC. A resin and catalyst system compatible with the requirement of section 1.02.04 shall be used. The quantities of the liquid thermosetting materials shall be per manufacturer's standards to provide the cured liner properties specified. Sufficient resin shall be used to fill the volume of air voids in the liner with additional allowance for polymerization, shrinkage and loss of resin through cracks and irregularities in host pipe wall. The AWARDED VENDOR(S) shall ensure that the proper amount of resin is uniformly distributed throughout the entire length of the Tube.

3.06.02 The wetting out, installation, and curing of the resin impregnated tube shall be in accordance with ASTM F 1216. The Tube shall be inserted through an existing manhole or other approved access by means of an inversion process, the application of a hydrostatic head sufficient to fully extend the liner to the next designated access point, or any other means approved by WRC.

3.06.03 The process will be adjusted as necessary to ensure a complete lining without over stressing or tearing the lining; and with sufficient pressure to hold the liner snug to the pipe wall and to produce dimples at side connection and flared ends at the entrance and exit access points. The use of a lubricant is recommended and if used, such lubricant shall be compatible with the rehabilitation process.

3.06.04 The manufacturer's standards shall be closely followed during the elevated curing temperature so as not to over stress the felt fiber and cause damage or failure of the liner prior to cure.

3.07 CURING

3.07.01 The AWARDED VENDOR(S) shall submit a cure plan for approval by WRC. No work shall commence until the AWARDED VENDOR(S) gets WRC's approval.

3.07.02 Hot water or heat cured liners are required for the full length of the liner. Ambient cure liners may be used for spot repair liners or can be substituted for a full length liner only with approval by WRC.

3.07.03 After installation of the resin impregnated liner is completed the AWARDED VENDOR(S) shall supply a suitable heat source and water recirculation equipment when necessary to cure the liner. The equipment shall be capable of delivering hot water to the far end of the liner through a hose, which has been perforated per manufacturer's recommendations, to uniformly raise the water temperature in the entire pipe above the temperature required to affect a cure of the resin. This temperature shall be determined by the resin/catalyst system employed.

3.07.04 The heat source shall be fitted with suitable monitors to gauge the temperature of the incoming and outgoing circulating water/air. Thermocouples shall be placed at the end of the Tube and between the Tube and existing pipe at the access points to determine

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the temperature of the cure. Temperature in the line during the cure period shall not be less than 150° F or more than 200° F as measured at the heat exchanger return line.

3.07.05 Initial cure shall be deemed to be completed when inspection of the exposed portions of the liner appears to be hard and sound and the thermocouples indicate that an exotherm has occurred. The cure period shall be of a duration recommended by the resin manufacturer, as modified for the lining process, during which time the recirculation of the water/air and cycling of the heat exchanger to maintain the temperature in the liner continues.

3.08 COOL-DOWN

3.08.01 The AWARDED VENDOR(S) shall cool the CIPP to a temperature below 90° F before relieving the static pressure in the liner. Cool-down may be accomplished by the introduction of cool water into the liner to replace water being drained from the downstream end. Care shall be taken in the release of the static head such that a vacuum will not be developed that could damage the newly installed liner.

3.09 FINISH

3.09.01 The cured liner shall be continuous over the entire length of an insertion run and be as free as commercially practicable from visual defects such as foreign inclusions, dry spots, pinholes and delamination. The lining shall be impervious and free of any leakage.

3.09.02 Any defects which will affect the integrity of the liner, or any deficiencies in required strengths or thicknesses, shall be repaired or removed and replaced at the AWARDED VENDOR(S)'S expense, in a manner acceptable to WRC.

3.10 SEALING LINER AT THE ENDS

3.10.01 If due to broken or misaligned pipe at the access point, the lining fails to make a tight seal, the AWARDED VENDOR(S) shall apply a seal at that point. The seal shall be of a resin mixture compatible with the installed liner.

3.11 BRANCH OR SERVICE CONNECTIONS

3.11.01 After the liner has been cured, the AWARDED VENDOR(S) shall reconnect the existing service connections. This shall generally be done without excavation and in the case of non-man entry pipes, from the interior of the pipeline by means of a television camera and cutting device that re-establishes them to operational capacity. After cutting open the service connections, the AWARDED VENDOR(S) shall use a brushing device from the interior of the pipeline by means of a television camera that touches-up the full circumference of the service connection to a minimum of 95% open and to eliminate any rough or jagged edges plus be smooth in the flow line.

3.11.02 Reconnection of services shall begin immediately after curing of the CIPP has been completed. No service shall be interrupted for more than 12 hours unless otherwise approved by WRC.

3.12 POST REHABILITATION TELEVISION INSPECTION

3.12.01 The completed sewer shall be television inspected per the CCTV Inspection Sewer specification by the AWARDED VENDOR(S) after completion of the service connections.

3.13 CIPP PIP TESTING

3.13.01 Testing in accordance with ASTM F 1216 (including appendixes), ASTM D 790, ASTM F 1743, ASTM F 2019 and ASTM D 5813 will be conducted and must witnessed by

WRC. Air test or hydrostatic tests must be done prior to re-establishing service connections and all other test shall be done within a month of the installation by the AWARDED VENDOR(S) at no additional cost to WRC.

3.13.02 The AWARDED VENDOR(S) shall prepare samples of the liner for each section of sewer lined in accordance with Section 8 of ASTM F 1216. Samples shall be labeled for date, diameter, section of sewer, and delivered to WRC for future testing. When tested, each sample shall meet the physical properties for flexural modulus and flexural strength used in the design calculations.

3.13.03 Air testing on isolated sections of sewer (2-3 feet in length) shall be required if post-rehabilitation inspection indicates leaks in the liner. The AWARDED VENDOR(S) shall remove and replace or repair any defects in the installed liner to the satisfaction of WRC at no additional costs.

3.14 TRAFFIC CONTROL

3.14.01 During the entire rehabilitation process, the AWARDED VENDOR(S) shall provide all necessary barricades, signs, flagmen, minor traffic devices, etc., to maintain both vehicular and pedestrian traffic and if not possible all necessary barricades, signs, minor traffic devices, etc. for the road and sidewalk closure per the Michigan Manual of Uniform Traffic Control Devices.

3.15 CLEAN UP

3.15.01 Upon completion of the installation work and after required testing indicates the lining(s) are acceptable, the AWARDED VENDOR(S) shall restore the project area affected by his operation to its original condition.

END OF SECTION

UV Cured in Place Pipe Liner – 6 pages

PART 1 General

3.16 SUMMARY

3.16.01 Section includes UV cured in place pipe.

3.16.01.01 It is the intent of this specification to provide for the reconstruction of sewer pipes by the use of the Cured-in-Place Pipe (C.I.P.P.) process utilizing the trenchless method of installation of a resin-impregnated, flexible tube which is inverted into the existing sewer by hydrostatic head or air pressure and cured by means of ultraviolet light. When cured, the finished sewer lining shall be tight fitting and continuous from end to end.

3.16.02 Referenced Specifications:

3.16.02.01 CCTV Inspection Sewer

3.16.02.02 Sewer Cleaning

3.16.02.03 Sewer Pipe Joint Testing

3.16.02.04 Sewer Pipe Joint Sealing

3.16.02.05 Chemical Sealing (Grout) Material

3.16.02.06 By-Pass Pumping

3.16.02.07 Manhole and Pipe Rehabilitation and Spray Lining

3.17 QUALITY CONTROL

3.17.01 All work for this section shall conform to the applicable portions of the latest Standard Specifications:

3.17.01.01 ASTM D 5813 – 04 (2008)

3.17.01.02 ASTM F 1216 – 09 (including all Appendices)

3.17.01.03 ASTM F 2019-11

3.17.01.04 ASTM D 3567

3.17.01.05 ASTM D 790

3.17.01.06 ASTM D 2990

3.17.01.07 DIN EN 761

3.17.01.08 APS Water Porosity Standard

3.17.02 However, where the requirements of ASTM F1216, ASTM D5813, ASTM F2019, ASTM D3567, ASTM D790, ASTM D2990, DIN EN 761 or APS Water Porosity Standard conflict with the requirements of this section, this section shall govern.

3.17.03 Submittals

3.17.03.01 CCTV Inspection Sewer.

1.17.03.01.01 A CCTV inspection of the sewer before conditions and after conditions including the restore connections shall be completed per the CCTV Inspection Sewer specifications and turned over to the Owner and become their property.

3.17.03.02 Material Test

1.17.03.02.01 Material test shall be furnished to the Owner for review and approval prior to beginning the rehabilitation work, satisfactory written guarantee of compliance with the standards specifications for all materials, techniques, and installation methods being used in the rehabilitation process.

3.17.03.03 By-Pass Pumping Plan

1.17.03.03.01 Submit a detailed sewer by-pass pumping plan to WRC for review fifteen (15) days prior to the beginning of work per the By-Pass Pumping specifications.

3.17.03.04 Request for Deviation

1.17.03.04.01 Any deviation in this specification or reference specifications must have prior approval from WRC.

3.17.04 Design considerations

3.17.04.01 Treat the pipe as full deteriorated host pipe always for your design.

3.17.04.02 Minimum CIPP Physical Properties:

Property	Test Method	Material	
		Polyester npg	Vinyl Ester
Short Term Modulus of Elasticity	ASTM D790	750,000 psi	750,000 psi
Long Term Modulus of Elasticity	ASTM D790	150,000 psi	125,000 psi
Creep Retention Factor	ASTM D790	50%	50%
Flexural Stress	ASTM D790	4,500 psi	4,500 psi

3.17.04.03 Enhancement factor (K) = 7.0

3.17.04.04 An ovality (q) = 0%

3.17.04.05 Poisson's (v) ratio = 0.30

3.17.04.06 Safety Factor = 2.0

3.17.04.07 Soil Density = 130 lbs/cft

3.17.04.08 Soil Modulus

1.17.04.08.01 700 psi for pipe inverts up to and including 15 feet deep.

1.17.04.08.02 1,000 psi for pipe inverts greater than 15 feet deep.

3.17.04.09 Surcharged Loading of HS-20 when any part of the sewer is under any roadway and E-80 when under any railroad.

3.17.04.10 The CIPP design shall assume no bonding to the original pipe wall.

3.17.05 The AWARDED VENDOR(S) shall determine the liner thickness and resin quantity per ASTM F 1216, Appendix X1.3.2 for the Fully Deteriorated Pressure Pipe condition and shall follow the requirements specified in this section. These detailed calculations shall provide the input data as well as the actual calculation for equations X1.1, X1.3, X1.4 and X1.7 of Appendix X1. of ASTM F1216. The design submittal shall also clearly identify the physical properties used for design and be sealed by a licensed Professional Engineer. These physical properties shall be the basis for acceptance of the final product.

PART 4 PRODUCTS

4.01 FIBERGLASS LINER TUBE

4.01.01 The fabric tube, resin and external pre-liners shall produce a CIPP that meets the requirements of ASTM F 2019-11.

4.01.02 The glass fiber tubing shall be seamless and spirally wound, including an exterior and interior film must be used for resin control (to prevent resin migration and contamination). The exterior film will be provided with an UV light blocker foil.

4.01.03 The Tube shall consist of a seamless, spirally wound fiberglass that is flexible and has strain values (expandable) of up to ten (10) percent. The tube will not have a longitudinal seam, including a stitched seam, stitch-free weld or bond, or stitch-free overlap. The tube shall be constructed to withstand installation pressures and have sufficient strength to bridge missing pipe.

4.01.04 The inner film and outer film must both be certified styrene gas barriers. The inner liner film shall be removed during the installation process unless it is a permanent part of the system and is made an integral part of the carrier tube by bonding or fusing the carrier tube.

4.01.05 The Tube shall have a uniform thickness that when compressed at installation pressure will meet or exceed the design thickness. The thickness of the Tube shall be calculated based upon the resin system values given in this specification. The minimum roller gap shall be two times the design thickness plus the felt thickness.

4.01.06 The CIPP wall thickness shall be calculated from the equation in ASTM F 1216, Appendix X1, based upon the parameters given in this specification. The minimum CIPP wall thickness shall be not less than the value calculated by the equation. Any layers of the tube that are not saturated with resin and totally cured shall not be included in the CIPP wall thickness.

4.01.07 The Tube shall be fabricated to a size that when installed will tightly fit the internal circumference of the conduit to be lined as specified by WRC. Allowance for circumferential stretching of the pipe during insertion shall be made as per manufacturer's recommendations.

4.01.08 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 tube shall be constructed to withstand installation pressures and have sufficient strength to bridge missing pipe while meeting or exceeding the design wall thickness at all pipe location during installation conditions and pressures.

4.01.09 The wall color of the interior pipe surface of the CIPP after installation shall be a light reflective color so that a clear detail examination with closed circuit television inspection equipment may be made.

4.01.10 The glass fiber Tube shall be saturated with the appropriate resin using a resin bath to allow for the lowest possible amount of air entrapment. Vacuum-suction impregnation methods are not allowed due to the introduction of air using this method. The line will then be formed into a spirally wound shape for the purpose of being seamless in the cured state.

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4.01.11 The outside of the Tube shall be marked for the distance at regular intervals along its entire length, not to exceed five (5) feet. Such marking shall include the manufacturers name and identifying symbol.

4.01.12 The length of the Tube shall be deemed necessary by the AWARDED VENDOR(S) to effectively carry out the insertion and seal the pipe at the inlet and outlet points. The AWARDED VENDOR(S) shall verify the lengths in the field before cutting the Tube to length. Lengths of sewer can be lined over one or more access points as determined in the field by the AWARDED VENDOR(S) and approved by the ENGINEER.

4.02 RESIN

4.02.01 Resin shall be polyester npg or vinyl ester. Resin selected shall be resistant to the chemical composition of the sewage.

4.02.02 To help with visual inspection of the resin once the liner is installed and before it is cured a dye, color approved by WRC, shall be placed in the resin and the color should be uniformed.

4.02.03 Resin with higher than minimum physical properties may be required for AWARDED VENDOR(S) to meet minimum field cured physical properties of the completed liner.

4.02.04 The resin shall be UV curing resin that is compatible with the lining process and shall meet the requirements of ASTM F 1216 except as otherwise specified in this section. The cured resin/fiberglass system shall be suitable for the expected conditions within the existing sanitary sewer.

4.02.05 Alternate resins shall only be allowed per 1.02.03.04.01 of this specification.

4.03 FIELD CURED LINER

4.03.01 The completed liner as installed and fully cured in place shall meet the following minimum physical properties for short term flexural modulus and flexural strength given per 1.02.04 of this specification.

4.03.02 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 occurs during testing of field samples, new samples will be cut from the work. Any reoccurrence may cause rejection of the work.

PART 5 EXECUTION

5.01 SAFETY

5.01.01 The AWARDED VENDOR(S) shall carry out his operations in strict accordance with all OSHA, MIOSHA, traffic and manufacturer's safety requirements.

5.02 CLEANING OF PIPELINES

5.02.01 The AWARDED VENDOR(S) shall follow WRC's Sewer Cleaning specification.

5.03 PRE-REHABILITATION INSPECTION OF PIPELINE

5.03.01 The AWARDED VENDOR(S) shall follow WRC's CCTV Inspection Sewer specification. The location of any conditions which may prevent proper installation of the lining materials into the pipelines shall be noted and reported immediately to WRC and corrected by section 3.05.

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5.04 BY-PASS PUMPING

5.04.01 The AWARDED VENDOR(S) shall follow WRC's By-Pass Pumping specification.

5.05 LINE OBSTRUCTIONS

5.05.01 It shall be the responsibility of the AWARDED VENDOR(S) to clear the line of any obstructions such as solids, dropped joints, protruding branches, roots, or broken pipe that will prevent proper insertion of the liner. If inspection reveals an obstruction that cannot be removed by conventional cleaning equipment, then the obstruction shall be removed by equipment operating with the pipeline.

5.05.02 Services shall not protrude more than ¼ inch on any size sewer line. Anything protruding more than that shall be ground down as flush as possible with the wall of the sanitary sewer. Grinding shall be done with equipment operation inside of the sewer and shall not cause damage to the sewer or the service being ground.

5.05.03 If the protruding service is in such condition that grinding is not possible or in condition that such a repair cannot be done from the inside then the AWARDED VENDOR(S) shall inform WRC that a spot repair is necessary and provide all the details. Once WRC gives its approval the AWARDED VENDOR(S) shall make a spot repair excavation, to uncover, remove, and repair the obstruction. The use of a flail type reamer to remove protruding services is not allowed.

5.06 INSTALLATION FOR RESIN IMPREGNATED TUBE

5.06.01 The AWARDED VENDOR(S) shall designate a location where the uncured resin in the original containers and the un-impregnated liner will be resin impregnated prior to installation. The AWARDED VENDOR(S) shall allow WRC's personal to inspect all materials and procedures and will not commence with any work without WRC's personnel on site unless given written permission by WRC.

5.06.02 The glass fiber tube shall be saturated with the appropriate resin using a resin bath to allow for the lowest possible amount of air entrapment. Vacuum-suction impregnation methods are not allowed due to the introduction of air using this method. The AWARDED VENDOR(S) shall ensure that the proper amount of resin is uniformly distributed throughout the entire length of the Tube.

5.06.03 The wetting out, installation, and curing of the resin impregnated tube shall be in accordance with ASTM F 1216. The Tube shall be inserted through an existing manhole or other approved access by means of an controlled tension winching process sufficient to fully extend the liner to the next designated access point, or any other means approved by WRC.

5.06.04 A Slip sheet shall be installed on the bottom half of the pipe prior to liner insertion, the purpose of smoothing out the bottom of the liner to increase flow characteristics.

5.06.05 A pre-liner tube or outer film shall be inserted into the pipe prior to inserting the liner, unless it is manufactured on the exterior of the liner. The pre-liner tube shall control resin loss, contamination of the resin by water or other contaminants, and prevent blocked or plugged services and laterals. The pre-liner tube shall be reinforced plastic sheet formed into a tube sized to fit the host pipe and shall be continuous from manhole to manhole.

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5.06.06 A constant tension winch should be used to pull the glass fiber liner into position in the pipe. Once inserted, end plugs shall be used to cap each end of the glass fiber tube liner to prepare for pressurizing the liner. The end plugs shall be secured with straps to prevent them from being expelled due to the pressure. Liner restraints shall be used in manholes.

5.06.07 The process will be adjusted as necessary to ensure a complete lining without over stressing or tearing the lining; and with sufficient pressure to hold the liner snug to the pipe wall and to produce dimples at side connections and flared ends at the entrance and exit access points. The use of lubricant is recommended and if used, such lubricant shall be compatible with the rehabilitation process.

5.06.08 The manufacturer's standards shall be closely followed during the curing so as not to over stress the fiberglass tube and cause damage or failure of the liner prior to cure.

5.07 CURING

5.07.01 The UV light sources shall be assembled according to the manufacturer's specifications for the liner diameter. For the liner to achieve the required water tightness and specified mechanical properties, the following parameters shall be controlled during the entire curing process, giving WRC a record of the curing parameters over every segment of the entire length of the liner. This demonstrates that the entire liner is cured properly. The recoding will include:

5.07.01.01 Curing Speed

5.07.01.02 Light source working and wattage

5.07.01.03 Inner air pressure

5.07.01.04 Exothermic (curing) temperatures

5.07.01.05 Date and time

5.07.01.06 Length of liner

5.07.02 This will be accomplished using a computer and data base that are tamper proof. During the curing process, infrared sensors will be used to record curing data that will be submitted to WRC with a post TV inspection per the specifications for CCTV Inspection Sewer.

5.07.02.01 The parameters for curing speed, inner air pressure and wattage are defined in the Quality Tracker UV curing protocol issued by the manufacturer. The optimal curing speed, or travel speed of the energized UV light sources, is determined for each length of liner based on liner diameter, liner thickness, and exothermic reaction temperature.

5.07.03 The inner film material shall be removed and discarded after curing to provide optimal quality of the final product.

5.07.04 Flushing of the cured fiberglass/UV cured CIPP line (to reduce styrene residual) is not required for fiberglass/UV cured CIPP products that provide 3rd party test results that document styrene residual levels (without flushing) are within acceptable defined levels.

5.08 FINISH

5.08.01 The cured liner shall be continuous over the entire length of an insertion run and be as free as commercially practicable from visual defects such as foreign inclusions, dry spots, pinholes and delamination. The lining shall be impervious and free of any leakage.

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5.08.02 Any defects which will affect the integrity of the liner, or any deficiencies in required strengths or thicknesses, shall be repaired or removed and replaced at the AWARDED VENDOR(S)'S expense, in a manner acceptable to WRC.

5.09 SEALING LINER AT THE ENDS

5.09.01 If due to broken or misaligned pipe at the access point, the lining fails to make a tight seal, the AWARDED VENDOR(S) shall apply a seal at that point. The seal shall be of a resin mixture compatible with the installed liner.

5.10 BRANCH OR SERVICE CONNECTIONS

5.10.01 After the liner has been cured, the AWARDED VENDOR(S) shall reconnect the existing service connections. This shall generally be done without excavation and in the case of non-man entry pipes, from the interior of the pipeline by means of a television camera and cutting device that re-establishes them to operational capacity. After cutting open the service connections, the AWARDED VENDOR(S) shall use a brushing device from the interior of the pipeline by means of a television camera that touches-up the full circumference to a minimum of 95% open and to eliminate any rough or jagged edges plus be smooth in the flow line.

5.10.02 Reconnection of services shall begin immediately after curing of the CIPP has been completed. No service shall be interrupted for more than 12 hours unless otherwise approved by WRC.

5.11 POST REHABILITATION TELEVISION INSPECTION

5.11.01 The completed sewer shall be television inspected per the CCTV Inspection Sewer specification by the AWARDED VENDOR(S) after completion of the service connections.

5.12 CIPP PIP TESTING

5.12.01 Testing in accordance with ASTM F 1216 (including appendixes), ASTM D 790, ASTM F 1743, ASTM F 2019 and ASTM D 5813 will be conducted and must be witnessed by WRC. Air test or hydrostatic tests must be done prior to re-establishing service connections and all other test shall be done within a month of the installation by the AWARDED VENDOR(S) at no additional cost to WRC.

5.12.02 The AWARDED VENDOR(S) shall prepare samples of the liner for each section of sewer lined in accordance with Section 8 of ASTM F 1216. Samples shall be labeled for date, diameter, section of sewer, and delivered to WRC for future testing. When tested, each sample shall meet the physical properties for flexural modulus and flexural strength used in the design calculations.

5.12.03 Air testing on isolated sections of sewer (2-3 feet in length) shall be required if post-rehabilitation inspection indicates leaks in the liner. The AWARDED VENDOR(S) shall remove and replace or repair any defects in the installed liner to the satisfaction of WRC at no additional costs.

5.13 TRAFFIC CONTROL

5.13.01 During the entire rehabilitation process, the AWARDED VENDOR(S) shall provide all necessary barricades, signs, flagmen, minor traffic devices, etc., to maintain both vehicular and pedestrian traffic and if not possible all necessary barricades, signs, minor traffic devices, etc. for the road and sidewalk closure per the Michigan Manual of Uniform Traffic Control Devices.

5.14 CLEAN UP

5.14.01 Upon completion of the installation work and after required testing indicates the lining(s) are acceptable, the AWARDED VENDOR(S) shall restore the project area affected by his operation to its original condition.

END OF SECTION

By-Pass Pumping – 5 pages

PART 1 General

1.1 SUMMARY

1.1.1 Section includes By-Pass Pumping

1.1.1.1 It is the intent of this specification to implement a temporary pumping system for the purpose of diverting the existing flow around a work area for the duration of the work.

1.1.2 Referenced Specifications:

- 1.1.2.1 CCTV Inspection Sewer
- 1.1.2.2 Sewer Cleaning
- 1.1.2.3 Sewer Pipe Joint Sealing
- 1.1.2.4 Sewer Pipe Joint Testing
- 1.1.2.5 Chemical Sealing (Grout) Material
- 1.1.2.6 Thermal Cured in Place Pipe
- 1.1.2.7 UV Cured in Place Pipe
- 1.1.2.8 Manhole Rehabilitation and Spray Lining
- 1.1.2.9 Soil Erosion and Sedimentation Control

1.2 QUALITY CONTROL

1.2.1 All work for this section shall conform to the applicable portions of the latest Standard Specifications:

- 1.2.1.1 ASTM F 714
- 1.2.1.2 ASTM D 1248
- 1.2.1.3 ASTM D 3550
- 1.2.1.4 ASTM D 2657
- 1.2.1.5 APS Water Porosity Standard

1.2.2 However, where the requirements of ASTM F 714, ASTM D 1248, ASTM D 3550, ASTM D 2657, and APS Water Porosity Standards conflict with the requirements of this section, this section shall govern.

1.2.3 AWARDED VENDOR(S) shall perform a leakage and pressure test on the entire system using clean water, before beginning the operation. This operation will not commence without a WRC inspector on site to witness it.

1.2.4 Maintain and inspect the by-pass pumping system every two hours. A qualified and certified operator from the AWARDED VENDOR(S) shall be on-site the entire time when the pumps are operating.

1.2.5 AWARDED VENDOR(S) shall have a redundant back-up system shall be on-site, tested, and ready to be in operation the entire time when the pumps are operating.

1.2.6 AWARDED VENDOR(S) shall keep and maintain standard typical spare parts for the pumps and piping on-site for emergency repairs.

1.2.7 All pumps and generators shall have the maximum sound suppression units

installed on them to minimize the disturbance to the surrounding area.

1.3 SUBMITTALS

1.3.1 AWARDED VENDOR(S) shall submit a detailed plan and description of the proposed by-pass pumping system with the following:

1.3.1.1 By-pass pump sizes, capacity, number of each size to be on site and power requirements.

1.3.1.1.1 Provide pipeline plugs and pumps of adequate size to handle peak flow, and temporary discharge piping to ensure total flow of main can be safely diverted around section to be repaired.

1.3.1.2 Backup by-pass pumps, power and piping equipment with a detailed operation plan with layout.

1.3.1.3 Indicate number, size, material, location and method of installation of suction and discharge of the piping.

1.3.1.4 Indicate the staging area, site access point, and expected flow.

1.3.1.5 Size and location of manhole or access points for suction and discharge hose and/or piping.

1.3.1.6 Cross sections showing suction and discharge pipe depth, embedment, select fill and special backfill, if buried.

1.3.1.7 Temporary pipe support and anchoring required.

1.3.1.8 Cross sections and details of any temporary crossing entrances, driveways, and pedestrian/bikes/etc.

1.3.1.9 Thrust and restraint block sizes and location or alternative methods with calculations.

1.3.1.10 Sewer plugging method and type of plugs.

1.3.1.11 Calculations of static lift, friction losses, and flow velocity. Pump curves showing pump operating range.

1.3.1.12 Calculations for selection of by-pass pumping pipe size.

1.3.1.13 Method of noise control for each pump and/or generator.

1.3.1.14 Method of protection discharge manholes or structures from erosion and damage.

1.3.1.15 Schedule for installation and maintenance of by-pass pumping system.

1.3.1.16 Procedures to monitor upstream mains for back up impacts.

1.3.1.17 Procedures for setup and breakdown of pumping operation.

1.3.1.18 Emergency plan detailing procedures to be followed in the event of a pump(s) failure(s), sewer overflow, service back-ups, and sewage spillage.

1.3.1.18.1 Maintain a copy of the emergency plan on site for the duration of the project.

1.3.1.19 Certify the by-pass pumping system will meet the requirements of codes, Soil Erosion and Sedimentation Control and regulatory agencies of the MDEQ, WRC, or any other agency having jurisdiction.

1.3.2 Request for Deviation

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1.3.2.1 Any deviation in this specification or reference specifications must have prior approval from WRC.

1.4 RESPONSIBILITY FOR OVERFLOWS AND SPILLS

1.4.1 AWARDED VENDOR(S) is fully responsible for any overflow(s), spill(s), clean-up(s) and claim(s). There will be no compensation by WRC for these operations.

1.4.1.1 The AWARDED VENDOR(S) shall immediately clean-up(s) all resultant debris from sewer backups caused by the by-pass pumping operation and shall not proceed with the operation, unless the backup system is fully functioning and issues are solved, until the clean-up(s) is resolved to the satisfaction of WRC.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Discharge and Suction Pipes material must be approved by WRC

2.1.1.1 Polyethylene Plastic Pipe

2.1.1.1.1 High density solid wall and following ASTM F 714 Polyethylene (PE) Plastic Pipe (SDR-DR) based on Outside Diameter, ASTM D 1248 and ASTM D 3550.

2.1.1.1.2 Homogenous throughout, free of visible cracks, discoloration, pitting, varying wall thickness, holes, foreign material, blisters, or other deleterious faults.

2.1.1.2 High-Density Polyethylene (HDPE)

2.1.1.2.1 Homogenous throughout, free of visible cracks, discoloration, pitting, varying wall thickness, holes, foreign material, blisters, or other deleterious faults.

2.1.1.2.1.2 Defective areas of pipe shall be cut out and joint fused as stated herein.

2.1.1.2.2 Assembled and joined at site using coupling, flanges, or butt-fusion method to provide leak proof joint. Follow manufacturer's instruction and ASTM D 2657.

2.1.1.2.2.2 Threaded or solvent joints and connections are not permitted.

2.1.1.2.3 Fusing shall be conducted by a personal that has been at least three (3) years of experience as a certified fusion technician by the manufacturer of HDPE pipe and/or the fusing equipment.

2.1.1.2.4 Butt-fused joint shall be done by True alignment and uniform roll-back beads resulting from use of proper temperature and pressure.

2.1.1.2.4.2 Allow adequate cooling time before removal of pressure.

2.01.01.02.04.02 Watertight and have tensile strength equal to that of the pipe.

2.01.01.02.04.03 Acceptance by WRC before insertion.

2.1.1.2.5 Use in streams, storm water culverts and environmentally sensitive

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- areas.
- 2.1.1.3 Flexible Hoses and Associated Coupling and Connectors
 - 2.01.01.03.01 Abrasion resistant
 - 2.1.1.3.2 Suitable for intended service
 - 2.1.1.3.3 Rated for external and internal loads anticipated, including test pressure.
 - 2.01.01.03.03.01 External loading design shall incorporate anticipated traffic loadings, including traffic impact loading. Use H-20 loading requirements.
- 2.1.1.4 Valves and Fittings
 - 2.1.1.4.1 Determined according to flow calculations, pump sizes previously determined, and system operation pressures.
- 2.1.1.5 Plugs
 - 2.1.1.5.1 Select and installed according to size of line to be plugged, pipe and manhole configurations, and based on specific site.
 - 2.1.1.5.1.2 Additional plugs shall be install in the event of a single failure.
 - 2.1.1.5.1.2 Additional plugs shall be on-site in the event of a plug failure.
 - 2.1.1.5.1.2 Plug will be inspected before use for defects which may lead to failure.
- 2.1.1.6 Aluminum "irrigation type" piping or glued PVC piping will not be permitted.
- 2.1.1.7 Discharge hose will only be allowed in short sections when approved by WRC.
- 2.1.1.8 All discharges shall have a 90° elbow on the end directing the flow into the channel/pipe of the discharge manhole.
 - 2.1.1.9 The total rental cost of the by-pass pumping pipe shall not exceed the total cost of the pipe.

2.2 EQUIPMENT

2.2.1 Pumps

2.1.1.9.1 When the rental cost of the pipe equals the total cost of the pipe WRC will have the option to keep the pipe in their possession after the operation is completed or negotiate a buy back price with the AWARDED VENDOR(S).

- 2.2.1.1 Fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps in priming system.
- 2.2.1.2 Electric or diesel powered
- 2.2.1.3 Constructed to allow dry running for long periods of time to accommodate cyclical nature of effluent flows.
- 2.2.1.4 Necessary stop/start controls for each pump
- 2.2.1.5 One standby pump for each on-site pump shall be maintained on site. 2.2.1.5.1 On-line, isolated from primary system by a valve.
- 2.2.1.6 Sound suppression with a maximum of 55 decibels is desired by WRC.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Determining location of by-pass pumps and pipelines.

3.1.1.1 Minimal disturbance to existing utilities.

3.1.1.1.1 Field locate existing utilities in proposed by-pass area.

3.1.2 Obtain approval for placement within public or private property.

3.1.3 Obtain WRC approval of locations.

3.2 INSTALLATION AND REMOVAL

3.2.1 The AWARDED VENDOR(S) shall remove manhole sections or make connection to existing sewer and construct temporary by-pass pumping structures at access location indicated on the approved drawings and required to provide adequate suction conduit.

3.2.2 Plugging or blocking of sewage flows shall incorporate a primary and secondary plugging device. When plugging or blocking is no longer needed for performance and acceptance of work, remove in a manner that permits the sewage flow to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.

3.2.3 When working inside manhole or force main, exercise caution. Follow OSHA, Federal, State, WRC, and local requirements. Take required measures to protect workforce against sewer gases and/or oxygen deficient atmosphere. Take required measures to insure the public's safety and access to the work site.

3.2.4 During by-pass pumping operation, protect the piping from damage inflicted by equipment and all construction or public crossings.

3.3 EMERGENCIES AND LOW FLOWS

3.3.1 In specific situations a Vactor Truck(s) can be utilized along with plugs to create by-pass pumping.

3.3.1.1 There must be enough trucks on site to handle the flows and not adversely affect the upstream or downstream sewer flows and flooding of connections.

3.3.1.2 Extra caution must use to prevent spillage when depositing the sewage in an appropriate downstream manhole.

3.4 TRAFFIC CONTROL

3.4.1 During the entire rehabilitation process, the AWARDED VENDOR(S) shall provide all necessary barricades, signs, flagmen, minor traffic devices, etc., to maintain both vehicular and pedestrian traffic and if not possible all necessary barricades, signs, minor traffic devices, etc. for the road and sidewalk closure per the Michigan Manual of Uniform Traffic Control Devices.

3.5 CLEAN UP

3.10.01 Upon completion of the installation work and after the liner is acceptable, the AWARDED VENDOR(S) shall restore the project area affected by the operation. Any disturbed

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areas shall be replaced with like materials and substantially match the original conditions.

END OF SECTION

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Dewatering – 5 pages

PART 1 General

1.1 SUMMARY

1.1.1 Section includes Dewatering

1.1.1.1 It is the intent of this specification to implement the removal of surface water and ground water as necessary to perform the construction required.

1.1.2 Referenced Specifications:

1.1.2.1 By-Pass Pumping

1.1.2.2 CCTV Inspection Sewer

1.1.2.3 Sewer Cleaning

1.1.2.4 Sewer Pipe Joint Sealing

1.1.2.5 Sewer Pipe Joint Testing

1.1.2.6 Chemical Sealing (Grout) Material

1.1.2.7 Thermal Cured in Place Pipe

1.1.2.8 UV Cured in Place Pipe

1.1.2.9 Manhole Rehabilitation and Spray Lining

1.1.2.10 Trenching, backfilling, and compacting

1.1.2.11 Soil Erosion and Sedimentation Control

1.2 QUALITY CONTROL

1.2.1 All work for this section shall conform to the applicable portions of the latest Standard Specifications:

1.2.1.1 ASTM D 7701-11

1.2.1.2 ASTM D 5611-94(2008)

1.2.1.3 ASTM D 5978-98(2005)

1.2.2 However, where the requirements of ASTM D 7701-11, ASTM D5611-94(2008) and ASTM D 5978-98(2005) conflict with the requirements of this section, this section shall govern.

1.2.3 Quality Assurance

1.2.3.1 The AWARDED VENDOR(S) shall have at least 10 years of experience inn specializing in the design of dewatering systems and dewatering work.

1.2.3.2 Comply with all governing local, county, state and EPA regulations.

1.2.3.3 Well Points

1.2.3.3.1 The AWARDED VENDOR(S) shall engage a qualified surveyor, to perform all layouts and measurements.

1.2.3.3.2 The surveyor shall layout the work to the lines and grades required before installation and shall determine the location of each well point, piezometer and other data as required.

1.2.3.3.3 The surveyor shall record and maintain all information pertinent to each well point and piezometer.

1.2.3.4 The operation will not commence without a WRC inspector on site.

1.2.3.5 Maintain and inspect the pumping system once a day. A qualified and

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certified operator from the AWARDED VENDOR(S) shall be on-call the entire time when the pumps are operating.

1.2.3.6 AWARDED VENDOR(S) shall have a redundant back-up system shall be on-site, tested, and ready to be in operation the entire time when the pumps are operating if required by WRC.

1.2.3.7 AWARDED VENDOR(S) shall keep and maintain standard typical spare parts for the pumps and piping on-site for emergency repairs if required by WRC.

1.2.3.8 All pumps and generators shall have the maximum sound suppression units installed on them to minimize the disturbance to the surrounding area.

1.3 SUBMITTALS

1.3.1 AWARDED VENDOR(S) shall submit a detailed plan and description of the proposed dewatering system with the following:

1.3.1.1 Shop Drawings of the proposed type of dewatering system and design shall including relief of hydrostatic head and maintenance of the work area in a dewatered and in a hydrostatically relieved condition.

1.3.1.2 The temporary dewatering system as specified in these specifications shall be the minimum system required for controlling groundwater, regardless of source.

1.3.1.3 The installed system shall be capable of lowering and maintaining the groundwater level or hydrostatic head to at least 3-feet below the bottom of the utilities that are being repaired or replace so to prevent seepage of water into the work area and permit installation of all utilities "in the dry".

1.3.1.4 Within these limits, the AWARDED VENDOR(S) shall be responsible for the design of the entire temporary dewatering system and shall make whatever modifications and additions to the system as may be required for the system to fulfill its requirements.

1.3.1.5 Arrangement, location and depths of the components of the system.

1.3.1.6 A complete description of equipment to be used with installation, operation, and maintenance procedures.

1.3.1.7 Standby equipment and emergency power supply if required by WRC.

1.3.1.8 Location and size of sumps and discharge lines, including their relation to water disposal sites, wetlands or body of water.

1.3.1.9 Types and sizes of filters.

1.3.1.10 Location, types and depths of wells, well points and/or observation wells.

1.3.1.11 Design submittals with calculations demonstrating adequacy of the selected system, pump curves and equipment plus proof that this will be accomplished without damaging existing building, structures and site improvements adjacent to the work area.

1.3.1.11.1 Design submittal must be signed and sealed by a qualified professional engineer responsible for their preparation.

1.3.1.12 The periphery of the entire work area shall be suitably diked and the dikes maintained to prevent surface water from entering the work area.

1.3.1.13 Coordination within the work area so the dewatering system does not interfere with the operations in and around the work area.

1.3.1.14 Soil Erosion and Sedimentation Control plan.

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- 1.3.1.15 Discharge permit and all other regulatory agencies of the Mi EGLE, WRC, or other agency jurisdiction permits.
- 1.3.2 Review of dewatering and recharge system by the WRC shall not relieve the AWARDED VENDOR(S) from the responsibility for the adequacy of these systems to achieve the specified results.
- 1.3.3 Request for Deviation
 - 1.3.3.1 Any deviation in this specification or reference specifications must have prior approval from WRC.

PART 2 PRODUCTS

2.1 MATERIALS

- 2.1.1 All Discharge and Transmission Pipe material must be approved by WRC

- 2.1.1.1 Polyethylene Plastic Pipe

- 2.1.1.1.1 High density solid wall and following ASTM F 714 Polyethylene (PE) Plastic Pipe (SDR-DR) based on Outside Diameter, ASTM D 1248 and ASTM D 3550.

- 2.1.1.1.2 Homogenous throughout, free of visible cracks, discoloration, pitting, varying wall thickness, holes, foreign material, blisters, or other deleterious faults.

- 2.1.1.2 High-Density Polyethylene (HDPE)

- 2.1.1.2.1 Homogenous throughout, free of visible cracks, discoloration, pitting, varying wall thickness, holes, foreign material, blisters, or other deleterious faults.

- 2.1.1.2.1.2 Defective areas of pipe shall be cut out and joint fused as stated herein.

- 2.1.1.2.2 Assembled and joined at site using coupling, flanges, or butt-fusion method to provide leak proof joint. Follow manufacturer's instruction and ASTM D 2657.

- 2.1.1.2.2.2 Threaded or solvent joints and connections are not permitted.

- 2.1.1.2.3 Fusing shall be conducted by a personal that has at least three (3) years of experience as a certified fusion technician by the manufacturer of HDPE pipe and/or the fusing equipment.

- 2.1.1.2.4 Butt-fused joint shall be done by True alignment and uniform roll- back beads resulting from use of proper temperature and pressure.

- 2.1.1.2.4.2 Allow adequate cooling time before removal of pressure. 2.1.1.2.4.2 Watertight and have tensile strength equal to that of the pipe.

- 2.1.1.2.4.3 Acceptance by WRC before insertion.

- 2.1.1.2.5 Use in streams, storm water culverts and environmentally sensitive areas.

- 2.1.1.3 Wil-loc Pipe

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- 2.1.1.4 Ductile Iron Pipe
- 2.1.1.5 PVC Pipe
 - 2.1.1.5.1 Any mechanical locking joint will need to be approved by WRC.
 - 2.1.1.5.2 Glued joints will only be allowed on Wellpointing Dewatering.
- 2.1.1.6 Flexible or Lay-Flat Hoses and Associated Coupling and Connectors. 2.1.1.6.1 Can only be used for short transitions, repairs and short discharge runs.
 - 2.1.1.6.1.1 Abrasion resistant
 - 2.1.1.6.1.2 Suitable for intended service
 - 2.1.1.6.1.3 Rated for external and internal loads anticipated, including test pressure.
- 2.1.1.7 Valves and Fittings
 - 2.1.1.7.1 Determined according to flow calculations, pump sizes previously determined, and system operation pressures.
- 2.1.1.8 Aluminum “irrigation type” piping or glued PVC piping will not be permitted unless approved by WRC.
- 2.1.1.9 External loading design on all pipes must incorporate anticipated traffic loadings, including traffic impact loading unless otherwise directed by WRC. Use H-20 loading requirements.
- 2.1.2 Pumps
 - 2.1.2.1 Types of Pumps
 - 2.1.2.1.1 Rotary
 - 2.1.2.1.2 Vacuum
 - 2.1.2.1.3 Piston
 - 2.1.2.1.4 Trash
 - 2.1.2.1.5 Submersible, Electric and Hydraulic
 - 2.1.2.1.6 Other
 - 2.1.2.2 Fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps in priming system are preferred.
 - 2.1.2.2.1 For small or surface dewatering a trash pump or similar type of pump can be used.
 - 2.1.2.3 Electric, gas or diesel powered
 - 2.1.2.4 Constructed to allow dry running for long periods of time to accommodate cyclical nature of effluent flows.
 - 2.1.2.5 Necessary stop/start controls for each pump
 - 2.1.2.6 One standby pump for each on-site pump shall be maintained on site if required by WRC.
 - 2.1.2.6.1 On-line, isolated from primary system by a valve.
 - 2.1.2.7 Sound suppression with a maximum of 55 decibels is desired by WRC.
- 2.1.3 Discharge Filters
 - 2.1.3.1 Dewatering Bag
 - 2.1.3.2 Dewatering Tubes
 - 2.1.3.3 Dewatering Socks

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PART 3 EXECUTION

3.1 TYPES OF DEWATERING

- 3.1.1 Surface Water
- 3.1.2 Wellpoint Dewatering
- 3.1.3 Sock Dewatering
- 3.1.4 Deep Well
- 3.1.5 Slurry Walls
- 3.1.6 Educator Dewatering
- 3.1.7 Ground Freezing

3.2 PREPARATION

- 3.2.1 Determining location of dewatering pumps and pipelines.
 - 3.2.1.1 Minimal disturbance to existing utilities.
- 3.2.2 Field locate existing utilities in proposed dewatering and work area.
- 3.2.3 The AWARDED VENDOR(S) shall call Miss Dig at least 72 hours before any dewatering system and/or well is put in.
- 3.2.4 Obtain approval for placement within public or private property.
- 3.2.5 Obtain WRC approval of locations.

3.3 INSTALLATION

- 3.3.1 All water seeping, falling or running into the excavation as it is dug, and until the temporary dewatering system is removed as specified, shall be promptly pumped out.

3.4 PROTECTION AND DAMAGE

- 3.4.1 The AWARDED VENDOR(S) shall be fully responsible for the failure of all components of the temporary dewatering work and for all damages to work in the work area caused by the failure to provide, maintain, and operate the temporary dewatering system, as specified.
 - 3.4.1.1 The AWARDED VENDOR(S) shall protect structures, utilities, sidewalks, pavements and other facilities from damage cause by settlement, lateral movement, undermining, washout and other hazards created by temporary dewatering system installation and operation.
 - 3.4.1.2 AWARDED VENDOR(S) shall restore all damaged work, including failed components of the work in this specification to a condition as good as or better than existed prior to failure of components.

3.5 TRAFFIC CONTROL

- 3.5.1 During the entire rehabilitation process, the AWARDED VENDOR(S) shall provide all necessary barricades, signs, flagmen, minor traffic devices, etc., to maintain both vehicular and pedestrian traffic and if not possible all necessary barricades, signs, minor traffic devices, etc. for the road and sidewalk closure per the Michigan Manual of Uniform Traffic Control Devices.

3.6 CLEAN UP

- 3.6.1 Upon completion of the installation work within the work area, the AWARDED VENDOR(S) shall restore the project area affected by the operation shall be replaced with like materials and to match in thickness to its substantially the original conditions.

END OF SECTION

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Sewer Cleaning – 4 pages

PART 1 GENERAL

1.01 SUMMARY

1.01.01 Section includes sewer line cleaning, manhole cleaning and internal obstruction removal.

1.01.01.01 The cleaning of small, moderate and large diameter sewers, complete with removal and disposal of debris resultant from the cleaning operation.

Cleaning shall include, but not limited to, the removal of dirt, grease, rocks, roots, and all other foreign solid or semi-solid material and obstructions from the sewer lines and structures.

1.01.02 Reference Specifications

1.01.02.01 CCTV Inspection Sewer

1.01.02.02 Sewer Pipe Joint Sealing

1.01.02.03 Sewer Pipe Joint Testing

1.01.02.04 Chemical Sealing (Grout) Material

1.01.02.05 By-Pass Pumping

1.01.02.06 Thermal Cured in Place Pipe

1.01.02.07 UV Cured in Place Pipe

1.01.02.08 Manhole Rehabilitation and Spray Lining

1.01.03 Quality assurance

1.01.03.01 The work of this section shall conform to the applicable portions of the National Association of Sewer Service Companies (NASSCO) guide lines.

1.01.04 Request for Deviation

1.01.04.01 Any deviation in this specification or reference specifications must have prior approval from WRC.

PART 2 PRODUCTS

2.01 EQUIPMENT

2.01.01 Hydraulically Propelled Equipment:

2.01.01.01 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.

2.01.01.02 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.

2.01.01.03 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.

2.01.02 High-Velocity Jet (Hydro-cleaning) Equipment:

2.01.02.01 All high-velocity sewer cleaning equipment shall be constructed for ease and safety of operation.

2.01.02.02 The equipment shall have a selection of two or more high-velocity nozzles.

2.01.02.03 The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all size lines designated to be cleaned.

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2.01.02.04 Equipment shall also include a high-velocity gun for washing and scouring manhole walls and floor. The gun shall be capable of producing flows from a fine spray to a solid stream.

2.01.02.05 Combination Unit Pump should be capable of pumping at least 80 gallons per minute (300 liters per minute) at 2,000 psi (13.8 MPa), measured at beginning of hose reel.

2.01.02.06 Water Pumps should be able to run at 2,000 psi (13.8 MPa) while pulling full vacuum, completely independent from vacuum system, with ability to vary vacuum without affecting water pressure.

2.01.02.07 The equipment shall carry its own water tank, auxiliary engines, pumps and hydraulically driven hose reel.

2.01.03 Mechanically Powered Equipment

2.01.03.01 Bucket machines shall be in pairs with sufficient power to perform the work in an efficient manner.

2.01.03.02 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.

2.01.03.03 A power rodding machine shall be either a sectional or continuous rod type capable of holding a minimum of 750 feet of rod.

2.01.03.04 The rod shall be specifically heat-treated steel.

2.01.03.05 To insure safe operation, the machine shall be fully enclosed and have an automatic safety clutch or relief valve.

2.02 WATER

2.02.01 When water from fire hydrants is used as additional source of water during the cleaning operation all proper permits must be pulled.

2.02.02 Provide temporary piping, valves, certified reduced pressure backflow preventors, equipment, and other items for handling portable water and wastewater.

2.02.03 Do not utilize water source unit it has been approved by WRC.

PART 3 EXECUTION

3.01 EXAMINATION

3.01.01 Perform CCTV inspection if necessary and will be performed in accordance with the TV Inspection Sewer Specification.

3.02 The WRC shall provide full time inspection.

3.02.01 No work shall commence without the designated WRC inspector present on site. The AWARDED VENDOR(S) shall supply a person to assist the inspector when the inspector visually checks the cleanliness of the sewer lines.

3.03 APPLICATION

3.03.01 Clean the designated sewer lines, manhole, and associated structures using approved methods and equipment.

3.03.01.01 The cleaning shall be in an orderly manner beginning at the high point in the line and proceeding to the low point.

3.03.01.02 The equipment selected for cleaning shall be capable of removing dirt, grease, rocks, roots, sludge buildup, sand and any other deleterious materials and

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obstructions for the sewer lines, manholes, diversion chambers, drop connections and other associated structures.

3.03.02 Line Obstruction

3.03.02.01 It shall be the responsibility of the AWARDED VENDOR(S) to clear the line of any obstructions such as solids, dropped joints, protruding branches, roots, or broken pipe that will prevent proper insertion of the liner. If inspection reveals an obstruction that cannot be removed by conventional cleaning equipment, then the obstruction shall be removed by equipment operating with the pipeline.

3.03.02.02 Services

3.03.02.02.01 Services shall not protrude more than ¼ inch on any size sewer line. Anything protruding more than that shall be ground down as flush as possible with the wall of the sanitary sewer. Grinding shall be done with equipment operation inside of the sewer and shall not cause damage to the sewer or the service being ground.

3.03.02.02.02 If the protruding service is in such condition that grinding is not possible or in condition that such a repair cannot be done from the inside then the AWARDED VENDOR(S) shall inform WRC that a spot repair is necessary and provide all the details. Once WRC gives its approval the AWARDED VENDOR(S) shall make a spot repair excavation, to uncover, remove, and repair the obstruction. The use of a flail type reamer to remove protruding services is not allowed.

3.03.02.03 Roots

3.03.02.03.01 Roots shall be removed where root intrusion is found by the use of mechanical devices, hydraulic procedures, or chemical root treatment.

3.03.02.03.02 Special precautions shall be used during the cleaning operation to assure removal of visible roots from the joint area, which could prevent the proper mechanical seal, or application of chemical sealants.

3.03.02.03.03 Use of Chemical root treatment for removal shall be subject to approval from WRC. The handling and application of the herbicide shall be in strict accordance with the manufacturer's recommendation and in such a manner to preclude any damage to surrounding vegetation. Any damaged vegetation shall be replaced at the expense of the AWARDED VENDOR(S).

3.03.03 Blockage

3.03.03.01 In the case where the conditions of the pipe is such as it is badly broken or eroded pipe or major blockages which prevents the completion of the cleaning operation, or additional damage to the sewer line would be made if cleaning is attempted or continued.

3.03.03.01.01 The AWARDED VENDOR(S) shall immediately notify the WRC inspector.

3.03.03.01.02 The equipment shall be reset on the other structure of the line and cleaning of the segment is to resume. If again the

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equipment fails to transverse the entire segment the AWARDED VENDOR(S) shall immediately notify the WRC inspector and stop the cleaning operation. The AWARDED VENDOR(S) shall note the exact location of the blockage.

3.03.03.01.03 The AWARDED VENDOR(S) shall make suggestions to remedy the situation or to make repairs. Upon approval by WRC the AWARDED VENDOR(S) shall continue to remedy the situation or make the repairs performed in the accordance of those operations specifications.

3.04 PRECAUTIONS

3.04.01 Pressurized water or other cleaning tools that retard water flow shall be used in a manner to ensure that pressure within the sewer line does not cause flooding to public or private property served by the sewer being cleaned.

3.04.02 The AWARDED VENDOR(S) shall immediately clean-up all resultant debris from sewer backups caused by said cleaning operation and shall not proceed with the cleaning operation until those clean-ups are resolved to the satisfaction of WRC.

3.04.03 If sewer cleaning balls/plugs or other such equipment, which cannot be collapsed instantly, is used, special precautions against flooding of the sewers and public property shall be taken.

3.04.04 The existing flow within the sewer line shall be utilized to provide the necessary pressures for hydraulic cleaning devices whenever possible. Passing of debris between sewer line segments, which could cause line stoppages, accumulations of sand in wet wells, or damage to pumping equipment will not be permitted.

3.05 DEBRIS DISPOSAL AND CLEAN-UP

3.05.01 All debris resultant of the cleaning operation shall be removed at the downstream structure of the sewer line segment and removed from the system.

3.05.02 Debris shall be removed from the sewer system and placed directly into containers for disposal and/or containers suitable for hauling to the designated disposal site.

3.05.03 For all work done under this contract the designated disposal site shall be the Oakland County Septage Unloading Facility located at 1235 Cesar E. Chavez, Pontiac, Michigan.

3.05.04 Once all work is completed the area were the work occurred shall be restored and replace with like materials and to matching thickness as substantially as possible to preexisting conditions.

END OF SECTION

Sewer Pipe Joint Testing – 4 pages**General****1.1 SUMMARY****1.1.1 Section includes sewer pipe joint testing.**

1.1.1.1 Sewer pipe joint testing is used to test the integrity (tightness or leakage) of individual pipe joints. Testing cannot be performed and will not be required on cracked or broken pipe, building sewers, or sections of pipe between joints.

1.1.1.2 The intent of pipe joint testing is to identify those sewer pipe joints that are defective (allowing groundwater to enter the sewer system) and that can be successfully sealed by the internal pipe joint sealing process.

1.1.2 Reference Specifications:

1.1.2.1 CCTV Inspection Sewer

1.1.2.2 Sewer Cleaning

1.1.2.3 Sewer Pipe Joint Sealing

1.1.2.4 Chemical Sealing (Grout) Material

1.1.2.5 Thermal Cured in Place Pipe

1.1.2.6 UV Cured in Place Pipe

1.1.2.7 By-Pass Pumping

1.1.2.8 Manhole and Pipe Rehabilitation and Spray Lining

1.2 SUBMITTALS**1.2.1 Joint Test Records:** During the joint testing work, records shall be kept which include:

1.2.1.1 Calibration test results including PSI & time duration.

1.2.1.2 Identification of the manhole section tested.

1.2.1.3 The test pressure used and duration of test.

1.2.1.4 Location (footage) of each joint tested and location of any joints not tested and reason for not testing.

1.2.1.5 An indication of pass/fail on all joints.

1.2.1.6 Test pressure achieved and maintained for each joint passing the air test.

1.2.1.7 Depth of pipe to surface.

1.2.1.8 Amount of grout per joint used. (Can be based on levels measured for tank or stroke count.)

1.2.2 Request for Deviation

1.2.2.1 Any deviation in this specification or reference specifications must have prior approval from WRC.

PRODUCTS**1.3 EQUIPMENT**

1.3.1 The basic equipment used shall consist of a television camera, joint testing device (known as a packer), and test monitoring equipment. The equipment shall be constructed in such a way to provide means for introducing a controlled test medium, under pressure, into the VOID area created by the expanded ends of the joint-testing device. The packer

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will simultaneously permit the flow of sewage. The equipment will also provide a means for continuously measuring the actual static pressure of the test medium within the VOID area created by the inflation of the packer. All pressure measurements shall be made at the void area.

EXECUTION**1.4 GENERAL**

3.01.00 All pipe joints within a manhole run will be tested unless otherwise noted within this specification section.

1.04.01.01 Testing of joints which are visibly leaking (infiltrating) is unnecessary because the intent of testing is obviously attained.

1.4.2 Application: Sewer pipe joint testing is used to test the integrity of individual pipe joint. Testing should not be performed and will not be required on longitudinally cracked or broken pipe. Testing of structurally sound sections of pipe barrel between joints in, however, used as a control test to simulate a good joint.

1.4.3 After entering each manhole section with the test equipment, but prior to the commencement of joint air testing, the test equipment shall be positioned on a section of sound sewer pipe between pipe joints, and a demonstration performed as described in Section 3.02. This procedure will demonstrate the accuracy and dependability of the Packer Bladders and Void Sensing Devices, as no joint will test in excess of the pipe capability. If such a test is not positive, leakage from the testing device may be indicated, and may make joint testing invalid. Re-cleaning may be required. In concrete pipe, leakage may also be caused by erosion/ roughness at the crown or porosity of the pipe itself. Should it be found that the barrel of the sewer pipe will meet the joint test requirements, then the requirements will be modified to within the pipe integrity limits. In some cases, joint testing (and sealing) cannot be performed.

1.4.3.1 Void pressure data shall be transmitted electronically from the VOID to the monitoring equipment or video picture of a pressure gauge mounted on the packer and connected to the void area. Example: via an electrical pressure transducer located at the VOID.

1.4.3.2 All test monitoring shall be above ground and in a location to allow for simultaneous and continuous observation of the television monitor and test monitoring equipment by the WRC Inspector.

1.4.4 Test Pressure: Joint test pressure shall be 3 PSI greater than the groundwater pressure outside the pipe or a minimum of 5 PSI, whichever is greater.

1.4.5 Groundwater pressure may be determined by positioning the testing device on a visibly infiltrating joint and measuring the resulting VOID pressure with the VOID pressure monitoring equipment.

1.5 CONTROL TEST PROCEDURE

1.5.1 Before any testing commences, an equipment verification test of Packer Bladders and Void Sensing Devices should take place. See Figure 1 for a graphical representation of the testing equipment. This procedure will demonstrate that the equipment is functioning properly, the packer is capable of developing a proper seal against the pipe walls, and the packer is capable of isolation a joint.

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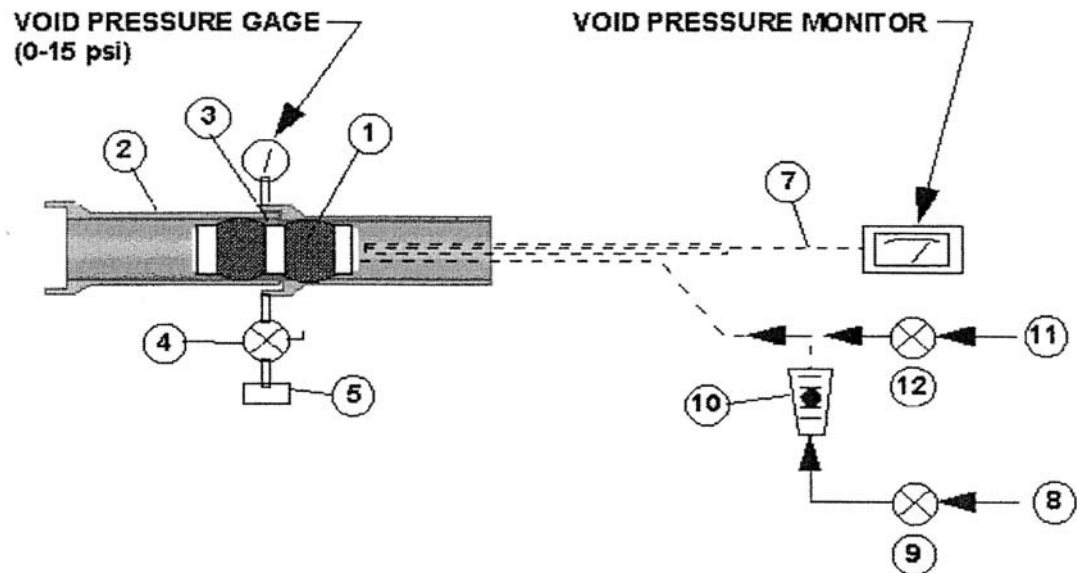
1.5.2 To insure the accuracy, integrity, and performance capabilities of the testing equipment, a demonstration test will be performed in a aboveground test cylinder constructed in such a manner that a minimum of two know leak sizes can be simulated (see Figure 1). This technique will apply to pipe sized of 12-inches and smaller to leakage of the test medium from the system or other equipment defects that could affect the joint testing results. For pipe greater than 72" inside testing should be performed in a representation pipe section. If this test cannot be performed successfully, the AWARDED VENDOR(S) shall be instructed to repair or otherwise modify this equipment and perform the test again until the results are satisfactory to the WRC Engineer. This test may be required at any other time during the joint testing work if requested by the WRC Inspector to verify the testing equipment is not functioning properly.

1.5.3 After entering each manhole section with the test equipment, but prior to commencement of joint testing, the test equipment shall be positioned on a section of sound sewer pipe between pipe joints, and pipe barrel test shall be performed as specified, above. Should it be found that the barrel of the sewer pipe will not meet the joint test requirements, the requirements will be modified to within the pipe integrity limits.

Figure 1: PIPE JOINT TESTING EQUIPMENT & CONTROL TEST SETUP

1. Joint Testing Device void
2. Test Cylinder (PVC pipe of appropriate diameter) Liquid supply
3. Void between expanded ends of testing device.
4. 1/4 – Turn Stopcock
5. Simulated Leak (.062, .094, .125 inch diameter holes)
6. Air/Water/ Sealant hoses & electrical transmission line.
7. Electrical transmission of void pressure from the
8. Transmission of void pressure from void test
9. Test liquid regulation valve
10. Test liquid flow meter (¼ GPM to 1 GPM)
11. Air supply
12. Air shut-off valve

****Note: Void Pressure Reading on Test Cylinder gage must be the same as that observed on the void pressure monitoring equipment at all times during control test.



1.6 AIR TEST PROCEDURE

1.6.1 The testing devices shall be positioned within the line in such a manner as to straddle the pipe joint to be tested. It should be noted that a specific cable or change length is designed for the packer size. This specific cable length, between the packer and TV camera is what allows each size to be positioned with the TV camera onto a joint.

1.6.2 The testing device end elements (bladders) shall be expanded so as to isolate the joint from the remainder of the line and create a VOID area between the testing device and the pipe joint. The ends of the testing device shall be expanded against the pipe with sufficient pressure to contain the air within tin VOID without leakage past the expanded ends.

1.6.3 Air shall then be introduced into the VOID area until a pressure equal to or greater than the required test pressure (3 PSI greater than the groundwater pressure outside the pipe or 5 PSI, whichever is greater) 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 (see Sewer Pipe Joint Sealing).

1.6.4 After the VOID pressure is observed to be equal to or great than the required test pressure, the airflow shall be stopped and the air test line & device vented. If the VOID pressure begins to drop within 30 seconds (due to joint leakage), the joint will have failed the test and shall be sealed as specified (see Sewer Pipe Joint Sealing).

1.6.5 Upon completing the testing of each individual joint, the packer shall be deflated with the void pressure meter drop $\pm \frac{1}{2}$ PSI of initial zero pressure. Should the void pressure meter fail to drop to zero ($\pm \frac{1}{2}$ PSI), the AWARDED VENDOR(S) shall be instructed to clean his equipment of residual grout material or make the necessary equipment repairs to provide for an accurate Void Pressure reading. All joints that fail to meet the specified test criteria shall be re- tested and/ or sealed until the test criteria can be met in order to receive payment.

1.6.6 Any joint failing the air test prior to grouting shall be sealed as specified herein and

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retested by the same void pressure method and procedures following sealing to verify the effectiveness of the sealing. This procedure will be repeated until the joint passes the test. Additional sealing after the initial sealing and retesting shall be at no cost to the WRC.

1.7 LIQUID (WATER) TEST PROCEDURE

1.7.1 The testing device shall be positioned within the line in such a manner as to straddle the pipe joint to be tested.

1.7.1.1 The testing device and elements (sleeves) shall be expanded so as to isolate the joint from the remainder of the line and create a VOID area between the 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 liquid within the VOID without leakage past the expanded ends.

1.7.1.2 Water or an equivalent liquid shall then be introduced into the VOID area until a pressure equal to or great 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 (see Sewer Pipe Joint Sealing Specification).

1.7.1.3 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. A reading of the test liquid flow meter shall then be taken if the flow rate exceeds ¼-gallon per minute (due to joint leakage); the joint will have failed the test and shall be sealed as specified (see Sewer Pipe Joint Sealing Specification).

END OF SECTION

Joint Sealing – 4 pages

PART 1 GENERAL

1.1 DESCRIPTION

1.1.1 Referenced Sections:

- 1.1.1.1 CCTV Inspection Sewer
- 1.1.1.2 Sewer Cleaning
- 1.1.1.3 Sewer Pipe Joint Testing
- 1.1.1.4 Chemical Sealing (Grout) Material
- 1.1.1.5 By-Pass Pumping
- 1.1.1.6 Manhole and Pipe Rehabilitation and Spray Lining
- 1.1.1.7 UV Cured in Place Pipe
- 1.1.1.8 Thermal Cured in Place Pipe

1.2 SUBMITTALS

1.2.1 Joint Sealing Records: Included in the records for join sealing shall be:

- 1.2.1.1 The test pressure before and after sealing and the duration of the test per the Sewer Pipe Join Testing specification.
- 1.2.1.2 Location/Footage of each join sealed.
- 1.2.1.3 The volume of grout material used to seal each joint.
- 1.2.1.4 The volume of grout placed per section.
- 1.2.1.5 The gel time verified every two hours and noted.
- 1.2.1.6 The calibration test results in PSI and time duration.

1.3 QUALITY ASSURANCE

1.3.1 Prior to commencement of work the WRC inspector and personnel will be given the opportunity to inspect the equipment to be used. Specifically, the WRC inspector may measure the internal dimensions of the tanks from which the sealing materials will be pumped and witness the technique for measuring the volume of sealing materials pumped.

1.3.2 Prior to the Contract startup, the Contractor shall perform test demonstration to verify accuracy of calibrations of pump pressures and liquid amounts injected per pump revolution or per pump stroke prior to commencing sealing operations. If this test demonstration fails to show that readings are consistent and accurate, the Contractor shall be required to make the required repair or adjustments to the equipment and gauges, and retest until the results are satisfactory to WRC. This test demonstration may be required at any time during the sealing operation.

1.3.2.1 See equipment test criteria and pressure reactions after seal (see Sewer Pipe Joint Testing Main Sewers Specification).

1.3.3 Request for Deviation

1.3.3.1 Any deviation in this specification or reference specifications must have prior approval from WRC.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Grouting materials shall be specified in Chemical Sealing (Grouting) Materials Specification.

2.2 EQUIPMENT

2.2.1 Equipment: The following basic equipment is necessary for completion of the work described in this section:

- 2.2.1.1 A closed-circuit television system (CCTV)
- 2.2.1.2 Necessary chemical sealant container
- 2.2.1.3 Pumps
- 2.2.1.4 Regulators
- 2.2.1.5 Valves, hoses, etc.
- 2.2.1.6 Joint sealing packers for the various sizes of sewer pipes
- 2.2.1.7 Packer Pipes: The packer shall be cylindrical, have a diameter less than the pipe size, and have cables attached at each end to pull it through the line in conjunction with a CCTV.

PART 3 EXECUTION

3.1 JOINT SEALING

3.1.1 Joint Sealing Procedures: Joint showing visible leakage or joints that have failed the joint test specified (see Sewer Pipe Joint Testing Main Sewers Specification) shall be sealed as specified. When bell cracks or chips are evident from pipe section joint offsets, sealing may be undertaken where the offset is small enough to allow proper seating of the sealing packers on both sides of the joint to be sealed. Joint sealing shall be accomplished by forcing chemical sealing materials into or through faulty joints by a system of pumps, hoses, and sealing packers. The grout must be injected beyond the joint interface into the soil surrounding the pipe joint. The Core shall be taken when grouting from surface to pipe so that damages or undermining of the pipeline does not occur. The packer shall be positioned over the failed joint by means of a measuring device and the CCTV in the line. It is important that the procedure used by the Contractor for positioning the packer be accurate to avoid overpulling the packer and thus not effectively isolating the intended joint. The packer ends (end element sleeves) shall be expanded (as per packer manufacturer recommendations) using controlled pressure. Expansion shall be regulated by precise pressure gauges and controls. The expanded ends shall seal against the inside periphery of the pipe to form a void area around the failed joint and is completely isolated from the remainder of the pipeline. A tight seal shall be obtained before the grouting process begins. If a tight seal is not obtained, the AWARDED VENDOR(S) shall remove the equipment and make such adjustments as are required to obtain a tight seal. Into this isolated area, through hose lines leading from above ground, the chemical sealant materials shall be pumped through the hose system with instant reading, metered flow controlled proportioning pumps at controlled pressures, which are in excess

of 3 PSI greater than the groundwater pressure outside the pipe or 5 PSI, whichever is greater or by one of the following two methods:

3.1.1.1 No joint shall be considered sealed unless, while under continual pressure, an attempt is made to pump a minimum of ¼-gallon per inch of pipe diameter has been applied (i.e. 2 gallons for 8" pipe). This is to insure that sufficient chemical has been dispersed into the soil surrounding the joint and that temporary seal has not been made by applying a minimum amount of chemical to the void and joint areas inside the pipe.

3.1.1.2 Refusal shall be defined as the point of blow-by on the packer bladders or by continuous spikes in the void pressure.

3.1.1.3 At WRC discretion it may direct the AWARDED VENDOR(S) to seal non- failed joints as a preventive measure.

3.1.2 Gel Times: Gel times shall not be less than 20 sec. unless approved by the Owner Representative. The chemical mixing ratios shall be adjusted and set as determined by the Owners Representative. But, in general, the 'gelatin," or gel set time shall never be less than 20 seconds. The following factors must be taken into account when determining an appropriate gel time: void volume (volume between packer and pipe), pumping rate, during the sealing operations. The television, grout pumping, and air pressure monitoring equipment shall be integrated so that proportions, quantities, and void pressures for materials and sealing can be instantly monitored and regulated in accordance with type and size of the leak being sealed.

3.1.3 It is intended that no rehabilitation be chemical grouting shall be performed on any sanitary sewer line that has been scheduled for point repair, replacement or other work involving excavation or new connections until the scheduled work has been completed, or as otherwise authorized by the WRC Engineer.

3.1.4 The WRC Inspector and Engineer shall have access to observe the television screen and all other operations at all times.

3.2 PERFORMANCE REQUIREMENTS

3.2.1 Joint Testing Verification Procedure: Upon achieving a seal at each joint, the packer shall be deflated to break away the doughnut of gel informed by the packer VOID. The contractor shall clean the gel ring sufficiently enough to facilitate a retest by moving the grouting device one packer length. If necessary, the injection port on the packer shall be cleared with a quick burst of pressure test medium, such that the VOID pressure meter reads zero pressure ± 0.5 psi. Should the VOID pressure meter not read zero ± 0.5 psi, the Contractor shall clean his equipment of residual grout material or make the necessary equipment repairs/adjustments to produce accurate VOID pressure readings. The packer should then be re-inflated and the joint retested (at a pressure 1.5 time greater than the initial test pressure) as specified in the Sewer Pipe Joint Testing Specification. 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.

3.2.2 Residual Sealing Material: Residual sealing materials that extend into the pipe, reduce the pipe diameter, or restrict the flow shall be removed from the joint. The

sealed joints shall be left reasonably “flush” with the existing pipe surface. If excessive residual sealing materials accumulate in the line (and/or directed by the WRC Inspector) the manhole section shall be cleaned to remove the residual materials. In no case shall excess grout material from a succeeding section be allowed to accumulate and be flushed down the sewer.

3.3 WARRANTY

3.3.1 Terms: All sewer pipe joint sealing work performed shall be guaranteed against faulty workmanship and/or materials for a period of 5 years after the completion of the work.

3.3.1.1 Prior to the expiration of the guaranty period, the Owner shall select initial retest are consisting of specific manhole sections. Manhole sections to be warranty tested shall be randomly selected throughout the project area and shall be representative of the majority of the sealing work originally performed. The initial test area shall consist of 5% of the sealed joints contained in the original project.

3.3.1.2 Within the initial warranty test area, the Contractor shall retest all previously sealed joint as specified (see Sewer Pipe Joint Testing Main Sewers Specification). Any joints failing the warranty test shall the resealed. If the failure rate of the retested joints is less than 5 % of the joints retested, the work shall be considered satisfactory and no further warranty testing will be required.

3.3.1.3 If, in the initial warranty test area, the failure rate of the retested joints exceeds 5% of the joint retested, an additional retest area of equivalent size shall be selected and all previously sealed joints shall be retested. This additional warranty testing and sealing, if necessary, will continue until a failure rate of less than 5% is met for each additional warranty test area. If a joint fails the initial retest it will not be paid for under the testing item.

3.3.1.4 Any additions testing/ sealing required beyond the initial warranty test area shall be accomplished at no cost to the Owner. The initial warranty testing shall be paid for under the unit bid items for cleaning and testing.

3.3.1.5 Should as much as 25% of the original project be warranty tested and fail to meet the 5% requirement; the Contractor will be required to provide the same number of crews as utilized in the original project so that the warranty testing will proceed at a more rapid rate.

3.4 FINAL ACCEPTANCE

3.4.1 Upon completion, the installer will deliver the digital recordings and report to the owners. The WRC will review the documentation and the site to determine that the scope of work is complete and the work is satisfactory.

END OF SECTION

Chemical Sealing (Grouting) – 3 pages

PART 1 General

1.1 SUMMARY

1.1.1 Section includes Chemical Sealing (Grouting) Materials

1.1.1.1 Material properties of grout used in internal joint sealing of sewer pipe joints (See Sewer Joint Sealing Main Sewers Specification) which have failed the joint test criteria described in Sewer Pipe Joint Testing Specification.

1.1.2 Referenced Sections:

1.1.2.1 CCTV Inspection Sewer

1.1.2.2 Sewer Cleaning

1.1.2.3 Sewer Pipe Joint Testing

1.1.2.4 Sewer Pipe Joint Sealing

1.1.2.5 By-Pass Pumping

1.1.2.6 Manhole and Pipe Rehabilitation and Spray Lining

1.1.2.7 UV Cured in Place Pipe

1.1.2.8 Thermal Cured in Place

1.1.3 Request for Deviation

1.1.3.1 Any deviation in this specification or reference specifications must have prior approval from WRC.

1.2 QUALITY CONTROL

1.2.1 All chemical sealing materials used in the performance of the work specified should possess properties as described in American Public Works Associates (APWA) publication "Assessment of Sewer Sealants" (September 1980, office of R & D, U.S. EPA, Cincinnati, OH 45268).

1.2.2 Request for Deviation

1.2.2.1 Any deviation in this specification or reference specifications must have prior approval from WRC.

PART 2 PRODUCTS

2.1 CHEMICAL SEALING MATERIALS

2.1.1 Chemical Sealing Materials: The following is a generic listing of chemical sealing materials currently in use and the basic requirements, properties and characteristics of each. It is recognized that new chemical sealing materials may become available from time to time. Sources, manufacturers, and product names of chemical sealing materials may also change. Each chemical sealing material listed in Paragraph 3 has discrete properties and may or may not be interchangeable with another material for a particular application or purpose. Since each application of those material may be present differing ambient conditions (i.e., temperature, soil type and condition, presence of water, etc.) it is important that the engineer/ applicator carefully considers the properties of each material to choose the appropriate chemical sealing material to be used to produce the desired results. In every case, mixing and handling of chemical sealing materials shall be in accordance with the

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manufacturer's recommendations.

2.1.2 Acrylamide base gel sealing material:

2.1.2.1 A minimum of 10% acrylamide base material by weight in the total sealant mix. A higher concentration (%) of acrylamide base material may be used to increase strength or offset dilution injection.

2.1.2.2 The ability to tolerate some dilution and react in moving water during injection.

2.1.2.3 A viscosity of approximately 2 centipoise which can be increased with additives.

2.1.2.4 A constant viscosity during reaction period.

2.1.2.5 A controllable reaction time from 10 seconds to 1 hour.

2.1.2.6 A reaction (curing) which produces a homogeneous, chemically stable, non-biodegradable, firm flexible gel.

2.1.2.7 The ability to increase mix viscosity, density and gel strength by the use of additives.

2.1.3 Acrylic base gel chemical sealing material:

2.1.3.1 A minimum of 10 % acrylic base material by volume in the total sealant mix. A higher concentration (%) of acrylic base material may be used to increase strength or offset dilution during injection.

2.1.3.2 The ability to tolerate some dilution and react in moving water during injection.

2.1.3.3 A viscosity of approximately 2 centipoise which can be increased with additives.

2.1.3.4 A constant viscosity during the reaction period.

2.1.3.5 A controllable reaction time from 5 seconds to 6 hours.

2.1.3.6 A reaction (curing) which produces a homogeneous, chemically stable, non-biodegradable, flexible gel.

2.1.3.7 The ability to increase mix viscosity, density and gel strength by the use of additives.

2.1.4 Acrylic base gel chemical sealing material:

2.1.4.1 A minimum of 12% * acrylate base material by weight in the total sealant mix. A higher concentration (%) of acrylate base material may be used to increase strength or offset dilution during injection. (*Note: if the acrylate base material is in a 40% solution, it must comprise 30% by weight of the total sealant mix to have 12% base material. The total mix gallons shall not exceed 57 gallons.)

2.1.4.2 The ability to tolerate some dilution and react in moving water during injection using a low void packer.

2.1.4.3 A viscosity of approximately 2 centipoise which can be increased with additives.

2.1.4.4 A constant viscosity during the reaction period.

2.1.4.5 A controllable reaction time from 10 seconds to 1 hour. A reaction (curing) which produces a homogeneous, chemically stable, non-biodegradable, flexible gel.

2.1.4.6 The ability to increase mix viscosity, density and gel strength by the use of additives.

2.1.5 Urethane base gel chemical sealing material:

2.1.5.1 1 part urethane pre-polymer thoroughly mixed with between 5 and 10 parts of water by weight. The recommended mix ratio is 1 part urethane per polymer to 8 parts water (11% pre-polymer).

2.1.5.2 A liquid pre-polymer having a solids content of 77% to 83%, specific gravity of 1.04 (8.65 pounds per gallon), and a flash point of 20 F.

2.1.5.3 A liquid pre-polymer having a viscosity of 600-1200 centipoise at 70° F that can be

pumped through 500 feet of ½-inch hose with a 1000n psi head at a flow rate of 1 ounce per second.

2.1.5.4 The water used to re-act the pre-polymer should have a pH of 5 to 9.

2.1.5.5 A cure of 80 seconds at 40° F, 55 seconds at 60° F, and 30 seconds at 80° F when 1 part pre-polymer is reacted with 8 parts of water only. Higher water ratios give longer cure times.

2.1.5.6 A cure time that can be reduced to 10 seconds for water temperatures of 40° F to 80° F when 1 part pre polymer is reacted with 8 parts of water containing a sufficient amount of gel controls agent additive.

2.1.5.7 A relatively rapid viscosity increase of the pre-polymer/water mix. Viscosity increases from about 10-60 centipoise in the first minute for 1 to 8 pre-polymer/ water ration at 50 F.

2.1.5.8 A reaction (curing) which produces a chemically stable and non-biodegradable, tough, flexible gel.

2.1.5.9 The ability to increase mix viscosity, density, gel strength and resistance to shrinkage by the use of additives to the water.

2.1.6 Urethane base foam chemical sealing material:

2.1.6.1 Approximately 1 party of urethane pre-polymer thoroughly mixed the 1 part of water by weight (50% pre-polymer).

2.1.6.2 A liquid per-polymer having a solids content of 82% to 88%, specific gravity of 1.1 (9.15 pounds per gallon), and a flash point of 20° F.

2.1.6.3 A liquid pre polymer having a viscosity of 300-500 centipoise at 72° F that can be pumped through 500 feet of ½- inched house with a 500 psi head at flow rate of 1 ounce per second.

2.1.6.4 A cure time of 15 minutes at 40° F, 8.2 minutes at 70° F and 4.6 minutes at 100° F when the pre-polymer is reacted with water containing 0.4% accelerator.

2.1.6.5 A cure time of 5.5 minutes at 40° F, 8.2 minutes at 70° F and 2.6 minutes at 100° F when the pre-polymer is reacted with water containing 0.4% accelerator.

2.1.6.6 During injection; foaming, expansion, and viscosity increase occur.

2.1.6.7 Physical properties of the cured foam of approximately: 14 pounds per cubic foot density, 80-90 psi tensile strength, and 700% to 800% elongation when a mixture of 50% pre-polymer and 50% water undergoes a confined expansion to five times its initial liquid volume.

PART 3 EXECUTION

See Sewer Pipe Joint Sealing Specification

END OF SECTION

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CCTV - 4 Pages
Part 1 GENERAL

1.01 SUMMARY

1.01.01 Section includes internal close-circuit television (CCTV) inspection of sewers.

1.01.01.01 Inspect sewer interior using color CCTV camera, and document inspection on a WRC approved storage device(s)/area with location and date information, title information, and continuous footage counter in a NASSCO PACP database. Provide a hard copy of summary inspection log(s).

1.01.02 Related Sections: Refer to the following sections for related work:

1.01.02.01 Sewer Pipe Joint Testing

1.01.02.02 Sewer Pipe Joint Sealing

1.01.02.03 Chemical Sealing (Grout) Material

1.01.02.04 Sewer Cleaning

1.01.02.05 Thermal Cured in Place Pipe

1.01.02.06 UV Cured in Place Pipe

1.01.02.07 Manhole and Pipe Rehabilitation and Spray Lining

1.01.02.08 By-Pass Pumping

1.02 SUBMITTALS

1.02.01 Quality Assurance: Submit one sample NASSCO PACP database of previous sewer inspection work that shows operational and structural defects in sewers and summary inspection log(s).

1.02.01.01 NASSCO PACP database and summary inspection log(s) will be reviewed to determine if quality of CCTV image is acceptable and if defects were properly identified and documented according to NASSCO and WRC requirements.

1.02.01.02 Modify equipment and/or inspection procedures to achieve report material of acceptable quality.

1.02.01.03 Do not commence Work prior to approval of report material quality by WRC Representative. Upon acceptance, report material shall serve as standard for remaining Work.

1.02.01.04 Request for Deviation

1.02.01.04.01 Any deviation in this specification or reference specifications must have prior approval from WRC.

1.02.02 Summary Inspection Log(s): Unless otherwise indicated, submit inspection log(s) that include the following as a minimum:

1.02.02.01 Header Containing

1.02.02.01.01 Project Title

1.02.02.01.02 Contractors Name

1.02.02.01.03 Operator name(s)

1.02.02.01.04 Locale(s)

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- 1.02.02.01.05 City and Street(s)
- 1.02.02.02 Table of Pipe Run Summary
 - 1.02.02.02.01 Columns Required
 - 1.02.02.02.01.01 Date
 - 1.02.02.02.01.02 WRC CAMS pipe asset id number
 - 1.02.02.02.01.03 WRC CAMS standard Work Order number
 - 1.02.02.02.01.04 WRC CAMS heavy cleaning Work Order number
 - 1.02.02.02.01.05 WRC Upstream Legacy Manhole numbers
 - 1.02.02.02.01.06 WRC Downstream Legacy Manhole numbers
 - 1.02.02.02.01.07 Pipe segment length surveyed
 - 1.02.02.02.01.08 WRC CAMS pipe segment length
 - 1.02.02.02.01.09 Check box if there was a reversal done or the survey was abandoned.
- 1.02.03 NASSCO PACP database must include all of the minimum required fields per NASSCO PACP.
- 1.02.04 Maintain copy of all inspection documentation (media/area, databases, and summary logs) for duration of Work and one (1) year period after WRC accepts the invoice.

Part 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- 2.01.01 WRC Storage Device/area
 - 2.01.01.01 Storage shall be in the manufactures recommendations for position, temperature range and in an appropriate case to prevent damage.
 - 2.01.01.02 Identify each storage device/area with proper labeling/folders showing:
 - 2.01.01.02.01 Project Title
 - 2.01.01.02.02 Contractor Name
 - 2.01.01.02.03 Operator name(s)
 - 2.01.01.02.04 Locale(s)
 - 2.01.01.02.05 City and Street(s)
- 2.01.02 Television Inspection Camera(s) (TIC): Equipped with rotating head, capable of 90-degree rotation from horizontal and 360-degree rotation about its centerline and should be suitable for viewing the full perimeter of the proposed pipe diameter.
 - 2.01.02.01 Minimum Camera Resolution: 400 vertical lines and 460 horizontal lines.
 - 2.01.02.02 Camera Lens: Not less than 140 degree viewing angle, with automatic or remote focus and iris controls.
 - 2.01.02.03 Focal Distance: Adjustable through range of 6 inches (152 mm) to infinity.

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2.01.02.04 Camera(s) shall be intrinsically safe and operative in 100 percent humidity conditions.

2.01.02.05 Lighting Intensity: Remote-controlled and adjusted to minimize reflective glare.

2.01.02.06 Lighting and Camera Quality: Provide clear, in-focus picture of entire inside periphery of sewer.

2.01.03 A winch and cable through the pipeline shall tow the TIC or it shall be mounted on a crawler. All winches shall be stable during the entire TIC inspection. All TIC cables and lines used to measure the camera's location within the pipeline shall be maintained in a taut manner and set at right angles, where possible to run through or over the measuring equipment.

2.01.04 The inspection shall be conducted at such a speed as to allow proper analysis of the pipes condition. The camera shall stop at each house lead for a minimum of 5 seconds.

2.01.05 Footage Counter: Measures distance traveled by camera in sewer, accurate to plus or minus 2 feet (0.6 m) in 1,000 feet (305 m). Lighting and Camera Quality: Provide clear, in-focus picture of entire inside periphery of sewer.

2.01.05.01 Accuracy of the distance meter shall be checked by use of a walking meter, roll-a-tape, or other suitable device, and the accuracy shall be satisfactory to the WRC Inspector.

Part 3 EXECUTION**3.01 SEWER FLOW REQUIREMENTS**

3.01.01 Do not exceed depth of flow shown in Table 1 for respective pipe sizes as measured in manhole when performing TV inspection.

3.01.02 When depth of flow at upstream manhole of sewer line section being worked is above maximum allowable for TV inspection, reduce flow to level shown in Table 1, by plugging or blocking of flow, or by pumping and bypassing of flow as specified.

TABLE 1
Maximum Depth of Flow for TV Inspection

Nominal Pipe Diameter	Maximum Depth of Flow
6" - 10"	20 percent of pipe diameter
12" - 24"	25 percent of pipe diameter

3.01.03 If the camera is submersed under water in the pipe (bullied pipe) then every attempt must be made to clear the water from that section. If the water cannot be cleared and proper camera inspection cannot be made then the WRC inspector shall be notified, the segment reported, and the Contractor shall wait for further directions on that section.

3.02 SEQUENCE OF WORK

3.02.01 Perform Work in the following sequence:

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3.02.01.01 Clean sewer lines and manholes in accordance with requirements of Sewer Cleaning Specification.

3.02.01.02 Perform TV inspection to comply with requirements of this specification.

3.03 INSPECTION REQUIREMENTS

3.03.01 Access: The WRC shall provide full time inspection. WRC inspector shall have access to observe monitor and other operations at all times. No inspections shall commence without the designated WRC inspector present at the site of the inspection operations.

3.03.02 AWARDED VENDOR(S) personnel viewing the live video feed in the televising van must be NASSCO certified and have at least three years of certified NASSCO grading experience.

3.03.03 Sewer Identification: WRC approved storage device(s)/area and inspection documentation shall include sewer line and manhole identifiers shown on Drawings provided by WRC.

3.03.04 Image Perspective: Camera image shall be down center axis of pipe when camera is in motion.

3.03.04.01 Provide 360-degree sweep of pipe interior at points of interest, to more fully document existing condition of sewer.

3.03.04.02 Points of interest may include, but are not limited to the following: defects, cracks, voids, connections, encrustations, mineral deposits, debris, sediment, and any location determined not to be clean or part of an improper previous liner installation, and defects in liner that include, but are not limited to bumps, folds, tears, dips, bellies, and dimples.

3.03.04.03 Manual winches, power winches, TV cable and powered rewinds or other devices should not obstruct the camera view or interfere with proper documentation of the pipe or its movement within the pipe.

3.03.05 Sewer Reach Length: Physically measure and record length of each sewer reach from centerline of its terminal manholes.

3.03.06 Inspection Rate: Camera shall be pulled through sewer in either direction, but both inspections are to be in same direction. Maximum rate of travel shall be 15 feet per minute when recording.

3.04 FIELD QUALITY CONTROL

3.04.01 WRC will review video and summary inspections log(s) to ensure compliance with requirements listed in this specification and Sewer Cleaning specification.

3.04.02 If sewer line, in sole opinion of WRC, is not adequately clean, it shall be re-cleaned and CCTV-inspected by Contractor at no additional cost.

- END OF SECTION -

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Manhole and pipe rehabilitation- 8 Pages

PART 1 General

1.01 SUMMARY

1.01.01 Section includes manhole rehabilitation and spray lining.

1.01.01.01 It is the intent of this specification to provide for the reconstruction of manholes and sewer pipes by the use of the Spray Lining Rehabilitation process utilizing spraying a cementitious lining, epoxy lining or another WRC approved material into an existing host manhole and/or pipe.

1.01.02 Referenced Specifications:

1.01.02.01 CCTV Inspection Sewer

1.01.02.02 Sewer Cleaning

1.01.02.03 Sewer Pipe Joint Testing

1.01.02.04 Sewer Pipe Joint Sealing

1.01.02.05 Chemical Sealing (Grout) Material

1.01.02.06 By Pass Pumping

1.02 QUALITY CONTROL

1.02.01 All work for this section shall conform to the applicable portions of the latest Standard Specifications:

1.02.01.01 ASTM F2251

1.02.01.02 ASTM D2584

1.02.01.03 ASTM D695

1.02.01.04 ASTM D4541

1.02.01.05 ASTM D543

1.02.01.06 ASTM G20

1.02.01.07 ASTM D4787

1.02.01.08 ASTM D638-03

1.02.01.09 ASTM D790

1.02.01.10 ASTM D3039

1.02.01.11 ASTM F635

1.02.01.12 APS Water Porosity Standard

1.02.02 However, where the requirements of ASTM F2251, ASTM D2584, ASTM D695, ASTM D4541, ASTM D543, ASTM G20, ASTM D4787, ASTM D638-03, ASTM D790, ASTM D3039, ASTM D635 or APS Water Porosity Standard conflict with the requirements of this section, this section shall govern.

1.02.03 Submittals

1.02.03.01 CCTV Inspection Sewer.

1.02.03.01.01 A CCTV inspection of the sewer before conditions and after conditions including the restore connections shall be completed per the CCTV Inspection Sewer specifications and turned over to the Owner and become their property.

1.02.03.02 Material Test

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1.02.03.02.01 Material test shall be furnished to WRC for review and approval prior to beginning the rehabilitation work, satisfactory written guarantee of compliance with the standards specifications for all materials, techniques, and installation methods being used in the rehabilitation process.

1.02.03.03 By-Pass Pumping Plan

1.02.03.03.01 Submit a detailed sewer by-pass pumping plan to WRC for review fifteen (15) days prior to the beginning of work per the By-Pass Pumping specifications.

1.02.03.04 Request for Deviation

1.02.03.04.01 Any deviation in this specification or reference specifications must have prior approval from WRC.

1.02.03.05 Certification: Applicators to perform coating installation work, including spray operators as applicable, shall be certified by the manufacturer and submitted to WRC.

1.02.04 Design considerations

1.02.04.01 Follow the manufacturer's specifications for the materials design and applications.

PART 2 PRODUCTS

2.01 GENERAL

2.01.01 The materials used shall be designed, manufactured, and intended for sewer systems, manholes and pipe rehabilitation and the specific application in which they are used.

2.02 CEMENTITIOUS RESTORATION

2.02.01 Spray applied or centrifugally cast lightweight structural reinforced cement material applied to the surface of the manhole or pipe shall be a blend of acid resistant binders, siliceous aggregates, non-metallic fibers and other additives for construction a line that is impervious to the flow of water, is resistant to sulfide attack and restores structural integrity to existing manhole or pipe walls.

2.03 CEMENTITIOUS COATING MATERIALS

2.03.01 AWARDED VENDOR(S) shall install cementitious coating materials that shall be specifically designed for the rehabilitation of manholes, pipes, and related structures. Liner materials shall be mixed with water per manufacturer's specifications and applied using equipment specifically designed for either low-pressure spray or centrifugal spin casting application of cement mortars. All cement liner materials must be capable of a placement thickness of ½" to 2" in one pass monolithic applications.

2.03.02 Cementitious coating materials shall have the following 28-day minimum characteristics

2.03.02.01 Compressive Strength: 8000 psi

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- 2.03.02.02 Flexural Strength: 1000 psi
- 2.03.02.03 Bonding Strength: Substrate failure
- 2.03.02.04 Permeability: Not to exceed 400 coulombs
- 2.03.02.05 Freeze-Thaw: No damage in 3000 cycles (min)
- 2.03.02.06 Material Wet Density: 130 lbs/ft³
- 2.03.03 Material Design: Cementitious coating materials shall be designed based upon the following conditions:
 - 2.03.03.01 Extremely Harsh Hydrogen Sulfide Environment (pH<2.0):
 - 2.03.03.01.01 Cementitious coating materials shall be manufactured from 100% calcium aluminates based cements, shrinkage compensated, and enhanced with high-density chemically stable aggregates.
 - 2.03.03.01.02 Materials shall contain poly fiber reinforcement and chemical admixtures.
 - 2.03.03.01.03 The coating manufacture should be contacted for a recommendation of specific project applications.
- 2.03.04 Subject to meeting the above requirements, manufactures with acceptable products may include the following:
 - 2.03.04.01 Strong Seal Systems
 - 2.03.04.02 Permacast Mortars
 - 2.03.04.03 Mainstay
 - 2.03.04.04 Sauereisen
 - 2.03.04.05 Fosroc
 - 2.03.04.06 LaFarge
- 2.04 SPRAY-ON EPOXY LINER
 - 2.04.01 Repair and Resurfacing Products:
 - 2.04.01.01 Repair products shall be used to fill voids, bug holes, and/or smooth transitions between components prior to the installation of the coating product(s). Repair materials must be compatible with the specified coating product(s) and shall be used and applied in accordance with the manufacturer's recommendations.
 - 2.04.01.02 Resurfacing products shall be used to fill large voids, lost mortar in masonry structures, smooth deteriorated surfaces and rebuild severely deteriorated structures.
 - 2.04.01.03 The following products may be accepted and approved as compatible repair and resurfacing products for use within the specifications:
 - 2.04.01.03.01 100% solids, solvent-free epoxy grout specifically formulated for epoxy top-coating compatibility.
 - 2.04.01.03.02 Factory blended, rapid setting, high early strength, fiber reinforced, non-shrink repair mortar that can be troweled or pneumatically spray applied may be approved if specifically formulated to be suitable for epoxy top-coating with the specified

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product. The length of resurfacing material cure required before epoxy top-coating shall be as recommended by the manufacturer.

2.04.01.04 Coating Products:

2.04.01.04.01 One-hundred percent solids, solvent-free ultra high-build epoxy system exhibiting the following characteristics:

2.04.01.04.01.01 Product Type: Amine-cured Epoxy

2.04.01.04.01.02 VOC Content (ASTM D2584): 0%

2.04.01.04.01.03 Compressive Strength (ASTM D695):
13,000 psi (min)

2.04.01.04.01.04 Tensile Strength (ASTM D638): 6,500 psi
(min)

2.04.01.04.01.05 Flexural Strength (ASTM D790): 12,500
psi (min)

2.04.01.04.01.06 Adhesion to Concrete, mode of failure
(ASTM D4541): Substrate (concrete) failure

2.04.01.04.01.07 Chemical Resistance (ASTM D543/G20)
all types of service for:

2.04.01.04.01.07.00 Municipal sanitary sewer
environment

2.04.01.04.01.07.01 Sulfuric acid, 30%

2.04.01.04.01.07.02 Sodium hydroxide, 5%

2.05 MANHOLE STEP

2.05.01 All existing steps will be removed and replaced with steel reinforced co-polymer polyethylene coated manhole steps conforming to the minimum requirements of ASTM D2146, Type II, Grade 49108; M.A. Industries P.S.I. or WRC approved equal.

2.05.02 Steps to be re-installed after lining operation is completed at 16" center to center.

PART 3 EXECUTION

3.01 SAFETY

3.01.01 The AWARDED VENDOR(S) shall carry out this operation in strict accordance with all OSHA, MIOSHA, traffic and manufacturer's safety requirements.

3.02 MANHOLE PREPARATION

3.02.01 The AWARDED VENDOR(S) is advised that the manholes are affected by severe hydrogen sulfide corrosion and are considered permit required confined spaces. The AWARDED VENDOR(S) shall comply with all federal, state, local, and WRC requirements applicable to the work.

3.02.02 Flow Control

3.02.02.01 The AWARDED VENDOR(S) shall follow WRC's By-Pass Pumping specification.

3.02.03 Cleaning of Pipelines

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3.02.03.01 The AWARDED VENDOR(S) shall follow WRC's Sewer Cleaning specification.

3.02.04 Pre-rehabilitation inspection of pipeline

3.02.04.01 The AWARDED VENDOR(S) shall follow WRC's CCTV Inspection Sewer specification. The location of any conditions which may prevent proper installation of the lining materials into the pipelines shall be noted and reported immediately to WRC and corrected by section 3.05.

3.02.05 Line obstructions

3.02.05.01 It shall be the responsibility of the AWARDED VENDOR(S) to clear the line of any obstructions such as solids, dropped joints, protruding branches, roots, or broken pipe that will prevent proper insertion of the liner. If inspection reveals an obstruction that cannot be removed by conventional cleaning equipment, then the obstruction shall be removed by equipment operating with the pipeline.

3.02.05.02 Services shall not protrude more than ¼ inch on any size sewer line. Anything protruding more than that shall be ground down as flush as possible with the wall of the sanitary sewer. Grinding shall be done with equipment operation inside of the sewer and shall not cause damage to the sewer or the service being ground.

3.02.05.03 If the protruding service is in such condition that grinding is not possible or in condition that such a repair cannot be done from the inside, then the AWARDED VENDOR(S) shall inform WRC that a spot repair is necessary and provide all the details. Once WRC gives its approval the AWARDED VENDOR(S) shall make a spot repair excavation, to uncover, remove, and repair the obstruction. The use of a flail type reamer to remove protruding services is not allowed.

3.02.06 Patching and Sealing of Active Leaks

3.02.06.01 The AWARDED VENDOR(S) shall follow WRC's Sewer Pipe Joint Testing, Sewer Pipe Sealing, and Chemical Sealing (Grouting Materials).

3.02.06.01.01 Larger Diameter Pipe

3.02.06.01.01.01 Large holes or voids round step, joints or pipe, spalled areas and holes caused by missing or cracked brick shall be patched and missing mortar repointed using a non-shrink patching mortar.

3.02.06.01.01.02 Cracked or disintegrated material shall be removed from the area to be patched or repointed, exposing a sound sub-base. Cracks not subject to movement and greater than 1/16 inch in width shall be routed out to a minimum width and depth of ½ inch and patched with non-shrink patching mortar.

3.03 STRUCTURAL REINFORCED CEMENTITIOUS RESTORATION

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3.03.01 Preparation

3.03.01.01 The lining system shall be installed in accordance with the manufacturer's recommendation to withstand groundwater pressure.

For Manhole less than 12 feet in depth, the lining shall withstand the pressures associated with a groundwater depth equal to 12 feet of depth. Measure the groundwater depth from the manhole bench to the top of the ground surface.

3.03.01.02 Before starting any patch work or liner application a perforated device, catch bucket or other straining device must be installed to prevent construction debris from entering the downstream system.

3.03.01.03 If ambient temperatures are in excess of 95° Fahrenheit, precautions shall be taken to keep the mix temperature at the time of application below 90° Fahrenheit.

3.03.01.04 No application shall be made to frozen surfaces. Material shall not be applied during freezing weather conditions. Material shall not be placed when the ambient temperature is 37° Fahrenheit and falling or when the temperature is anticipated to fall below 32° Fahrenheit within 24 hours.

3.03.01.05 Material shall be applied to a specified uniform minimum thickness of ½ inch, or ½ inch over exposed reinforcing bars, whichever is greater. Material shall be applied to the bench area in such a manner as to provide for proper drainage without ponding of the flow in the manhole.

3.03.01.06 Troweling of materials shall begin immediately following the application. Initial troweling shall be in an upward motion, to compress the material into voids and solidify manhole wall. Precautions should be taken not to over-trowel.

3.03.01.07 Curing will take place once the manhole cover has been replaced. It is important that the manhole cover is replaced no more than 10-20 minutes after troweling is completed to avoid moisture loss in the material due to sunlight and winds.

3.03.02 Spray Application

3.03.02.01 Material specified herein shall be applied and finished, by the AWARDED VENDOR(S), using equipment recommended by the manufacturer.

3.03.02.01.01 Material hose shall be coupled to a low-velocity spray application nozzle. Pumping of the material shall commence and the material shall be atomized by the introduction of air at the nozzle, creating a low-velocity spray pattern for material application.

3.03.02.01.02 Spraying shall be performed by starting at the manhole invert and progressing up the wall to the corbel and chimney areas or from the downstream pipe up to the upstream pipe.

3.03.03 Spin Casting Application

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3.03.03.01 Material specified herein shall be applied and finished, by the AWARDED VENDOR(S), using equipment recommended by the manufacturer.

3.03.03.01.01 Material hose shall be coupled to a high-speed rotation applicator device.

3.03.03.01.01.01 The rotating casting applicator shall then be positioned within the center of the manhole at either the top of the manhole chimney or the lowest point elevation corresponding to the junction of the manhole bench and walls.

3.03.03.01.01.02 The rotating casting applicator shall then be positioned at the center of the pipe on the downstream end.

3.03.03.01.02 The high-speed rotation applicator shall then be initialized and pumping of the material shall commence. As the mortar begins to be centrifugally cast evening around the interior of the manhole or pipe, the rotating applicator head shall be moved at a controlled retrieval speed conducive to providing a uniform material thickness on the manhole or pipe walls.

3.03.03.01.03 Controlled multiple passes are then made until the specified minimum finished thickness is attained. If the procedure is interrupted for any reason, simply stop the retrieval of the applicator head until flows are recommended.

3.03.03.01.03.01 Material thickness may be verified at any point with a depth gauge. If additional material is required at any level, the rotation applicator head shall be placed at that point and application shall recommence until that area is thickened.

3.03.03.01.04 Material shall be applied only when the manhole or pipe is in a damp state, with no visible water dripping or running over the manhole or pipe walls.

3.03.03.01.05 The low-velocity spray nozzle and the centrifugal spin casting head may be used in conjunction to facilitate uniform application of the mortar material to irregularities in the counters of the manhole walls and bench areas.

3.04 EPOXY LINING

3.04.01 Preparation

3.04.01.01 Standard Portland cement or new concrete (not quick setting high strength cement) must cure a minimum of 28 days prior to application of the epoxy coating product(s).

3.04.01.02 Remove existing coatings prior to application of the coating product(s) which may affect the performance and adhesion of the coating product(s).

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3.04.01.03 Thoroughly clean and prepare products to not to effect a seal with the coating product(s).

3.04.01.04 Place covers over all pipe openings to prevent extraneous material from entering the sewer system.

3.04.01.05 The use of acid for cleaning purposes, no matter how diluted, will not be allowed.

3.04.01.06 No application shall be made when the ambient temperatures are less than 40° Fahrenheit and when freezing is expected within 24 hours unless specific recommendations are made by the manufacturer. Ambient temperatures of the mixture shall not exceed 90° Fahrenheit.

3.04.02 Spray-on Epoxy Liner

3.04.02.01 The epoxy liner shall be manually sprayed on to all surfaces by a trained technician who is experienced in the application of a spray applied liner and has been certified by the manufacturer.

3.04.02.02 Appropriate personal protection equipment shall be utilized in every case when applying the liner, the sprayer and personnel in direct contract with the spray atmosphere, will always be protected by supplied air.

3.04.02.03 Material shall be spray applied to a minimum uniform thickness to ensure that all voids and crevices are filled and a smooth surface remains. Minimum thickness of the material applied is 125 mils.

3.04.02.04 Application of the spray applied material shall be completed in one mobilization in order to minimize the flow disruption and cost of excessive by-pass pumping, pipeline plugging, traffic control and all other support services.

3.05 FINISH

3.05.01 The cured liner shall be continuous over the entire length of the run or manhole and be as free as commercially practicable from visual defects such as foreign inclusions, dry spots, pinholes and delamination. The lining shall be impervious and free of any leakage.

3.05.02 Any defects which will affect the integrity of the liner, or any deficiencies in required strengths or thicknesses, shall be repaired or removed and replaced at the AWARDED VENDOR(S)'S expense, in a manner acceptable to WRC.

3.05.03 Manhole steps shall be driven into pre-cast or drilled holes. Steps shall be installed no more than 16 inches apart vertically on the interior of the manhole wall at a point 4 inches below the base flange of the manhole casting.

3.06 SEALING LINER AT THE ENDS

3.06.01 If due to broken or misaligned pipe at the access point, the lining fails to make a tight seal, the AWARDED VENDOR(S) shall apply a seal at that point.

3.07 BRANCH OR SERVICE CONNECTIONS

3.07.01 After the liner has been cured, the AWARDED VENDOR(S) shall reconnect the existing service connections. This shall generally be done without excavation and in the case of non-man entry pipes, from the interior of the

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pipeline by means of a television camera and cutting device that re-establishes them to operational capacity. After cutting open the service connections, the AWARDED VENDOR(S) shall use a brushing device from the interior of the pipeline by means of a television camera or by hand that touches-up the full circumference of the service connection to eliminate any rough or jagged edges. 3.07.02 Reconnection of services shall begin immediately after curing of the liner has been completed. No service shall be interrupted for more than 12 hours unless otherwise approved by WRC.

3.08 POST REHABILITATION TELEVISION INSPECTION

3.08.01 The completed sewer shall be television inspected per the WRC's CCTV Inspection Sewer specification by the AWARDED VENDOR(S) after completion of the service connections.

3.09 TRAFFIC CONTROL

3.09.01 During the entire rehabilitation process, the AWARDED VENDOR(S) shall provide all necessary barricades, signs, flagmen, minor traffic devices, etc., to maintain both vehicular and pedestrian traffic and if not possible all necessary barricades, signs, minor traffic devices, etc. for the road and sidewalk closure per the Michigan Manual of Uniform Traffic Control Devices.

3.10 CLEAN UP

3.10.01 Upon completion of the installation work and after the liner is acceptable, the AWARDED VENDOR(S) shall restore the project area affected by the operation shall be replaced with like materials and to match in thickness to its substantially the original conditions.

END OF SECTION



PIPELINE MANAGEMENT CO., INC.

*Michigan Department of Transportation Prequalified Contractor
Pipeline Inspection, Maintenance, Repair and Rehabilitation*

**Oakland County Purchasing Division
Solicitation Event ID 004793
Sewage Disposal System Maintenance & Trenchless
Technology
Due: December 12, 2019
Compensation**

Oakland County Water Resources Commissioner
Event No. 004793 - Bid Date December 12, 2019
Equipment Rate Payment Schedule

Description	Proposed Rates For 3 Year Contract Term				
	Hourly	Daily	Idle	Weekly	Monthly
18" & Under Blower Jet/Vac Combo Unit Includes one 50' Section of Layflat	130.00		65.00		
24" Blower Jet/Vac Combo Unit Includes one 50' Section of Layflat	145.00		72.50		
2" Lay Flat Discharge Hose - Add'l 50 Ft. Sections		25.00			
T.V. Grout Unit	100.00		50.00		
Off Road CCTV Unit	95.00		47.50		
UV Spot Liner Unit	120.00		60.00		
Supervisors Vehicle	25.00		12.50		
3/4 Ton and Less Support Vehicle	25.00		12.50		
Cargo Van	25.00		12.50		
F450 Stake Truck	25.00		12.50		
Easement Machine w/Trailer		450.00	225.00		
Kubota RTV 1100C w/Trailer		450.00	225.00		
10' Tag Trailer		75.00			
Mobile Grout Reel		250.00	125.00		
Trailer Mounted Grout Unit (Inc.Trailer)	75.00		37.50		
Joint Grouting Packer (8"-10")		100.00			
Joint Grouting Packer (12"-15")		200.00			
Joint Grouting Packer (18"-21")		300.00			
Joint Grouting Packer (24"-42")		400.00			
Lateral Grouting Packer (8"-12")		400.00			
Lateral Grouting Packer (15"-24")		450.00			
Lateral Inspection Equipment From The Main	40.00				
Lateral Cleaning Equipment		200.00			
Reinstatement Cutter		350.00			
Root Cutter - 8"-12" (Carbide Blade)	35.00				
Root Cutter - 15"-24" (Carbide Blade)	35.00				
Root Cutter - 8"-12" (Chain knockers)	10.00				
Root Cutter - 15"-24" (Chain knockers)	10.00				
Enz Cutter 8"-18"	50.00				
Enclosed 12' Sign Trailer		125.00			
Traffic Cones		2.50			
Traffic Barrels & Channelizers		4.00			
Traffic Signs		6.00			
Arrow Board		200.00	100.00		
Sewer Plug 8" - 24"		100.00		400.00	1,200.00
Sewer Plug 24" - 36"		150.00		600.00	1,800.00
Chain Saw		75.00		300.00	900.00
2000-3500 Watt Generator		100.00			
Chipping Hammer		30.00			
Air Compressor - To 175 CFM	40.00		20.00		
Dry suit		300.00			
Sonde Manhole Locator		100.00			
Truck Mats		25.00			
Waders		75.00			
Confined Space Entry Equipment (no charge if used in conjunction with TV Truck mobilization)		200.00			
Payment Terms: Net 30					

Oakland County Water Resources Commissioner
Event No. 004793 - Bid Date December 12, 2019
Labor Rate Payment Schedule

Proposed 2020/21 Prices

Description	Std.	1.5 O.T.	Double
	Rate	Rate	Time Rate
Field Superintendent	81.00	106.00	136.00
Foreman	61.00	82.00	102.00
Operator/Driver	61.00	82.00	102.00
Spot Liner Driver/Operator	81.00	106.00	136.00
Laborer	57.00	75.00	95.00

Proposed 2021/22 Prices

Description	Std.	1.5 O.T.	Double
	Rate	Rate	Time Rate
Field Superintendent	82.00	108.00	138.00
Foreman	62.00	84.00	104.00
Operator/Driver	62.00	84.00	104.00
Spot Liner Driver/Operator	82.00	108.00	138.00
Laborer	58.00	77.00	97.00

Proposed 2022/23 Prices

Description	Std.	1.5 O.T.	Double
	Rate	Rate	Time Rate
Field Superintendent	83.00	110.00	140.00
Foreman	63.00	86.00	106.00
Operator/Driver	63.00	86.00	106.00
Spot Liner Driver/Operator	83.00	110.00	140.00
Laborer	59.00	79.00	99.00

NOTES:

- 1) Standard Rates: First 45 Hours per week (Monday Thru Friday)
- 2) 1.5 O.T. Rates: Over 45 Hours per week and between the hours of 10 P.M. & 8 A.M. when part of the same shift. Saturday work at 1.5 O.T. Rate.
- 3) Double Time Rates: Sunday and legal holidays.
- 4) Mobile equipment and one driver per unit will charge actual time up to a maximum of 45 minutes for each daily mob and again for each demob from the jobsite daily.
- 5) No travel time will be billed for job labor not specifically driving equipment to and from the worksite. Includes fueling time.
- 6) A minimum showup time of two hours will be paid for crews that have mobilized but are unable to work for conditions outside of their control.
- 7) If the Vactor is mobilized and not used but required to recirculate due to cold weather conditions, the Vactor shall be charged at full time due to need to keep water on the truck from freezing.

Oakland County Water Resources Commissioner
Event No. 004793 - Bid Date December 12, 2019
Project Specific Materials, Equipment Rentals and Subcontract Payment Schedule

MATERIALS

Description	Proposed Rates		
	2020/21	2021/22	2022/23
Grout	20.00	21.00	22.00
Add'l Project Specific Materials & Supplies Shall Be Invoiced At Cost + 10%			

SUBCONTRACT

Description	Proposed Rates		
	2020/21	2021/22	2022/23
ALL Project Specific Subcontract Costs Shall Be Invoiced At Cost + 10%			

EQUIPMENT RENTAL

Description	Proposed Rates		
	2020/21	2021/22	2022/23
ALL Project Specific Equipment Rentals Shall Be Invoiced At Cost + 10%			

Permits/Inspection/WaterUsage/Other Job Specific Reimbursables

Description	Proposed Rates		
	2020/21	2021/22	2022/23
Unscheduled Project Specific Items Shall Be Invoiced At Cost + 10%			

Payment Terms: Net 30

Note: Permits (not including water usage and inspection fees) will be a pass through billing item with no markups.