

CITY OF ANN ARBOR
INVITATION TO BID



Northside Interceptor Condition Assessment

ITB No. 4521

Due Date: Thursday, February 1, 2018 at 10:00 AM

Public Works Unit
Public Services Area

Issued By:

City of Ann Arbor
Procurement Unit
301 E. Huron Street
Ann Arbor, MI 48104

TABLE OF CONTENTS

TABLE OF CONTENTS..... TC-1
NOTICE OF PRE-BID CONFERENCE..... NP-1
INSTRUCTIONS TO BIDDERS.....IB-1 to 5
INVITATION TO BID.....ITB-1 to 3
BID FORMS.....BF-1 to 5
CONTRACT.....C-1 to 4
BOND FORMS..... B-1 to 2
GENERAL CONDITIONS..... GC-1 to 16
STANDARD SPECIFICATIONS..... SS-17
DETAILED SPECIFICATION..... DS-1 to 51

APPENDIX A: NORTHSIDE INTERCEPTOR DRY WEATHER FLOW PROFILE...APDX-1
APPENDIX B: ACCESS MAP FOR CONCORDIA UNIVERSITY.....APDX-4

ATTACHMENTS

- City of Ann Arbor Living Wage Forms*
- City of Ann Arbor Vendor Conflict of Interest Disclosure Form*
- City of Ann Arbor Non-Discrimination Ordinance Notice and Declaration Form*

NOTICE OF PRE-BID CONFERENCE

A pre-bid conference for this project will be held on **Wednesday, January 17, 2018 at 10:00 AM** at **The Wheeler Service Center, 4251 Stone School Road, Ann Arbor, MI 48108**.

Attendance at this conference is highly recommended. Administrative and technical questions regarding this project will be answered at this time. The pre-bid conference is for information only. Any answers furnished will not be official until verified in writing by the Financial Service Area, Procurement Unit. Answers that change or substantially clarify the bid will be affirmed in an addendum.

INSTRUCTIONS TO BIDDERS

General

Work to be done under this Contract is generally described through the detailed specifications and must be completed fully in accordance with the contract documents. All work to be done under this Contract is located in or near the City of Ann Arbor.

Any Bid which does not conform fully to these instructions may be rejected.

Preparation of Bids

Bids should be prepared providing a straight-forward, concise description of the Bidder's ability to meet the requirements of the ITB. Bids shall be written in ink or typewritten. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed and dated in ink by the person signing the Bid.

Bids must be submitted on the "Bid Forms" provided with each blank properly filled in. If forms are not fully completed it may disqualify the bid. No alternative bid will be considered unless alternative bids are specifically requested. If alternatives are requested, any deviation from the specification must be fully described, in detail on the "Alternate" section of Bid form.

Each person signing the Bid certifies that he/she is the person in the Bidder's firm/organization responsible for the decision as to the fees being offered in the Bid and has not and will not participated in any action contrary to the terms of this provision.

Questions or Clarification on ITB Specifications

All questions regarding this ITB shall be submitted via email. Emailed questions and inquires will be accepted from any and all prospective Bidders in accordance with the terms and conditions of the ITB.

All questions shall be due on or before **Friday, January 19, 2018 at 5:00 PM** and should be addressed as follows:

Specification/Scope of Work questions emailed to kyle.selter@ohm-advisors.com
Bid Process and Compliance questions emailed to cspencer@a2gov.org

Any error, omissions or discrepancies in the specification discovered by a prospective contractor and/or service provider shall be brought to the attention of Kyle Selter at kyle.selter@ohm-advisors.com after discovery as possible. Further, the contractor and/or service provide shall not be allowed to take advantage of errors, omissions or discrepancies in the specifications.

Addenda

If it becomes necessary to revise any part of the ITB, notice of the Addendum will be posted to Michigan Inter-governmental Trade Network (MITN) www.mitn.info and/or City of Ann Arbor web site www.A2gov.org for all parties to download.

Each Bidder must in its Bid, to avoid any miscommunications, acknowledge all addenda which it has received, but the failure of a Bidder to receive, or acknowledge receipt of; any addenda shall not relieve the Bidder of the responsibility for complying with the terms thereof.

The City will not be bound by oral responses to inquiries or written responses other than written addenda.

Bid Submission

All Bids are due and must be delivered to the City of Ann Arbor Procurement Unit on or before **Thursday, February 1, 2018 at 10:00 AM EST**. Bids submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each Bidder must submit one (1) original Bid and **two (2)** Bid copies in a sealed envelope clearly marked: **ITB No. 4521 Northside Interceptor Condition Assessment**.

Bids must be addressed and delivered to:

City of Ann Arbor
Procurement Unit,
c/o Customer Services, 1st Floor
301 East Huron Street
Ann Arbor, MI 48107

All Bids received on or before the Due Date will be publicly opened and recorded immediately. No immediate decisions are rendered.

The following forms provided within this ITB Document must be included in submitted bids.

- **City of Ann Arbor Living Wage Ordinance Declaration of Compliance**
- **Vendor Conflict of Interest Disclosure Form**
- **City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance**

Additionally, the contractor shall include sample MSI and PACP report deliverables with their bid.

Bids that fail to provide these completed forms and sample report deliverables listed above upon bid opening will be rejected as non-responsive and will not be considered for award.

Hand delivered bids will be date/time stamped/signed by the Procurement Unit at the address above in order to be considered. Normal business hours are 9:00 a.m. to 3:00 p.m. Monday through Friday, excluding Holidays. The City will not be liable to any Bidder for any unforeseen circumstances, delivery or postal delays. Postmarking to the Due Date will not substitute for receipt of the Bid. Each Bidder is responsible for submission of their Bid.

Additional time for submission of bids past the stated due date and time will not be granted to a single Bidder; however, additional time may be granted to all Bidders when the City determines in its sole discretion that circumstances warrant it.

Award

The City intends to award a Contract(s) to the lowest responsible Bidder(s). On multi-divisional contracts, separate divisions may be awarded to separate Bidders. The City may also utilize alternatives offered in the Bid Forms, if any, to determine the lowest responsible Bidder on each division, and award multiple divisions to a single Bidder, so that the lowest total cost is achieved for the City. For unit price bids, the Contract will be awarded based upon the unit prices and the

lump sum prices stated by the bidder for the work items specified in the bid documents, with consideration given to any alternates selected by the City. If the City determines that the unit price for any item is materially different for the work item bid than either other bidders or the general market, the City, in its sole discretion, in addition to any other right it may have, may reject the bid as not responsible or non-conforming.

The acceptability of major subcontractors will be considered in determining if a Bidder is responsible. In comparing Bids, the City will give consideration to alternate Bids for items listed in the bid forms. All key staff and subcontractors are subject to the approval by the City.

Official Documents

The City of Ann Arbor officially distributes bid documents from the Procurement Unit or through the Michigan Intergovernmental Trade Network (MITN). Copies of the bid documents obtained from any other source are not Official copies. Addenda and other bid information will only be posted to these official distribution sites. If you obtained City of Ann Arbor Bid documents from other sources, it is recommended that you register on www.MITN.info and obtain an official Bid. Bidders do not need to be shown on the plan holders list provided by MITN to be considered an official plan holder.

Bid Security

Each bid must be accompanied by a certified check, or Bid Bond by a surety licensed and authorized to do business within the State of Michigan, in the amount of 5% of the total of the bid price.

Withdrawal of Bids

After the time of opening, no Bid may be withdrawn for the period of one hundred and twenty (120) days

Contract Time

Time is of the essence in the performance of the work under this Contract. The available time for work under this Contract is indicated on page C-2, Article III of the Contract. If these time requirements can not be met, the Bidder must stipulate on Bid Form Section 3 - Time Alternate its schedule for performance of the work. Consideration will be given to time in evaluating bids.

Liquidated Damages

A liquidated damages clause, as given on page C-2, Article III of the Contract, provides that the Contractor shall pay the City as liquidated damages, and not as a penalty, a sum certain per day for each and every day that the Contractor may be in default of completion of the specified work, within the time(s) stated in the Contract, or written extensions.

Liquidated damages clauses, as given in the General Conditions, provide further that the City shall be entitled to impose and recover liquidated damages for breach of the obligations under Chapter 112 of the City Code.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

Human Rights Information

All contractors proposing to do business with the City shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the Section 9:158 of the Ann Arbor City Code. Breach of the obligation not to discriminate as outlined in Section 5, beginning at page GC-3 shall be a material breach of the contract. Contractors are required to post a copy of Ann Arbor's Non-Discrimination Ordinance attached at all work locations where its employees provide services under a contract with the City.

Wage Requirements

Section 4, beginning at page GC-1, outlines the requirements for payment of prevailing wages and for payment of a "living wage" to employees providing service to the City under this contract. The successful bidder and its subcontractors must comply with all applicable requirements and provide proof of compliance.

Prevailing wage requirements will not apply to this contract since the work does not constitute a public improvement.

Conflict Of Interest Disclosure

The City of Ann Arbor Purchasing Policy requires that prospective Vendors complete a Conflict of Interest Disclosure form. A contract may not be awarded to the selected Vendor unless and until the Procurement Unit and the City Administrator have reviewed the Disclosure form and determined that no conflict exists under applicable federal, state, or local law or administrative regulation. Not every relationship or situation disclosed on the Disclosure Form may be a disqualifying conflict. Depending on applicable law and regulations, some contracts may awarded on the recommendation of the City Administrator after full disclosure, where such action is allowed by law, if demonstrated competitive pricing exists and/or it is determined the award is in the best interest of the City. A copy of the Vendor Conflict of Interest Disclosure Form is attached.

Major Subcontractors

The Bidder shall identify on Bid Form Section 4 each major subcontractor it expects to engage for this Contract if the work to be subcontracted is 15% or more of the bid sum or over \$50,000, whichever is less. The Bidder also shall identify the work to be subcontracted to each major subcontractor. The Bidder shall not change or replace a subcontractor without approval by the City.

Debarment

Submission of a Bid in response to this ITB is certification that the Bidder is not currently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from participation in this transaction by any State or Federal departments or agency. Submission is also agreement that the City will be notified of any changes in this status.

Disclosures

After bids are opened, all information in a submitter's bid is subjected to disclosure under the provisions of Michigan Public Act No. 442 of 1976, as amended (MCL 15.231 et seq.) known as the "Freedom of Information Act." The Freedom of Information Act also provides for the complete disclosure of contracts and attachments thereto except where specifically exempted.

Bid Protest

All Bid protests must be in writing and filed with the Purchasing Agent within five (5) business days of the award action. The bidder must clearly state the reasons for the protest. If a bidder contacts a City Service Area/Unit and indicates a desire to protest an award, the Service Area/Unit shall refer the bidder to the Purchasing Agent. The Purchasing Agent will provide the bidder with the appropriate instructions for filing the protest. The protest shall be reviewed by the City Administrator or designee whose decision shall be final.

Cost Liability

The City of Ann Arbor assumes no responsibility or liability for costs incurred by the Bidder prior to the execution of a contract with the City. By submitting a bid, a bidder agrees to bear all costs incurred or related to the preparation, submission and selection process for the bid.

Reservation of Rights

The City of Ann Arbor reserves the right to accept any bid or alternative bid proposed in whole or in part, to reject any or all bids or alternatives bids in whole or in part and to waive irregularity and/or informalities in any bid and to make the award in any manner deemed in the best interest of the City.

Idlefree Ordinance

The City of Ann Arbor adopted an idling reduction Ordinance that goes into effect July 1, 2017. The full text of the ordinance (including exemptions) can be found at: www.a2gov.org/idlefree.

Under the ordinance, No Operator of a Commercial Vehicle shall cause or permit the Commercial Vehicle to Idle:

- (a) For any period of time while the Commercial Vehicle is unoccupied; or
- (b) For more than 5 minutes in any 60-minute period while the Commercial Vehicle is occupied.

In addition, generators and other internal combustion engines are covered

(1) Excluding Motor Vehicle engines, no internal combustion engine shall be operated except when it is providing power or electrical energy to equipment or a tool that is actively in use.

INVITATION TO BID

City of Ann Arbor
Guy C. Larcom Municipal Building
Ann Arbor, Michigan 48107

Ladies and Gentlemen:

The undersigned, as Bidder, declares that this Bid is made in good faith, without fraud or collusion with any person or persons bidding on the same Contract; that this Bidder has carefully read and examined the bid documents, including City Nondiscrimination requirements and Declaration of Compliance Form, Living Wage requirements and Declaration of Compliance Form, Prevailing Wage requirements and Declaration of Compliance Form, Vendor Conflict of Interest Form, Notice of Pre-Bid Conference, Instructions to Bidders, Bid, Bid Forms, Contract, Bond Forms, General Conditions, Standard Specifications, Detailed Specifications, all Addenda, and the Plans (if applicable) and understands them. The Bidder declares that it conducted a full investigation at the site and of the work proposed and is fully informed as to the nature of the work and the conditions relating to the work's performance. The Bidder also declares that it has extensive experience in successfully completing projects similar to this one.

The Bidder acknowledges that it has not received or relied upon any representations or warrants of any nature whatsoever from the City of Ann Arbor, its agents or employees, and that this Bid is based solely upon the Bidder's own independent business judgment.

The undersigned proposes to perform all work shown on the plans or described in the bid documents, including any addenda issued, and to furnish all necessary machinery, tools, apparatus, and other means of construction to do all the work, furnish all the materials, and complete the work in strict accordance with all terms of the Contract of which this Bid is one part.

In accordance with these bid documents, and Addenda numbered 1 , the undersigned, as Bidder, proposes to perform at the sites in and/or around Ann Arbor, Michigan, all the work included herein for the amounts set forth in the Bid Forms.

The Bidder declares that it has become fully familiar with the liquidated damage clauses for completion times and for compliance with City Code Chapter 112, understands and agrees that the liquidated damages are for the non-quantifiable aspects of non-compliance and do not cover actual damages that may be shown and agrees that if awarded the Contract, all liquidated damage clauses form part of the Contract.

The Bidder declares that it has become fully familiar with the provisions of Chapter 14, Section 1:320 (Prevailing wages) and Chapter 23 (Living Wage) of the Code of the City of Ann Arbor and that it understands and agrees to comply, to the extent applicable to employees providing services to the City under this Contract, with the wage and reporting requirements stated in the City Code provisions cited. Bidder certifies that the statements contained in the City Prevailing Wage and Living Wage Declaration of Compliance Forms are true and correct. Bidder further agrees that the cited provisions of Chapter 14 and Chapter 23 form a part of this Contract.

The Bidder declares that it has become familiar with the City Conflict of Interest Disclosure Form and certifies that the statement contained therein is true and correct.

The Bidder encloses a certified check or Bid Bond in the amount of 5% of the total of the Bid Price. The Bidder agrees both to contract for the work and to furnish the necessary Bonds and insurance documentation within 10 days after being notified of the acceptance of the Bid.

If this Bid is accepted by the City and the Bidder fails to contract and furnish the required Bonds and insurance documentation within 10 days after being notified of the acceptance of this Bid, then the Bidder shall be considered to have abandoned the Contract and the certified check or Bid Bond accompanying this Bid shall become due and payable to the City.

If the Bidder enters into the Contract in accordance with this Bid, or if this Bid is rejected, then the accompanying check or Bid Bond shall be returned to the Bidder.

In submitting this Bid, it is understood that the right is reserved by the City to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

SIGNED THIS 30 DAY OF January, 2018.

RedZone Robotics Inc.
Bidder's Name


Authorized Signature of Bidder

91 43rd Street, Pittsburgh PA 15201
Official Address

Dan Yingst
(Print Name of Signer Above)

412-476-8980 ext. 298
Telephone Number

dyingst@redzone.com
Email Address for Award Notice

LEGAL STATUS OF BIDDER

(The Bidder shall fill out the appropriate form and strike out the other three.)

Bidder declares that it is:

* A corporation organized and doing business under the laws of the State of _____
Delaware _____, for whom _____ Dan Yingst _____, bearing the office title
of Chief Executive Officer, whose signature is affixed to this Bid, is authorized to execute contracts.

NOTE: If not incorporated in Michigan, please attach the corporation's Certificate of Authority

* A limited liability company doing business under the laws of the State of _____,
whom _____ bearing the title of _____
whose signature is affixed to this proposal, is authorized to execute contract on behalf of the
LLC.

* A partnership, organized under the laws of the state of _____ and filed in the county
of _____, whose members are (list all members and the street and mailing address of
each) (attach separate sheet if necessary):

* An individual, whose signature with address, is affixed to this Bid: _____
(initial here)

Authorized Official

 Date January 30, 2018

(Print) Name Dan Yingst Title Chief Executive Officer

Company: RedZone Robotics Inc.

Address: 91 43rd Street, Pittsburgh PA 15201

Contact Phone (412) 476-8980 ext. 298 Fax (412) 476-8981

Email dyingst@redzone.com

BID FORM

Section 1 – Schedule of Prices

Company: RedZone Robotics Inc.

Project: **ITB No. 4521 Northside Interceptor Condition Assessment**

Unit Price Bid –

<u>Item Description</u>	<u>Estimated Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Total Price</u>
Mobilization, Max. 10%	1	LS	\$ 25,000.00	\$ 25,000.00
Audio Visual Route Survey	1	LS	\$ 8,959.50	\$ 8,959.50
Traffic Control	1	LS	\$ 5,000.00	\$ 5,000.00
Frame & Cover, Reset	8	Ea	\$ 3,520.00	\$ 28,160.00
Frame & Cover, Replace	8	Ea	\$ 2,420.00	\$ 19,360.00
Chimney, Rem & Rep	8	Ea	\$ 3,080.00	\$ 24,640.00
Cone, Rem, Salvage & Rep	8	Ea	\$ 5,500.00	\$ 44,000.00
Maintenance Gravel	250	Ton	\$ 99.00	\$ 24,750.00
Access, Setup, and Deployment	8	Ea	\$ Included	\$ 0.00
Sanitary Sewer Video Inspection, Multi- Sensor, 78 inch	19,000	Ft	\$ 8.10	\$ 153,900.00
Sanitary Sewer Video Inspection, Multi- Sensor, 36 inch	300	Ft	\$ 8.10	\$ 2,430.00
Restoration, Seeding	1,500	Syd	\$ 13.75	\$ 20,625.00
Contingency Allowance	1	DLR	\$ 25,000.00	\$ 25,000.00
GIS Database, Electronic	1	LS	\$ Included	\$ 0.00
Final Submittal and Software Viewer	1	LS	\$ Included	\$ 0.00

ESTIMATED TOTAL

\$ 381,824.50

BID FORM

Section 2 - Material and Equipment Alternates

The Base Bid proposal price shall include materials and equipment selected from the designated items and manufacturers listed in the bidding documents. This is done to establish uniformity in bidding and to establish standards of quality for the items named.

If the Contractor wishes to quote alternate items for consideration by the City, it may do so under this Section. A complete description of the item and the proposed price differential must be provided. Unless approved at the time of award, substitutions where items are specifically named will be considered only as a negotiated change in Contract Sum.

<u>Item Number</u>	<u>Description</u>	<u>Add/Deduct Amount</u>
--------------------	--------------------	--------------------------

No Alternates Needed

If the Bidder does not suggest any material or equipment alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any material or equipment alternate under the Contract.

Signature of Authorized Representative of Bidder  Date January 30, 2018

BID FORM

Section 3 - Time Alternate

If the Bidder takes exception to the time stipulated in Article III of the Contract, Time of Completion, page C-2, it is requested to stipulate below its proposed time for performance of the work. Consideration will be given to time in evaluating bids.

No Exception Needed

If the Bidder does not suggest any time alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any time alternate under the Contract.

Signature of Authorized Representative of Bidder  Date January 30, 2018

BID FORM

Section 4 - Major Subcontractors

For purposes of this Contract, a Subcontractor is anyone (other than the Contractor) who performs work (other than or in addition to the furnishing of materials, plans or equipment) at or about the construction site, directly or indirectly for or on behalf of the Contractor (and whether or not in privity of Contract with the Contractor), but shall not include any individual who furnishes merely the individual's own personal labor or services.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision to Section 4 of the General Conditions covering subcontractor's employees who perform work on this contract.

For the work outlined in these documents the Bidder expects to engage the following major subcontractors to perform the work identified:

<u>Subcontractor (Name and Address)</u>	<u>Work</u>	<u>Amount</u>
Inland Waters Pollution Control, Inc. 4086 Michigan Avenue Detroit, MI 48210	Frame & Cover, Reset Frame & Cover, Replace Chimney, Removal & Replace Cone, Removal, Salvage & Replace Restoration, Seeding	\$28,160.00 \$19,360.00 \$24,640.00 \$44,000.00 \$20,625.00
Construction Video Media, Inc. 111 East Newberry Romeo, MI 48065-0090	Audio Visual Route Survey	\$8,959.50

If the Bidder does not expect to engage any major subcontractor, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT expect to engage any major subcontractor to perform work under the Contract.

Signature of Authorized Representative of Bidder  Date January 30, 2018



Large Diameter Sanitary Sewer Inspection using Robotic Technology, Phases 1 and 2

Houston, Texas

The City of Houston wanted to perform a conditional assessment of the large diameter interceptor sewers system. RedZone Robotics provided the Houston Public Works and Engineering Wastewater Operations an establish baseline of the existing condition of the main line sewers. RedZone Responder tracked robot was specified for the assessment by the COH.

Project Elements

- Digital CCTV, Sonar, 3D Lidar/Laser and H2S Gas
- 300,000 lf inspected – Phase 1
- 60" to 198" diameters
- 150,000 lf inspected – Phase 2
- 48" and larger diameter

Years Completed

Phase 1, 10-15-2014

Phase 2, 3-15-2016

Project Cost

Phase 1, \$2,402,400.00

Phase 2, \$1,021,600.00

Client Reference

Mr. Jason Iken, P.E.

City of Houston

Senior Assistant Director

Public Works & Engineering

APWA Accredited Agency

Phone: (832) 395-4989

Mobile: (832) 623-0790

Jason.Iken@houstontx.gov

The phase 1 inspection consisted of over 300,000 LF of 60" through 198" diameter sewers throughout the City of Houston. RedZone met the inspection challenge by acquiring two years of data in just a one-year period.

RedZone worked in conjunction with transit and other authorities to maximize access to the lines so to avoid interruptions to the inspection and bus service.

Phase 2 inspection consisted of over 150,000 LF of 48" and larger diameter sewers throughout the City of Houston. Once again, RedZone's deployment team cut the anticipated field deployment estimate nearly in half.

The inspection used the multi-sensor robotic platform Responder to collect digital CCTV, Sonar, 3D Lidar/Laser and H2S Gas temperature sensors while in service and with no bypass pumping required.

The result established a condition assessment for the largest diameters sewer interceptors in the Houston collection system that will be utilized for years to come.

RedZone Robotics, Inc

91 43rd Street, Suite 250
Pittsburgh PA 15201

Phone 412.476.8980
Fax 412.476.8981

www.redzone.com



Internal Inspection of Sanitary Gravity Sewer Collection System

Monmouth County, New Jersey

The Two Rivers Water Reclamation Authority owns, operates, and maintains its own Sanitary Sewer System which has

approximately 120 miles in the sewer collection system. The TRWRA serves the New Jersey communities of Fair Haven, Little Silver, Monmouth Beach, Oceanport, Shrewsbury Borough and Township, West Long Branch, Rumson, Fort Monmouth, Sea Bright, Tinton Falls, Eatontown, and Red Bank.

The intent of for the project was to capture a system wide pipeline and manhole conditional assessment utilizing NASSCO PACP and MACP requirements. Secondly, the data collected would be located on an asset management software program.

RedZone Robotics was selected from an invitation to bid process. For the 500,000 LF of small diameter pipelines, 8" to 12", RedZone utilized the Solo autonomous robot for the inspection process. For the 101,000 LF of mid to large diameter pipelines, RedZone utilized the Responder robot and MD and HD profiler vessels to capture an advanced multi-sensor assessment of digital CCTV, Sonar, and laser profiling. 2,100 manholes were also inspected in the system.

The collection system data was placed on RedZone Robotics ICOM asset management program. Overall, the Two Rivers Water Reclamation Authority has a complete assessment of their collection system and can now manage the priorities of where to replace, repair, and refurbish pipelines and manholes.

Project Elements

- 500,000 lf Solo 8" through 12" diameters inspection
- 101,000 LF of multi-sensor inspection
- Baseline for collection system consent decree
- 2,100 manholes assessed

Year Completed
December 2015

Project Amount
\$1,024,392.50

Client Reference
Michael A. Gianforte, P.E.
Executive Director
Two Rivers Water Reclamation Authority
1 Highland Avenue
Monmouth Beach, NJ 07750

RedZone Robotics, Inc

91 43rd Street, Suite 250
Pittsburgh PA 15201

Phone 412.476.8980
Fax 412.476.8981

www.redzone.com

Project References



System Wide Condition Assessment

Augusta, Georgia

The City of Augusta Utilities Department obtained the services of RedZone Robotics to collaborate on the inspection of 1,800,000 lineal feet of small diameter sewer pipelines and approximately 60 miles of their mid diameter (24") to large diameter (88") pipes in their collection system. For pipes greater than 36" in diameter, multi-sensor inspection (MSI) was required to include digital CCTV, sonar for sediment loading, and 3D Lidar for ovality and corrosion levels.

RedZone Robotics utilized for the vast quantity of

Project Elements

- 1,800,000 LF of small diameter collected
- Solo Squad Collection
- 60 miles inspected for large diameter
- 24" to 88" diameters
- Conditional Assessment utilizing CCTV, Laser, and Sonar
- Sewer Asset Management

Date of Services
2012- 2017

Project Amount
\$1,898,400.00

Client Reference
Tom Wiedmeier
Utilities Director
Augusta Utilities
535 Telfair Street
Augusta, GA 30901

Office: 706-312-4160
twiedmeier@augustaga.gov

small diameter pipelines, **Solo**, the autonomous robot. Squads of Solos captured CCTV assessment of sizes 8", 10" and 12" pipes. For this size system with over 900 miles, Solo ability will capture data at a quicker rate to obtain a complete assessment of the system. RedZone will continue to work with the Augusta Utilities Department to assist in the continuing effort to capture the system.

The large diameter inspection consisted of using both the **Responder** robotic platform and the **HD Profiler** floating vessel platform for the varying pipe conditions. With over 1,000 miles in the City's system, portions of the large diameter interceptors are brick lined and constructed in the late 1800s along with the historic Augusta Canal.

The Augusta Utilities Department accompanied their small and large diameter inspection data with the ICOM Asset Management platform to provide decision support to the department in prioritizing and identifying pipe segments for the repair, refurbishment, or replacement. With emerging technologies to supplement traditional condition assessment, AUD has utilized Work Order Management tools within ICOM to dispatch a newer acoustic technology for determining pipe blockages that can be tracked in ICOM as well.

CONTRACT

THIS AGREEMENT is made on the _____ day of _____, 201_, between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 301 East Huron Street, Ann Arbor, Michigan 48104 ("City") and Redzone Robotics Inc. ("Contractor") a corporation organized and doing business under the laws of the State of Delaware located at 91 43rd Street, Pittsburgh, PA 15201.

Based upon the mutual promises below, the Contractor and the City agree as follows:

ARTICLE I - Scope of Work

The Contractor agrees to furnish all of the materials, equipment and labor necessary; and to abide by all the duties and responsibilities applicable to it for the project titled [Insert Title of Bid and Bid Number] in accordance with the requirements and provisions of the following documents, including all written modifications incorporated into any of the documents, which are incorporated as part of this Contract:

Non-discrimination and Living Wage Declaration of Compliance Forms (if applicable)	General Conditions
Vendor Conflict of Interest Form	Standard Specifications
Prevailing Wage Declaration of Compliance Form (if applicable)	Detailed Specifications
Bid Forms	Plans
Contract and Exhibits	Addenda
Bonds	

ARTICLE II - Definitions

Administering Service Area/Unit means **Public Works Unit**

Project means **ITB No. 4521 Northside Interceptor Condition Assessment**

ARTICLE III - Time of Completion

- (A) The work to be completed under this Contract shall begin immediately on the date specified in the Notice to Proceed issued by the City.
- (B) The entire work for this Contract shall be completed within one hundred and fifteen (115) consecutive calendar days.
- (C) Failure to complete all the work within the time specified above, including any extension granted in writing by the Supervising Professional, shall obligate the Contractor to pay the City, as liquidated damages and not as a penalty, an amount equal to \$150.00 for each calendar day of delay in the completion of all the work. If any liquidated damages are unpaid by the Contractor, the City shall be entitled to deduct these unpaid liquidated damages from the monies due the Contractor.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

ARTICLE IV - The Contract Sum

- (A) The City shall pay to the Contractor for the performance of the Contract, the unit prices as given in the Bid Form for the estimated bid total of:

Three Hundred Eighty-One Thousand Eight Hundred Twenty-Four and 50/100 Dollars (\$381,824.50)

- (B) The amount paid shall be equitably adjusted to cover changes in the work ordered by the Supervising Professional but not required by the Contract Documents. Increases or decreases shall be determined only by written agreement between the City and Contractor.

ARTICLE V - Assignment

This Contract may not be assigned or subcontracted any portion of any right or obligation under this contract without the written consent of the City. Notwithstanding any consent by the City to any assignment, Contractor shall at all times remain bound to all warranties, certifications, indemnifications, promises and performances, however described, as are required of it under this contract unless specifically released from the requirement, in writing, by the City.

ARTICLE VI - Choice of Law

This Contract shall be construed, governed, and enforced in accordance with the laws of the State of Michigan. By executing this agreement, the Contractor and the City agree to venue in a court of appropriate jurisdiction sitting within Washtenaw County for purposes of any action arising under this Contract. The parties stipulate that the venue referenced in this Contract is for convenience and waive any claim of non-convenience.

Whenever possible, each provision of the Contract will be interpreted in a manner as to be effective and valid under applicable law. The prohibition or invalidity, under applicable law, of any provision will not invalidate the remainder of the Contract.

ARTICLE VII - Relationship of the Parties

The parties of the Contract agree that it is not a Contract of employment but is a Contract to accomplish a specific result. Contractor is an independent Contractor performing services for the City. Nothing contained in this Contract shall be deemed to constitute any other relationship between the City and the Contractor.

Contractor certifies that it has no personal or financial interest in the project other than the compensation it is to receive under the Contract. Contractor certifies that it is not, and shall not become, overdue or in default to the City for any Contract, debt, or any other obligation to the City including real or personal property taxes. City shall have the right to set off any such debt against compensation awarded for services under this agreement.

ARTICLE VIII - Notice

All notices given under this Contract shall be in writing, and shall be by personal delivery or by certified mail with return receipt requested to the parties at their respective addresses as specified in the Contract Documents or other address the Contractor may specify in writing. Notice will be deemed given on the date when one of the following first occur: (1) the date of actual receipt; or (2) three days after mailing certified U.S. mail.

ARTICLE IX - Indemnification

To the fullest extent permitted by law, Contractor shall indemnify, defend and hold harmless the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney’s fees resulting or alleged to result, in whole or in part, from any act or omission, which is in any way connected or associated with this Contract, by the Contractor or anyone acting on the Contractor’s behalf under this Contract. Contractor shall not be responsible to indemnify the City for losses or damages caused by or resulting from the City’s sole negligence. The provisions of this Article shall survive the expiration or earlier termination of this contract for any reason.

ARTICLE X - Entire Agreement

This Contract represents the entire understanding between the City and the Contractor and it supersedes all prior representations, negotiations, agreements, or understandings whether written or oral. Neither party has relied on any prior representations in entering into this Contract. No terms or conditions of either party’s invoice, purchase order or other administrative document shall modify the terms and conditions of this Contract, regardless of the other party’s failure to object to such form. This Contract shall be binding on and shall inure to the benefit of the parties to this Contract and their permitted successors and permitted assigns and nothing in this Contract, express or implied, is intended to or shall confer on any other person or entity any legal or equitable right, benefit, or remedy of any nature whatsoever under or by reason of this Contract. This Contract may be altered, amended or modified only by written amendment signed by the City and the Contractor.

FOR CONTRACTOR

By _____

Its: _____

FOR THE CITY OF ANN ARBOR

By _____
Christopher Taylor, Mayor

[signatures continue on next page]
By _____
Jacqueline Beaudry, City Clerk

Approved as to substance

By _____
Howard S. Lazarus, City Administrator

By _____
Craig Hupy
Public Services Area Administrator

Approved as to form and content

Stephen K. Postema, City Attorney

PERFORMANCE BOND

- (1) _____ (referred to as "Principal"), and _____, a corporation duly authorized to do business in the State of Michigan (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for \$ _____, the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written Contract with the City dated _____, 201_, for: **ITB No. 4521, Northside Interceptor Condition Assessment** and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963, as amended, being MCL 129.201 *et seq.*
- (3) Whenever the Principal is declared by the City to be in default under the Contract, the Surety may promptly remedy the default or shall promptly:
- (a) complete the Contract in accordance with its terms and conditions; or
 - (b) obtain a bid or bids for submission to the City for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, arrange for a Contract between such bidder and the City, and make available, as work progresses, sufficient funds to pay the cost of completion less the balance of the Contract price; but not exceeding, including other costs and damages for which Surety may be liable hereunder, the amount set forth in paragraph 1.
- (4) Surety shall have no obligation to the City if the Principal fully and promptly performs under the Contract.
- (5) Surety agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder, or the specifications accompanying it shall in any way affect its obligations on this bond, and waives notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work, or to the specifications.

SIGNED AND SEALED this _____ day of _____, 201_.

(Name of Surety Company)
By _____
(Signature)
Its _____
(Title of Office)

(Name of Principal)
By _____
(Signature)
Its _____
(Title of Office)

Approved as to form:

Name and address of agent:

Stephen K. Postema, City Attorney

LABOR AND MATERIAL BOND

- (1) _____
of _____ (referred to as "Principal"), and _____, a corporation duly authorized to do business in the State of Michigan, (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for the use and benefit of claimants as defined in Act 213 of Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq., in the amount of \$ _____, for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written Contract with the City, dated _____, 201_, for **ITB No. 4521, Northside Interceptor Condition Assessment**; and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963 as amended;
- (3) If the Principal fails to promptly and fully repay claimants for labor and material reasonably required under the Contract, the Surety shall pay those claimants.
- (4) Surety's obligations shall not exceed the amount stated in paragraph 1, and Surety shall have no obligation if the Principal promptly and fully pays the claimants.

SIGNED AND SEALED this _____ day of _____, 201_

(Name of Surety Company)

By _____
(Signature)

Its _____
(Title of Office)

Approved as to form:

Stephen K. Postema, City Attorney

(Name of Principal)

By _____
(Signature)

Its _____
(Title of Office)

Name and address of agent:

GENERAL CONDITIONS

Section 1 - Execution, Correlation and Intent of Documents

The contract documents shall be signed in 2 copies by the City and the Contractor.

The contract documents are complementary and what is called for by any one shall be binding. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. Materials or work described in words which so applied have a well-known technical or trade meaning have the meaning of those recognized standards.

In case of a conflict among the contract documents listed below in any requirement(s), the requirement(s) of the document listed first shall prevail over any conflicting requirement(s) of a document listed later.

(1) Addenda in reverse chronological order; (2) Detailed Specifications; (3) Standard Specifications; (4) Plans; (5) General Conditions; (6) Contract; (7) Bid Forms; (8) Bond Forms; (9) Bid.

Section 2 - Order of Completion

The Contractor shall submit with each invoice, and at other times reasonably requested by the Supervising Professional, schedules showing the order in which the Contractor proposes to carry on the work. They shall include the dates at which the Contractor will start the several parts of the work, the estimated dates of completion of the several parts, and important milestones within the several parts.

Section 3 - Familiarity with Work

The Bidder or its representative shall make personal investigations of the site of the work and of existing structures and shall determine to its own satisfaction the conditions to be encountered, the nature of the ground, the difficulties involved, and all other factors affecting the work proposed under this Contract. The Bidder to whom this Contract is awarded will not be entitled to any additional compensation unless conditions are clearly different from those which could reasonably have been anticipated by a person making diligent and thorough investigation of the site.

The Bidder shall immediately notify the City upon discovery, and in every case prior to submitting its Bid, of every error or omission in the bidding documents that would be identified by a reasonably competent, diligent Bidder. In no case will a Bidder be allowed the benefit of extra compensation or time to complete the work under this Contract for extra expenses or time spent as a result of the error or omission.

Section 4 - Wage Requirements

Under this Contract, the Contractor shall conform to Chapter 14 of Title I of the Code of the City of Ann Arbor as amended; which in part states "...that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen,

mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. At the request of the City, any contractor or subcontractor shall provide satisfactory proof of compliance with the contract provisions required by the Section.

Pursuant to Resolution R-16-469 all public improvement contractors are subject to prevailing wage and will be required to provide to the City payroll records sufficient to demonstrate compliance with the prevailing wage requirements. A sample Prevailing Wage Form is provided in the Appendix herein for reference as to what will be expected from contractors. Use of the Prevailing Wage Form provided in the Appendix section or a City-approved equivalent will be required along with wage rate interviews.

Where the Contract and the Ann Arbor City Ordinance are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used.

If the Contractor is a "covered employer" as defined in Chapter 23 of the Ann Arbor City Code, the Contractor agrees to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code. The Contractor agrees to pay those employees providing Services to the City under this Agreement a "living wage," as defined in Section 1:815 of the Ann Arbor City Code, as adjusted in accordance with Section 1:815(3); to post a notice approved by the City of the applicability of Chapter 23 in every location in which regular or contract employees providing services under this Agreement are working; to maintain records of compliance; if requested by the City, to provide documentation to verify compliance; to take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee or person contracted for employment in order to pay the living wage required by Section 1:815; and otherwise to comply with the requirements of Chapter 23.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision covering subcontractor's employees who perform work on this contract.

Section 5 - Non-Discrimination

The Contractor agrees to comply, and to require its subcontractor(s) to comply, with the nondiscrimination provisions of MCL 37.2209. The Contractor further agrees to comply with the provisions of Section 9:158 of Chapter 112 of Title IX of the Ann Arbor City Code, and to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity.

Section 6 - Materials, Appliances, Employees

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary or used for the execution and completion of the work. Unless otherwise specified, all materials incorporated in the permanent work shall be new, and both workmanship and materials shall be of the highest quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor shall at all times enforce strict discipline and good order among its employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned.

Adequate sanitary facilities shall be provided by the Contractor.

Section 7 - Qualifications for Employment

The Contractor shall employ competent laborers and mechanics for the work under this Contract. For work performed under this Contract, employment preference shall be given to qualified local residents.

Section 8 - Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringements of any patent rights and shall hold the City harmless from loss on account of infringement except that the City shall be responsible for all infringement loss when a particular process or the product of a particular manufacturer or manufacturers is specified, unless the City has notified the Contractor prior to the signing of the Contract that the particular process or product is patented or is believed to be patented.

Section 9 - Permits and Regulations

The Contractor must secure and pay for all permits, permit or plan review fees and licenses necessary for the prosecution of the work. These include but are not limited to City building permits, right-of-way permits, lane closure permits, right-of-way occupancy permits, and the like. The City shall secure and pay for easements shown on the plans unless otherwise specified.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the contract documents are at variance with those requirements, it shall promptly notify the Supervising Professional in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work.

Section 10 - Protection of the Public and of Work and Property

The Contractor is responsible for the means, methods, sequences, techniques and procedures of construction and safety programs associated with the work contemplated by this contract. The Contractor, its agents or sub-contractors, shall comply with the "General Rules and Regulations for the Construction Industry" as published by the Construction Safety Commission of the State of Michigan and to all other local, State and National laws, ordinances, rules and regulations pertaining to safety of persons and property.

The Contractor shall take all necessary and reasonable precautions to protect the safety of the public. It shall continuously maintain adequate protection of all work from damage, and shall take all necessary and reasonable precautions to adequately protect all public and private property from injury or loss arising in connection with this Contract. It shall make good any damage, injury or loss to its work and to public and private property resulting from lack of reasonable protective precautions, except as may be due to errors in the contract documents, or caused by agents or employees of the City. The Contractor shall obtain and maintain sufficient insurance to cover damage to any City property at the site by any cause.

In an emergency affecting the safety of life, or the work, or of adjoining property, the Contractor is, without special instructions or authorization from the Supervising Professional, permitted to act at its discretion to prevent the threatened loss or injury. It shall also so act, without appeal, if authorized or instructed by the Supervising Professional.

Any compensation claimed by the Contractor for emergency work shall be determined by agreement or in accordance with the terms of Claims for Extra Cost - Section 15.

Section 11 - Inspection of Work

The City shall provide sufficient competent personnel for the inspection of the work.

The Supervising Professional shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for access and for inspection.

If the specifications, the Supervising Professional's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Supervising Professional timely notice of its readiness for inspection, and if the inspection is by an authority other than the Supervising Professional, of the date fixed for the inspection. Inspections by the Supervising Professional shall be made promptly, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Supervising Professional, it must, if required by the Supervising Professional, be uncovered for examination and properly restored at the Contractor's expense.

Re-examination of any work may be ordered by the Supervising Professional, and, if so ordered, the work must be uncovered by the Contractor. If the work is found to be in accordance with the contract documents, the City shall pay the cost of re-examination and replacement. If the work is not in accordance with the contract documents, the Contractor shall pay the cost.

Section 12 - Superintendence

The Contractor shall keep on the work site, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Supervising Professional. The superintendent will be responsible to perform all on-site project management for the Contractor. The superintendent shall be experienced in the work required for this Contract. The superintendent shall represent the Contractor and all direction given to the superintendent shall be binding as if given to the Contractor. Important directions shall immediately be confirmed in writing to the Contractor. Other directions will be confirmed on written request. The Contractor shall give efficient superintendence to the work, using its best skill and attention.

Section 13 - Changes in the Work

The City may make changes to the quantities of work within the general scope of the Contract at any time by a written order and without notice to the sureties. If the changes add to or deduct from the extent of the work, the Contract Sum shall be adjusted accordingly. All the changes shall be executed under the conditions of the original Contract except that any claim for extension of time caused by the change shall be adjusted at the time of ordering the change.

In giving instructions, the Supervising Professional shall have authority to make minor changes in the work not involving extra cost and not inconsistent with the purposes of the work, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the Supervising Professional, and no claim for an addition to the Contract Sum shall be valid unless the additional work was ordered in writing.

The Contractor shall proceed with the work as changed and the value of the work shall be determined as provided in Claims for Extra Cost - Section 15.

Section 14 - Extension of Time

Extension of time stipulated in the Contract for completion of the work will be made if and as the Supervising Professional may deem proper under any of the following circumstances:

- (1) When work under an extra work order is added to the work under this Contract;
- (2) When the work is suspended as provided in Section 20;
- (3) When the work of the Contractor is delayed on account of conditions which could not have been foreseen, or which were beyond the control of the Contractor, and which were not the result of its fault or negligence;
- (4) Delays in the progress of the work caused by any act or neglect of the City or of its employees or by other Contractors employed by the City;
- (5) Delay due to an act of Government;
- (6) Delay by the Supervising Professional in the furnishing of plans and necessary information;
- (7) Other cause which in the opinion of the Supervising Professional entitles the Contractor to an extension of time.

The Contractor shall notify the Supervising Professional within 7 days of an occurrence or conditions which, in the Contractor's opinion, entitle it to an extension of time. The notice shall be in writing and submitted in ample time to permit full investigation and evaluation of the Contractor's claim. The Supervising Professional shall acknowledge receipt of the Contractor's notice within 7 days of its receipt. Failure to timely provide the written notice shall constitute a waiver by the Contractor of any claim.

In situations where an extension of time in contract completion is appropriate under this or any other section of the contract, the Contractor understands and agrees that the only available adjustment for events that cause any delays in contract completion shall be extension of the required time for contract completion and that there shall be no adjustments in the money due the Contractor on account of the delay.

Section 15 - Claims for Extra Cost

If the Contractor claims that any instructions by drawings or other media issued after the date of the Contract involved extra cost under this Contract, it shall give the Supervising Professional written notice within 7 days after the receipt of the instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property. The procedure shall then be as provided for Changes in the Work-Section 13. No claim shall be valid unless so made.

If the Supervising Professional orders, in writing, the performance of any work not covered by the contract documents, and for which no item of work is provided in the Contract, and for which no unit price or lump sum basis can be agreed upon, then the extra work shall be done on a Cost-Plus-Percentage basis of payment as follows:

- (1) The Contractor shall be reimbursed for all reasonable costs incurred in doing the work, and shall receive an additional payment of 15% of all the reasonable costs to cover both its indirect overhead costs and profit;
- (2) The term "Cost" shall cover all payroll charges for employees and supervision required under the specific order, together with all worker's compensation, Social Security, pension and retirement allowances and social insurance, or other regular payroll charges on same; the cost of all material and supplies required of either temporary or permanent character; rental of all power-driven equipment at agreed upon rates, together with cost of fuel and supply charges for the equipment; and any costs incurred by the Contractor as a direct

result of executing the order, if approved by the Supervising Professional;

- (3) If the extra is performed under subcontract, the subcontractor shall be allowed to compute its charges as described above. The Contractor shall be permitted to add an additional charge of 5% percent to that of the subcontractor for the Contractor's supervision and contractual responsibility;
- (4) The quantities and items of work done each day shall be submitted to the Supervising Professional in a satisfactory form on the succeeding day, and shall be approved by the Supervising Professional and the Contractor or adjusted at once;
- (5) Payments of all charges for work under this Section in any one month shall be made along with normal progress payments. Retainage shall be in accordance with Progress Payments-Section 16.

No additional compensation will be provided for additional equipment, materials, personnel, overtime or special charges required to perform the work within the time requirements of the Contract.

When extra work is required and no suitable price for machinery and equipment can be determined in accordance with this Section, the hourly rate paid shall be 1/40 of the basic weekly rate listed in the Rental Rate Blue Book published by Dataquest Incorporated and applicable to the time period the equipment was first used for the extra work. The hourly rate will be deemed to include all costs of operation such as bucket or blade, fuel, maintenance, "regional factors", insurance, taxes, and the like, but not the costs of the operator.

Section 16 - Progress Payments

The Contractor shall submit each month, or at longer intervals, if it so desires, an invoice covering work performed for which it believes payment, under the Contract terms, is due. The submission shall be to the City's Finance Department - Accounting Division. The Supervising Professional will, within 10 days following submission of the invoice, prepare a certificate for payment for the work in an amount to be determined by the Supervising Professional as fairly representing the acceptable work performed during the period covered by the Contractor's invoice. To insure the proper performance of this Contract, the City will retain a percentage of the estimate in accordance with Act 524, Public Acts of 1980. The City will then, following the receipt of the Supervising Professional's Certificate, make payment to the Contractor as soon as feasible, which is anticipated will be within 15 days.

An allowance may be made in progress payments if substantial quantities of permanent material have been delivered to the site but not incorporated in the completed work if the Contractor, in the opinion of the Supervising Professional, is diligently pursuing the work under this Contract. Such materials shall be properly stored and adequately protected. Allowance in the estimate shall be at the invoice price value of the items. Notwithstanding any payment of any allowance, all risk of loss due to vandalism or any damages to the stored materials remains with the Contractor.

In the case of Contracts which include only the Furnishing and Delivering of Equipment, the payments shall be; 60% of the Contract Sum upon the delivery of all equipment to be furnished, or in the case of delivery of a usable portion of the equipment in advance of the total equipment delivery, 60% of the estimated value of the portion of the equipment may be paid upon its delivery in advance of the time of the remainder of the equipment to be furnished; 30% of the Contract Sum upon completion of erection of all equipment furnished, but not later than 60 days after the date of delivery of all of the equipment to be furnished; and payment of the final 10% on final completion of erection, testing and acceptance of all the equipment to be furnished; but not later than 180 days after the date of delivery of all of the equipment to be furnished, unless testing has been completed and shows the equipment to be unacceptable.

With each invoice for periodic payment, the Contractor shall enclose a Contractor's Declaration - Section 43, and an updated project schedule per Order of Completion - Section 2.

Section 17 - Deductions for Uncorrected Work

If the Supervising Professional decides it is inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price shall be made.

Section 18 - Correction of Work Before Final Payment

The Contractor shall promptly remove from the premises all materials condemned by the Supervising Professional as failing to meet Contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute the work in accordance with the Contract and without expense to the City and shall bear the expense of making good all work of other contractors destroyed or damaged by the removal or replacement.

If the Contractor does not remove the condemned work and materials within 10 days after written notice, the City may remove them and, if the removed material has value, may store the material at the expense of the Contractor. If the Contractor does not pay the expense of the removal within 10 days thereafter, the City may, upon 10 days written notice, sell the removed materials at auction or private sale and shall pay to the Contractor the net proceeds, after deducting all costs and expenses that should have been borne by the Contractor. If the removed material has no value, the Contractor must pay the City the expenses for disposal within 10 days of invoice for the disposal costs.

The inspection or lack of inspection of any material or work pertaining to this Contract shall not relieve the Contractor of its obligation to fulfill this Contract and defective work shall be made good. Unsuitable materials may be rejected by the Supervising Professional notwithstanding that the work and materials have been previously overlooked by the Supervising Professional and accepted or estimated for payment or paid for. If the work or any part shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good the defect in a manner satisfactory to the Supervising Professional. The judgment and the decision of the Supervising Professional as to whether the materials supplied and the work done under this Contract comply with the requirements of the Contract shall be conclusive and final.

Section 19 - Acceptance and Final Payment

Upon receipt of written notice that the work is ready for final inspection and acceptance, the Supervising Professional will promptly make the inspection. When the Supervising Professional finds the work acceptable under the Contract and the Contract fully performed, the Supervising Professional will promptly sign and issue a final certificate stating that the work required by this Contract has been completed and is accepted by the City under the terms and conditions of the Contract. The entire balance found to be due the Contractor, including the retained percentage, shall be paid to the Contractor by the City within 30 days after the date of the final certificate.

Before issuance of final certificates, the Contractor shall file with the City:

- (1) The consent of the surety to payment of the final estimate;
- (2) The Contractor's Affidavit in the form required by Section 44.

In case the Affidavit or consent is not furnished, the City may retain out of any amount due the Contractor, sums sufficient to cover all lienable claims.

The making and acceptance of the final payment shall constitute a waiver of all claims by the City

except those arising from:

- (1) unsettled liens;
- (2) faulty work appearing within 12 months after final payment;
- (3) hidden defects in meeting the requirements of the plans and specifications;
- (4) manufacturer's guarantees.

It shall also constitute a waiver of all claims by the Contractor, except those previously made and still unsettled.

Section 20 - Suspension of Work

The City may at any time suspend the work, or any part by giving 5 days notice to the Contractor in writing. The work shall be resumed by the Contractor within 10 days after the date fixed in the written notice from the City to the Contractor to do so. The City shall reimburse the Contractor for expense incurred by the Contractor in connection with the work under this Contract as a result of the suspension.

If the work, or any part, shall be stopped by the notice in writing, and if the City does not give notice in writing to the Contractor to resume work at a date within 90 days of the date fixed in the written notice to suspend, then the Contractor may abandon that portion of the work suspended and will be entitled to the estimates and payments for all work done on the portions abandoned, if any, plus 10% of the value of the work abandoned, to compensate for loss of overhead, plant expense, and anticipated profit.

Section 21 - Delays and the City's Right to Terminate Contract

If the Contractor refuses or fails to prosecute the work, or any separate part of it, with the diligence required to insure completion, ready for operation, within the allowable number of consecutive calendar days specified plus extensions, or fails to complete the work within the required time, the City may, by written notice to the Contractor, terminate its right to proceed with the work or any part of the work as to which there has been delay. After providing the notice the City may take over the work and prosecute it to completion, by contract or otherwise, and the Contractor and its sureties shall be liable to the City for any excess cost to the City. If the Contractor's right to proceed is terminated, the City may take possession of and utilize in completing the work, any materials, appliances and plant as may be on the site of the work and useful for completing the work. The right of the Contractor to proceed shall not be terminated or the Contractor charged with liquidated damages where an extension of time is granted under Extension of Time - Section 14.

If the Contractor is adjudged a bankrupt, or if it makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of its insolvency, or if it persistently or repeatedly refuses or fails except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if it fails to make prompt payments to subcontractors or for material or labor, or persistently disregards laws, ordinances or the instructions of the Supervising Professional, or otherwise is guilty of a substantial violation of any provision of the Contract, then the City, upon the certificate of the Supervising Professional that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor 3 days written notice, terminate this Contract. The City may then take possession of the premises and of all materials, tools and appliances thereon and without prejudice to any other remedy it may have, make good the deficiencies or finish the work by whatever method it may deem expedient, and deduct the cost from the payment due the Contractor. The Contractor shall not be entitled to receive any further payment until the work is finished. If the expense of finishing the work, including compensation for additional managerial and administrative services exceeds the unpaid balance of the Contract Sum, the Contractor and its surety are liable to the City for any excess cost incurred. The expense incurred by the City, and the damage incurred through the

Contractor's default, shall be certified by the Supervising Professional.

Section 22 - Contractor's Right to Terminate Contract

If the work should be stopped under an order of any court, or other public authority, for a period of 3 months, through no act or fault of the Contractor or of anyone employed by it, then the Contractor may, upon 7 days written notice to the City, terminate this Contract and recover from the City payment for all acceptable work executed plus reasonable profit.

Section 23 - City's Right To Do Work

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the City, 3 days after giving written notice to the Contractor and its surety may, without prejudice to any other remedy the City may have, make good the deficiencies and may deduct the cost from the payment due to the Contractor.

Section 24 - Removal of Equipment and Supplies

In case of termination of this Contract before completion, from any or no cause, the Contractor, if notified to do so by the City, shall promptly remove any part or all of its equipment and supplies from the property of the City, failing which the City shall have the right to remove the equipment and supplies at the expense of the Contractor.

The removed equipment and supplies may be stored by the City and, if all costs of removal and storage are not paid by the Contractor within 10 days of invoicing, the City upon 10 days written notice may sell the equipment and supplies at auction or private sale, and shall pay the Contractor the net proceeds after deducting all costs and expenses that should have been borne by the Contractor and after deducting all amounts claimed due by any lien holder of the equipment or supplies.

Section 25 - Responsibility for Work and Warranties

The Contractor assumes full responsibility for any and all materials and equipment used in the construction of the work and may not make claims against the City for damages to materials and equipment from any cause except negligence or willful act of the City. Until its final acceptance, the Contractor shall be responsible for damage to or destruction of the project (except for any part covered by Partial Completion and Acceptance - Section 26). The Contractor shall make good all work damaged or destroyed before acceptance. All risk of loss remains with the Contractor until final acceptance of the work (Section 19) or partial acceptance (Section 26). The Contractor is advised to investigate obtaining its own builders risk insurance.

The Contractor shall guarantee the quality of the work for a period of one year. The Contractor shall also unconditionally guarantee the quality of all equipment and materials that are furnished and installed under the contract for a period of one year. At the end of one year after the Contractor's receipt of final payment, the complete work, including equipment and materials furnished and installed under the contract, shall be inspected by the Contractor and the Supervising Professional. Any defects shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. Any defects that are identified prior to the end of one year shall also be inspected by the Contractor and the Supervising Professional and shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. The Contractor shall assign all manufacturer or material supplier warranties to the City prior to final payment. The assignment shall not relieve the Contractor of its obligations under this paragraph to correct defects.

Section 26 - Partial Completion and Acceptance

If at any time prior to the issuance of the final certificate referred to in Acceptance and Final Payment - Section 19, any portion of the permanent construction has been satisfactorily completed, and if the Supervising Professional determines that portion of the permanent construction is not required for the operations of the Contractor but is needed by the City, the Supervising Professional shall issue to the Contractor a certificate of partial completion, and immediately the City may take over and use the portion of the permanent construction described in the certificate, and exclude the Contractor from that portion.

The issuance of a certificate of partial completion shall not constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates if the Contractor has failed to complete it in accordance with the terms of this Contract. The issuance of the certificate shall not release the Contractor or its sureties from any obligations under this Contract including bonds.

If prior use increases the cost of, or delays the work, the Contractor shall be entitled to extra compensation, or extension of time, or both, as the Supervising Professional may determine.

Section 27 - Payments Withheld Prior to Final Acceptance of Work

The City may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any certificate to the extent reasonably appropriate to protect the City from loss on account of:

- (1) Defective work not remedied;
- (2) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor;
- (3) Failure of the Contractor to make payments properly to subcontractors or for material or labor;
- (4) Damage to another Contractor.

When the above grounds are removed or the Contractor provides a Surety Bond satisfactory to the City which will protect the City in the amount withheld, payment shall be made for amounts withheld under this section.

Section 28 - Contractor's Insurance

- (1) The Contractor shall procure and maintain during the life of this Contract, including the guarantee period and during any warranty work, such insurance policies, including those set forth below, as will protect itself and the City from all claims for bodily injuries, death or property damage which may arise under this Contract; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor or by any subcontractor or anyone employed by them directly or indirectly. In the case of all contracts involving on-site work, the Contractor shall provide to the City, before the commencement of any work under this contract, certificates of insurance and other documentation satisfactory to the City demonstrating it has obtained the policies and endorsements required on behalf of itself, and when requested, any subcontractor(s). The certificates of insurance endorsements and/or copies of policy language shall document that the Contractor satisfies the following minimum requirements.

- (a) Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

Bodily Injury by Accident - \$500,000 each accident
Bodily Injury by Disease - \$500,000 each employee
Bodily Injury by Disease - \$500,000 each policy limit

- (b) Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 07 98 or current equivalent. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements specifically for the following coverages: Products and Completed Operations, Explosion, Collapse and Underground coverage or Pollution. Further there shall be no added exclusions or limiting endorsements which diminish the City's protections as an additional insured under the policy. The following minimum limits of liability are required:

\$1,000,000	Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined.
\$2,000,000	Per Job General Aggregate
\$1,000,000	Personal and Advertising Injury
\$2,000,000	Products and Completed Operations Aggregate

- (c) Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97 or current equivalent. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements which diminish the City's protections as an additional insured under the policy. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

- (d) Umbrella/Excess Liability Insurance shall be provided to apply excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.

- (2) Insurance required under subsection (1)(b) and (1)(c) above shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City.
- (3) Insurance companies and policy forms are subject to approval of the City Attorney, which approval shall not be unreasonably withheld. Documentation must provide and demonstrate an unconditional 30 day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number; name of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified Contractor shall furnish the City with satisfactory certificates of insurance and endorsements prior to commencement of any work. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) to the City. If any of the above coverages expire by their terms during the term of this Contract, the Contractor shall deliver proof of renewal and/or new policies and endorsements to the Administering Service Area/Unit at

least ten days prior to the expiration date.

- (4) Any Insurance provider of Contractor shall be admitted and authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-admitted insurance companies are not acceptable unless approved in writing by the City.
- (5) City reserves the right to require additional coverage and/or coverage amounts as may be included from time to time in the Detailed Specifications for the Project.
- (6) The provisions of General Condition 28 shall survive the expiration or earlier termination of this contract for any reason.

Section 29 - Surety Bonds

Bonds will be required from the successful bidder as follows:

- (1) A Performance Bond to the City of Ann Arbor for the amount of the bid(s) accepted;
- (2) A Labor and Material Bond to the City of Ann Arbor for the amount of the bid(s) accepted.

Bonds shall be executed on forms supplied by the City in a manner and by a Surety Company authorized to transact business in Michigan and satisfactory to the City Attorney.

Section 30 - Damage Claims

The Contractor shall be held responsible for all damages to property of the City or others, caused by or resulting from the negligence of the Contractor, its employees, or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. The Contractor must restore all property injured including sidewalks, curbing, sodding, pipes, conduit, sewers or other public or private property to not less than its original condition with new work.

Section 31 - Refusal to Obey Instructions

If the Contractor refuses to obey the instructions of the Supervising Professional, the Supervising Professional shall withdraw inspection from the work, and no payments will be made for work performed thereafter nor may work be performed thereafter until the Supervising Professional shall have again authorized the work to proceed.

Section 32 - Assignment

Neither party to the Contract shall assign the Contract without the written consent of the other. The Contractor may assign any monies due to it to a third party acceptable to the City.

Section 33 - Rights of Various Interests

Whenever work being done by the City's forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Supervising Professional, to secure the completion of the various portions of the work in general harmony.

The Contractor is responsible to coordinate all aspects of the work, including coordination of, and

with, utility companies and other contractors whose work impacts this project.

Section 34 - Subcontracts

The Contractor shall not award any work to any subcontractor without prior written approval of the City. The approval will not be given until the Contractor submits to the City a written statement concerning the proposed award to the subcontractor. The statement shall contain all information the City may require.

The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and all other contract documents applicable to the work of the subcontractors and to give the Contractor the same power to terminate any subcontract that the City may exercise over the Contractor under any provision of the contract documents.

Nothing contained in the contract documents shall create any contractual relation between any subcontractor and the City.

Section 35 - Supervising Professional's Status

The Supervising Professional has the right to inspect any or all work. The Supervising Professional has authority to stop the work whenever stoppage may be appropriate to insure the proper execution of the Contract. The Supervising Professional has the authority to reject all work and materials which do not conform to the Contract and to decide questions which arise in the execution of the work.

The Supervising Professional shall make all measurements and determinations of quantities. Those measurements and determinations are final and conclusive between the parties.

Section 36 - Supervising Professional's Decisions

The Supervising Professional shall, within a reasonable time after their presentation to the Supervising Professional, make decisions in writing on all claims of the City or the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the contract documents.

Section 37 - Storing Materials and Supplies

Materials and supplies may be stored at the site of the work at locations agreeable to the City unless specific exception is listed elsewhere in these documents. Ample way for foot traffic and drainage must be provided, and gutters must, at all times, be kept free from obstruction. Traffic on streets shall be interfered with as little as possible. The Contractor may not enter or occupy with agents, employees, tools, or material any private property without first obtaining written permission from its owner. A copy of the permission shall be furnished to the Supervising Professional.

Section 38 - Lands for Work

The Contractor shall provide, at its own expense and without liability to the City, any additional land and access that may be required for temporary construction facilities or for storage of materials.

Section 39 - Cleaning Up

The Contractor shall, as directed by the Supervising Professional, remove at its own expense from the City's property and from all public and private property all temporary structures, rubbish and waste materials resulting from its operations unless otherwise specifically approved, in writing, by the Supervising Professional.

Section 40 - Salvage

The Supervising Professional may designate for salvage any materials from existing structures or underground services. Materials so designated remain City property and shall be transported or stored at a location as the Supervising Professional may direct.

Section 41 - Night, Saturday or Sunday Work

No night or Sunday work (without prior written City approval) will be permitted except in the case of an emergency and then only to the extent absolutely necessary. The City may allow night work which, in the opinion of the Supervising Professional, can be satisfactorily performed at night. Night work is any work between 8:00 p.m. and 7:00 a.m. No Saturday work will be permitted unless the Contractor gives the Supervising Professional at least 48 hours but not more than 5 days notice of the Contractor's intention to work the upcoming Saturday.

Section 42 - Sales Taxes

Under State law the City is exempt from the assessment of State Sales Tax on its direct purchases. Contractors who acquire materials, equipment, supplies, etc. for incorporation in City projects are not likewise exempt. State Law shall prevail. The Bidder shall familiarize itself with the State Law and prepare its Bid accordingly. No extra payment will be allowed under this Contract for failure of the Contractor to make proper allowance in this bid for taxes it must pay.

STANDARD SPECIFICATIONS

All work under this contract shall be performed in accordance with the Public Services Department Standard Specifications in effect at the date of availability of the contract documents stipulated in the Bid. All work under this Contract which is not included in these Standard Specifications, or which is performed using modifications to these Standard Specifications, shall be performed in accordance with the Detailed Specifications included in these contract documents.

Standard Specifications are available online:

<http://www.a2gov.org/departments/engineering/Pages/Engineering-and-Contractor-Resources.aspx>

DETAILED SPECIFICATIONS

Division 01

011000 – Summary	2
012100 – Allowances	2
012200 – Unit Prices	7
013100 – Project Management and Coordination.....	6
013200 – Construction Progress Documentation.....	3
013233 – Digital Recorded Video Survey	4
013300 – Submittal Procedures	8
016000 – Product Requirements.....	5

Division 33

330130.11 – Television Inspection of Sewers.....	4
330130.12 – Multiple Sensor Inspection of Sewers	7
339000 – GIS / AM Compatible Electronic Database for Sanitary Assets	2

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Work covered by the Contract Documents.
 - 2. Type of the Contract.
 - 3. Use of premises.
 - 4. Work restrictions.
 - 5. Specification Format and Conventions.
- B. Related Sections include the following:
 - 1. None.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: City of Ann Arbor – Northside Interceptor Condition Assessment
 - 1. Project Locations: Along the north side of the Huron River from west of the Fuller Road crossing to east of the Dixboro Road Crossing.
 - a. 78-inch diameter sanitary sewer interceptor inspection and other related work.
- B. Owner: City of Ann Arbor, 4251 Stone School Rd, Ann Arbor, MI 48108
 - 1. Owner's Representative: OHM Advisors, 34000 Plymouth Road, Livonia, Michigan 48150
- C. Engineer: OHM Advisors, 34000 Plymouth Road, Livonia, Michigan 48150
 - 1. Construction Manager for this Project is Project's Contractor. In Divisions 01 through 49 Sections, the terms "Construction Manager" and "Contractor" are synonymous.
- D. The Work consists of the following:
 - 1. The Work includes large diameter sanitary sewer utilizing closed-circuit television and multi-sensor devices. The Work also includes coding and submission of GIS data following NASSCO standards.

1.4 TYPE OF CONTRACT

- A. Project will be constructed under a single prime contract, under one Division of work.

1.5 USE OF PREMISES

- A. General: Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.
- B. Use of Site: Limit use of premises to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Limits: Confine construction operations and equipment/material staging as shown on drawings within easement limits.

2. Access Manholes: Utilize only the following manholes for access to the sanitary sewer; 71-68820, 71-70065, 71-70087, 71-61492, 71-61045, and 71-61017.
 - a. Limit site disturbance, including earthwork and clearing of vegetation, within the easement limits shown on drawings.
3. Owner Occupancy: Allow for Owner occupancy of Project site and use by the public.
4. Driveways and Entrances: Keep driveways and entrances within the project limits clear and available to Owner, residents, the public, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize impacts on driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.6 WORK RESTRICTIONS.

- A. On-Site Work Hours: Work shall be generally performed during normal business working hours of 7:00 a.m. to 8:00 p.m., Monday through Friday, except where otherwise indicated.
 1. Saturday Work: No work shall be allowed on Saturday without written approval from the City of Ann Arbor.
 2. Sunday Work: No work shall be allowed on Sunday without written approval from the City of Ann Arbor.
 3. Holiday Work: No work shall occur on Holidays, as defined in the MDOT 2012 Specifications for Construction.
 4. Early Morning Hours: No work shall be allowed without written approval from the City of Ann Arbor.
 5. Hours for Utility Shutdowns: Not allowed
 6. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others.

1.7 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 49-division format and CSI/CSC's "MasterFormat" numbering system.
 1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
 2. Division 1: Sections in Division 1 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 21 00 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
 - 2. Unit-cost allowances.
 - 3. Quantity allowances.
 - 4. Contingency allowances.
 - 5. Testing and inspecting allowances.
- C. Related Sections include the following:
 - 1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders for allowances.
 - 2. Division 01 Section "Unit Prices" for procedures for using unit prices.
 - 3. Divisions 02 through 49 Sections for items of Work covered by allowances.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Engineer of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Engineer's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Engineer from the designated supplier.

1.4 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Engineer for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.7 UNUSED MATERIALS

- A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Engineer, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Engineer, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Include Contingency Allowance as specified in Division 1 Section 1.7 "Contingency Allowances" and as shown on Drawings.

END OF SECTION 01 21 00

SECTION 01 22 00 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. 2012 Michigan Department of Transportation (MDOT) Standard Specifications for Construction.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Related Sections include the following:
 - a. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
 - b. Division 01 Section "Allowances" for items of Work covered by allowances.

1.3 DEFINITIONS

- A. Unit price is stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. Owner reserves the right to increase, decrease, or eliminate any quantities for items listed in the Contractor's Bid or which become a part of the Contract Documents.
- E. List of Unit Price Pay Items: A list of unit price pay items is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

1.5 PRICES AND MEASUREMENT

- A. Payment for work under this contract will be based on a unit price or lump sum for work actually completed. Final measurements of the work will be taken by the Engineer to determine the amount of work done and thereby determine the total cost. The method of applying the unit prices to measured quantities will be as herein specified. Payment will include the cost of all labor, tools, materials, and equipment necessary to do the work.

- B. Several items may have been included in the bid form but may not be called for on the plans. These items have been included in order to establish a unit price in the event that the item of work is necessary. The Contractor should be aware that these items may increase, decrease, or be zero based on field conditions, or Owner direction.

1.6 INCIDENTAL ITEMS

- A. Any items of work indicated as incidental or included shall be considered as part of the project work and shall be completed at no additional expense to the Owner. Incidental or included items shall include labor, materials, and equipment that may not be specifically listed in the Bid Form or in the drawings or specifications, but which are necessary to complete the work. Unless there is a specific pay item identified, incidental work items shall include but not be limited to the following:

1. *Maintenance of Traffic;*
2. *Soil Erosion and Sedimentation Control;*
3. *Site Cleanup and surface restoration;*
4. *Ditch and/or swale restoration;*
5. *Fence removal and replacement;*
6. *Mail box removal and replacement;*
7. *Irrigation system removal, replacement, repair and testing;*
8. *Road, curb & gutter, sidewalk, parking lot, paved spillways, and driveway restoration;*
9. *Regrading disturbed road ditches;*
10. *Swale restoration;*
11. *Restoring shoulders;*
12. *Final grading, seeding and cleanup;*
13. *Coordination of mail delivery and refuse removal with residents, post office, and refuse collectors;*
14. *Temporary 21AA Maintenance Aggregate installation, maintenance, and removal;*
15. *Support of utility poles and existing underground utilities during excavation as-needed for sanitary manhole access;*
16. *Clearing of brush, weeds, roots, topsoil and grading around access structures;*
17. *Excavation, and backfill around structures per current governing standards;*
18. *Remove, salvage, and replace damaged street signs;*
19. *Remove and replace damaged shrubs, bushes, trees, and other landscaping not designated for removal;*
20. *Protection of existing landscaping;*
21. *Proper ventilation of sewers and structures required for access;*
22. *The removal of surplus material encountered during the construction operations and which constitute a disposal surplus during or at the end of the construction period;*
23. *Work related to any temporary work sign erection and removal;*
24. *Temporary measures required to access manholes and junction chambers.*

PART 2 - PRODUCTS

2.1 PRODUCT AND MATERIAL SELECTION

- A. All products must be in accordance with the most current MDOT Qualified Product List.
- B. All Materials must be in accordance with the 2012 MDOT Standard Specifications for Construction.

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICE PAY ITEMS

A. Mobilization

The completed work as measured for MOBILIZATION will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Mobilization, Max 10%	lump sum

The lump sum price shall be payment in full for all preparatory work and operations which may include, but is not limited to, the following items:

- a. The movement of personnel, equipment, supplies, and incidentals to the project site.
- b. The establishment of the Contractor's offices, buildings, staging areas, and other facilities to work on the project.
- c. Other work and operations that must be performed.
- d. Expenses incurred, prior to beginning work on the various contract items on the project site.
- e. Pre-construction costs, exclusive of bidding costs, which are necessary direct costs to the project rather than directly attributable to other pay items under the contract.
- f. Permits, bonds, etc.

The pay item will state the maximum amount that can be bid for each Division. When the percentage of the original contract amount earned is less than percent stated per each pay item, the costs of project specific bonding, insurances, and permits will be reimbursed when a paid invoice is received by the Engineer. The costs of these will then be made in accordance with the Partial Payment Schedule shown below. The original contract amount is the total value of all contract items including the mobilization item. The percentage earned is exclusive of the mobilization item. The total sum of all payments for this item shall not exceed the original contract amount bid for mobilization, regardless of the fact that the Contractor may have, for any reason, shut down his work on the project, moved equipment away from the project and then back again, or for additional quantities or items of work added to the contract.

Partial Payment Schedule	
Percentage of Original Contract Amount Earned	Percentage of Bid Price For Mobilization Allowed
5	50
10	75
25	100

When a pay item for mobilization is not included in the proposal, payment for any such work is considered to have been included in payments made for other items of work.

B. Digital Recorded Video Survey

The completed work as measured for DIGITAL RECORDED VIDEO SURVEY will be paid for at the contract lump sum price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Audio Visual Route Survey	lump sum

The lump sum price shall be payment in full for all labor, materials, and equipment necessary to prepare the audio video route survey in accordance with the specifications. Digital recording limits are discussed in the technical specification. The digital recorded video survey areas shall be limited to sanitary sewer access points as shown on the plans or as approved by the Engineer.

Payment shall include the provision of two sets of hard drives or flash drives containing the complete recordings to the Engineer.

C. Maintenance of Traffic

The completed work as measured for MAINTENANCE OF TRAFFIC (M.O.T.) will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Traffic Control	lump sum

The contract unit prices shall be payment in full for all labor, materials, and equipment necessary to furnish, install, and maintain all minor traffic devices and traffic regulation control. Signs, sign covers, cones, barricades, barrels, lighted arrow boards, etc. shall be as required by the Michigan Manual of Uniform Traffic Control Devices, City of Ann Arbor, and the Washtenaw County Road Commission. Maintenance, operating and removal of any temporary signs or other traffic control devices upon completion of the project shall be considered as included in the traffic control lump sum items. All necessary flag control required to maintain traffic flow shall be included in the pay items. Traffic regulators (flaggers) shall be trained on proper flagging and traffic regulating procedures in accordance with the 2012 MDOT Standard Specifications for Construction, Section 812. Maintenance of Traffic pay items shall be described, measured and paid for each pay item in accordance with the 2012 MDOT Standard Specifications for Construction, Section 812.

Partial Payment Schedule	
Percentage of Original Contract Amount Earned	Percentage of Bid Price For M.O.T. Allowed
5	25
50	50
100	100

D. Miscellaneous Structure and Material Removal

The completed work as measured for MISCELLANEOUS STRUCTURE AND MATERIAL REMOVAL will be paid for at the contract unit price for the following contract items (pay items):

<u>Pay Item</u>	<u>Pay Unit</u>
Frame & Cover, Reset	each
Frame & Cover, Replace	each
Chimney, Rem & Rep	each
Cone, Rem, Salvage & Rep	each

Miscellaneous Structure and Material Removal pay items shall be described, measured, and paid for each pay item in accordance with the 2012 MDOT Standard Specifications for Construction, Sections 204, 306, 403 and 501.

E. Maintenance Gravel

The completed work as measured for MAINTENANCE GRAVEL will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Maintenance Gravel	ton

Maintenance gravel shall be measured in tons based upon certified weight delivery tickets. The aggregate shall be used at various locations for temporary maintenance of local traffic for ingress/egress purposes, and shall be considered for payment only where authorized by the Engineer.

The contract unit price shall be payment in full for all labor, materials, and equipment necessary to place, grade, and compact 21AA limestone where authorized by the Engineer. Removal of the maintenance aggregate shall be considered as incidental to the placement work.

F. Tracked, Winched or Floated Platform Access, Setup, and Deployment

Item(s) shall be completed in accordance with the following Sections:

- a. Section 33 01 30.12 Multiple Sensor Inspection of Sewers

<u>Pay Item</u>	<u>Pay Unit</u>
Access, Setup, and Deployment	each

The contract unit price shall be payment in full for all labor, materials, and equipment necessary to complete the work.

- a. Quantity estimated based on the identified accessible entry points. The contractor must have the materials and equipment available to traverse a minimum distance of 6,500 feet whether traversing downstream, upstream, or a combination thereof.
- b. Contractor shall communicate with Engineer's field personnel to ensure proper tracking of setups and the work associated with each setup.
- c. Payment shall be made per setup for which the inspection of segments fully complete, whether via tracked or winched setup.
- d. Should an additional setup be needed to complete the inspection of a segment (from structure to structure), the Contractor shall not be paid extra for that setup.
- e. A segment shall be considered fully complete if a segment is inspected from structure to structure. Should multiple obstructions make inspection of a portion of the segment infeasible, as determined by the Engineer, the segment shall be considered fully inspected.

G. Sanitary Sewer Video Inspection, Multi-Sensor, ____ inch

Item(s) shall be completed in accordance with the following sections:

- a. Section 33 01 30.11 Television Inspection of Sewers
- b. Section 33 01 30.12 Multiple Sensor Inspection of Sewers
- c. Bid items of work include consideration of potential time and schedule impacts for delays due to wet weather flow conditions. Contractor shall not perform inspections if flow level exceeds the spring line of the pipe without prior authorization from the Engineer.

<u>Pay Item</u>	<u>Pay Unit</u>
Sanitary Sewer Video Inspection, Multi-Sensor, 78 inch	foot
Sanitary Sewer Video Inspection, Multi-Sensor, 36 inch	foot

Measurement and payment shall be made by the linear foot of pipe inspected from the face of the upstream structure to the face of the downstream structures, as indicated on each inspection report generated by the Contractor.

All labor, materials, and equipment necessary to furnish, install, and maintain silt fence, filter fabric, sediment dams, etc. in accordance with the plan details, specifications, City of Ann Arbor, and any other governing agency permit requirements shall be considered incidental to the sanitary sewer video inspection.

H. Surface Restoration

The completed work as measured for SURFACE RESTORATION will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Restoration, Seeding	square yard

The contract unit price shall be payment in full for all labor, materials, and equipment necessary to final grade the greenbelt areas, furnish and place a minimum of 3" screened topsoil, seed, fertilizer, and mulch, as required by the Specifications. Watering until vigorous turf growth is established shall be considered as incidental to the restoration work. Adequate protection and stabilization of newly restored areas to prevent damage from animals or erosion shall be considered incidental to the item of work. Complete site clean up to satisfaction of Engineer is also included in this item.

The materials and construction requirements for establishing turf shall meet MDOT 2012 Specifications for Construction, Section 816.

I. Contingency Allowance

The completed work as measured for CONTINGENCY ALLOWANCE will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Contingency Allowance	dollar

The contingency allowance is provided to cover costs associated with unknown or unexpected items during the course of construction that are not otherwise covered under the plans. This item is to be utilized at the discretion of the Engineer, only as it applies to out of scope items, as ultimately determined by the Engineer and Owner. This is a cash allowance, and therefore the Contractor will only be reimbursed for actual costs expended to perform a certain out of scope item. This shall either be based on an Engineer approved quote from the Contractor for this work prior to the start of work, or if necessary based on the Cost of Work, consistent with the contract documents. Contingency allowance will be imposed as described in the Allowances Specification – Section 01 21 00.

J. Final Completion Deliverables

The completed work as measured for FINAL COMPLETION DELIVERABLES will be paid for at the contract unit price for the following contract items (pay items):

<u>Pay Item</u>	<u>Pay Unit</u>
GIS Database, Electronic	lump sum
Final Submittal and Software Viewer	lump sum

The lump sum prices shall be payment in full for all labor, materials, tools, equipment, and services necessary for creation of an electronic database for sanitary assets for implementation into Geographic Information Systems (GIS) and Asset Management (AM) databases as described in the GIS/AM Compatible Electronic Database for Sanitary Assets Specification.

3.2 CLEAN OUT STORM STRUCTURES

- A. Upon completion of the restoration work, the Contractor shall clean out all impacted storm structures or drainage ditches, culverts, etc. which are located within the project area incidental to the project cost.

3.3 EXISTING PATHWAYS AND PARKING LOTS

- A. Unless noted on the plans or otherwise directed by the Engineer, the contractor shall protect existing areas from damage during the course of work and use labor, equipment, and tools that will minimize impacts of sensitive areas. Any damage resulting from carelessness or disregard for park land, private property, river banks, etc. shall be repaired or replaced to a condition of equal or greater than existing at the contractors expense. All areas needed to be restored shall be done so to City of Ann Arbor standards or the governing agency with jurisdiction, whichever is more stringent. In the event of Contractor carelessness, any additional need for inspection and/or testing as required by the item of work performed shall also be at the contractor's expense.

3.4 MISCELLANEOUS RESTORATION ITEMS

- A. Restoration and relocation of miscellaneous items such as, but not limited to, street signs, traffic signs, shrubbery, large decorative stones, boulders, and other ornamental landscape items which are damaged, removed, relocated, or destroyed by the Contractor in the course of the work shall be relocated, repaired or replaced by the Contractor. For items that that are damaged or destroyed, these items will be replaced with new materials of equal quality as existed prior to the start of work. All such items for which specific bid items are not listed in the proposal shall be considered as incidental work and shall be replaced or repaired at the expense of the Contractor.

3.5 FINAL CLEAN UP

- A. Final cleanup of the job shall be considered as incidental and shall include removal of debris and litter from the site, removal of surplus materials, sweeping, and repair of any damages.
- B. Surface Restoration shall commence immediately upon completion of final grading or as MDOT seasonal limitations dictate.

END OF SECTION 01 22 00

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Coordination Drawings.
 - 2. Administrative and supervisory personnel.
 - 3. Project meetings.
 - 4. Requests for Interpretation (RFIs).

1.3 DEFINITIONS

- A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.4 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's Construction Schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Project closeout activities.

8. Startup and adjustment of systems.
9. Project closeout activities.

- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.
- E. Coordination with Owner and other contractors: The Owner, utility companies, and commercial or private owners may have construction projects occurring within or adjacent to the project limits during the life of this Contract. Coordinate construction with all such projects that may be ongoing in the vicinity. Where the Contractor's work affects the operation of the Owner's utilities, coordinate work with the Owner. Contact Owner's representative. Give at least 48 hours of notice to the Owner in order to schedule activities such as valve operation, hydrant operation, sewer and structure cleanout, etc. No claim for extra compensation or adjustments in the Contract Unit Prices will be allowed on account of delay or failure of others to complete work scheduled.

1.5 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
 - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - b. Indicate required installation sequences.
 - c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
 2. Sheet Size: At least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
 3. Number of Copies: Submit two opaque copies of each submittal. Engineer will return one copy.
 - a. Submit five copies where Coordination Drawings are required for operation and maintenance manuals. Engineer will retain two copies; remainder will be returned. Mark up and retain one returned copy as a Project Record Drawing.
 - b. Electronic copies may be substituted upon approval by the Engineer or Owner.
 4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.
- B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.6 OBSERVATION OF CONSTRUCTION

- A. Construction operations will require observation by the Owner's representative. Notify the Engineer at least three (3) working days prior to construction so observation can be scheduled. This applies to construction start and any time that work is suspended for two days or more. Contact OHM Construction Dept at 734-522-6711, Mondays through Fridays 8 am to 4 pm. Contractor is advised that utilities installed on the project without observation will be rejected by the Owner.

1.7 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Engineer of scheduled meeting dates and times.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Engineer, within three days of the meeting.

- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Engineer, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
 - 1. Attendees: Authorized representatives of Owner, Engineer and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for RFIs.
 - g. Procedures for testing and inspecting.
 - h. Procedures for processing Applications for Payment.
 - i. Distribution of the Contract Documents.
 - j. Submittal procedures.
 - k. LEED requirements.
 - l. Preparation of Record Documents.
 - m. Use of the premises.
 - n. Work restrictions.
 - o. Owner's occupancy requirements.
 - p. Responsibility for temporary facilities and controls.
 - q. Construction waste management and recycling.
 - r. Parking availability.
 - s. Office, work, and storage areas.
 - t. Equipment deliveries and priorities.
 - u. First aid.
 - v. Security.
 - w. Progress cleaning.
 - x. Working hours.
 - 3. Minutes: Engineer will record and distribute meeting minutes.

- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Engineer of scheduled meeting dates.
 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. The Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility problems.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written recommendations.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. Protection of construction and personnel.
 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at **biweekly** intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties

involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

- 1) Review schedule for next period.
- b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) RFIs.
 - 16) Status of proposal requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
3. Minutes: Contractor will record and distribute meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.8 REQUESTS FOR INTERPRETATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
 1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
 1. Project name.
 2. Date.
 3. Name of Contractor.
 4. Name of Engineer].
 5. RFI number, numbered sequentially.
 6. Specification Section number and title and related paragraphs, as appropriate.
 7. Drawing number and detail references, as appropriate.
 8. Field dimensions and conditions, as appropriate.
 9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 10. Contractor's signature.

11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
 - a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.

- C. Hard-Copy RFIs: CSI Form 13.2A
 1. Identify each page of attachments with the RFI number and sequential page number.

- D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
 1. Attachments shall be electronic files in Adobe Acrobat PDF format.

- E. Engineer's Action: Engineer will review each RFI, determine action required, and return it. Allow **seven** working days for Engineer's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
 1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or RFIs with numerous errors.
 2. Engineer's action may include a request for additional information, in which case Engineer's time for response will start again.
 3. Engineer's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Engineer in writing within **ten** days of receipt of the RFI response.

- F. On receipt of Engineer's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Engineer within **seven** days if Contractor disagrees with response.

- G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log **weekly**. **Use CSI Log Form 13.2B.**
 1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Engineer.
 4. RFI number including RFIs that were dropped and not submitted.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Engineer's response was received.
 8. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's Construction Schedule.
 - 2. Submittals Schedule.
 - 3. Daily construction reports.
 - 4. Field condition reports.
- B. Related Sections include the following:
 - 1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
 - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
 - 3. Division 01 Section "Submittal Procedures" for submitting schedules and reports.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
- E. Fragment: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- F. Major Area: A story of construction, a separate building, or a similar significant construction element.

1.4 SUBMITTALS

- A. Submittals Schedule: Submit **three** copies of schedule. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
 - 6. Scheduled date for Engineer's final release or approval.
- B. Contractor's Construction Schedule: Submit **two** opaque copies of initial schedule, large enough to show entire schedule for entire construction period.
- C. Field Condition Reports: Submit **two** copies at time of discovery of differing conditions.

1.5 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 - 2. Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
 - 1. List of subcontractors at Project site.
 - 2. List of separate contractors at Project site.
 - 3. Approximate count of personnel at Project site.
 - 4. Equipment at Project site.
 - 5. Material deliveries.
 - 6. High and low temperatures and general weather conditions.
 - 7. Accidents.
 - 8. Meetings and significant decisions.
 - 9. Unusual events (refer to special reports).

10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Work Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial Completions and occupancies.
19. Substantial Completions authorized.

- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation on Engineer approved form. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At **monthly** intervals, update schedule to reflect actual construction progress and activities. Issue schedule **one week** before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Engineer and Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00

SECTION 01 32 33 – DIGITAL RECORDED VIDEO SURVEY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction digitally recorded video survey.
- B. Related Sections include the following:
 - 1. Division 01 Section "Unit Prices".
- C. Prior to commencing the work, the Contractor shall have a continuous color audio-video digital recording taken along the designated length of the project to serve as a record of existing conditions. All DVD and written records shall become the property of the Owner.

1.3 SUBMITTALS

- A. Qualification Data: For photographer.
- B. Media Devices: Submit a minimum of three complete sets of DVDs or hard drives upon final approval and acceptance of the videos by the Owner and Engineer (one set each for the Owner, Engineer, and Contractor). Additional sets shall be furnished if requested by the Owner. Provide media devices with protective sleeve or case. Remove safety tabs to prevent accidental re-recording.
 - 1. Identification: On each DVD (discs and cases) or hard drive, provide an applied label with the following information:
 - a. DVD number.
 - b. Name of project.
 - c. Name of municipality.
 - d. Name and address of photographer.
 - e. Name of Contractor.
 - f. Date videotape was recorded.
 - g. Description of vantage point, indicating location, direction (by compass point)
 - h. Weather conditions at time of recording.
 - 2. Transcript:
 - a. A record of the contents of each media device shall be supplied by a log sheet that identifies each segment in the digital recording by location, roll number, street or road viewing, media counter number, viewing side, starting point, traveling direction and ending point.
 - b. Prepared on 8-1/2-by-11-inch paper. Include a cover sheet with same label information as corresponding DVD. Include name of project and date of recording on each page.

1.4 QUALITY ASSURANCE

- A. Photographer Qualifications:
 - 1. The Contractor shall engage the services of a professional digital recording firm that is actively engaged in color audio-video recordings for various municipalities. The firm shall

have a minimum of two years experience in audio-video digital recording of construction projects.

2. The Owner may make such investigation as he deems necessary to determine the ability of the digital recording firm to perform the work. The Contractor shall furnish the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any digital recording firm if the investigation fails to satisfy the Owner that such firm is properly qualified to carry out the work specified herein. Upon rejection of a digital recording firm, the Contractor shall engage the services of another firm that shall undergo the review and approval process as previously discussed.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- A. All equipment, accessories, and materials necessary to perform this service shall be furnished by the Contractor and the digital recording firm, except for the plans of the proposed area to be digitally recorded which are to be furnished by the Owner. The Contractor shall be responsible for providing any temporary warning signs or barricades if required during the digital recording operations. Digital recordings shall be on high-quality DVDs for lossless picture quality, suitable for playback on standard home DVD player as well as a DVD ROM drive.
- B. In some instances, digitally recorded coverage may not be suitable for recording necessary details. In such instances, the Engineer may specify digital still photographs to provide coverage. Digital photography must be used and the firm shall provide a CD or hard drive of all images. A suitable labeling system and description of the location of the photograph shall accompany the photographs in PDF form on the CD with the digital photographs

2.2 DIGITAL RECORDING

- A. Each DVD shall begin with the current date, project name, and municipality as well as the general location or station, name of the street, viewing side, and direction of progress. Houses and buildings shall be identified by address.
- B. When conventional wheeled vehicles are used, the distance from camera lens to the ground shall not be less than ten (10) feet to ensure proper perspective.
- C. In some instances, digitally recorded coverage will be required in areas that are not accessible by conventional wheeled vehicles. Such coverage shall be obtained by walking or special conveyance approved by the Engineer.
- D. The engineering stationing numbers shall be continuous and accurate and shall correspond to the project stationing within the field of view. Standard engineering symbols (for example, 14 + 84) shall appear in the upper left of the viewing screen.
- E. Beneath the engineering stationing, periodic transparent alphanumeric information consisting of the project name, location, direction of travel, viewing side, etc., shall appear.
- F. Global Positioning System Satellites may be used in place of or in addition to engineering stationing numbers where available. The global positioning system shall provide updates at one (1) per second and have an accuracy of five (5) meters or less spherical accuracy. The GPS coordinate display will be at one (1) meter longitude and 1 meter latitude. (example: 3000N423 9456W294)
- G. To preclude the possibility of tampering or editing in any manner, all digital recordings shall, by electronic means, display continuously and simultaneously generated transparent digital

information to include the date and time of recording, as well as corresponding GPS coordinates and/or engineering stationing numbers. The date information will contain the month, day and year (for example, 10/5/06) and be placed directly below the time information. The time information shall consist of hours, minutes and seconds separated by colons (for example 10:35:18). This transparent information shall appear on the extreme upper left-hand of the screen.

2.3 DIGITAL VIDEO TRACKS

- A. Digital recordings shall consist of one (1) video and two (2) audio tracks, all of which must be recorded simultaneously. All tracks shall consist of original live recordings and thus shall not be copies of other audio or digital video recordings. Audio track one (1) shall contain the narrative commentary of the camera technician and shall be recorded simultaneously with his fixed elevation video record of the area of construction. Audio track two (2) shall contain the narrative commentary and evaluations of the ground level remote technician whose function shall be to provide a complete circumspection of any features that are not adequately visible to the camera technician. In order to maintain viewer orientation, transition from a fixed camera overview to a remote camera picture shall be accomplished by means of an electronic dissolve.

2.4 LIGHTING REQUIREMENTS

- A. In order to produce proper detail and perspective, adequate lighting will be required to fill in the shadow areas caused by trees, utility poles, road signs and other such objects.
- B. For interior and exterior surfaces of existing buildings, video lighting must be a minimum of twenty-five thousand (25,000) watts of shadowless light to enable all objects to be distinctive and clearly video taped with correct detail in order to obtain proper perspective. The Contractor shall provide all power required for lighting.

PART 3 - EXECUTION

3.1 SCHEDULE

- A. All digital recording shall be done during times of good visibility. No recording shall be done during periods of visible precipitation or when more than ten (10) percent of the ground is covered with snow or standing water unless otherwise authorized by the Engineer.
- B. Digital recording shall be done prior to placement of materials or equipment in the construction area. DVDs shall be furnished to the Owner at least one week prior to the preconstruction meeting.
- C. No construction shall begin prior to review and approval of the digital video by the Owner.
- D. The Owner shall have authority to reject all or any portion of the digital recording that does not conform to the specifications. Any coverage that is not acceptable to the Owner shall be rerecorded at no additional charge. The Contractor shall reschedule unacceptable coverage within five (5) days after being notified.

3.2 DIGITAL VIDEO COVERAGE – CONSTRUCTION ZONE

- A. Digital video coverage shall include all surface features located within the zone of influence of construction and shall be supported by appropriate audio description. Such coverage shall include, but not be limited to, public right-of-way, easement areas, adjacent private property, all existing driveways, sidewalks, curbs, ditches, roadways, landscaping, trees, shrubs, fences,

culverts, headwalls, retaining walls, and buildings located within such zone of influence. Of particular concern shall be the existence of any faults, fractures, or defects.

- B. Houses and buildings shall be identified visually by house number when visible. Manholes or other utility structures shall also be identified.
- C. The rate of travel used during digital recording shall not exceed forty-eight (48) feet per minute. Panning rates and zoom-in/zoom-out rates shall be controlled sufficiently such that stop action during playback will produce clarity of the object viewed.
- D. The area to be covered by the digital recorded video survey shall be limited to the area within the disturbance limits of access points to the sanitary sewer as specified in the plans or as approved by the Engineer. The recorded area shall include, but may not be limited to, access routes, right-of-way, access points, and areas surrounding the access points. The Engineer shall have the authority to designate areas for which coverage may be added or omitted.

3.3 DIGITAL VIDEO COVERAGE – INTERIOR AND EXTERIOR SURFACES

- A. Building exterior coverage shall include, but not be limited to, all the masonry features of the building such as walls, foundations, chimneys or porches. Building interiors shall include, but not be limited to, all outside basement walls and flooring.
- B. All property being digitally recorded for interior record must have a permanent exterior front view recorded on video displayed in upper right-hand corner of the viewing screen for positive identification of property. This view will be no larger than twenty percent (20%) of the picture area and must begin by showing the address. The camera technician shall pan and zoom in and out as necessary to control the clarity of objects being viewed.
- C. All digital recordings shall be done during regular business hours unless otherwise authorized by the Owner or agreed to by an affected property owner.

3.4 DIGITAL RECORDING FIRM RESPONSIBILITIES

- A. The digital recording firm may televise and record areas within public rights-of-way, along municipal-owned easements, through municipal-owned parks, and municipal buildings. When digital recording is to be done on private property, the digital recording firm shall give the Owner sufficient prior notice so that the property owners may be contacted and their permission obtained for the work.
- B. Three (3) attempts must be logged by the camera technician to complete the video project at each location, and a log sheet describing the day, time, and disposition of the contact must be kept.
- C. At no time will the digital recording firm be allowed to use any electrical circuits located inside or outside buildings on private property. The digital recording firm must enter and leave property in a professional and orderly manner.

END OF SECTION 01 32 33

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections include the following:
 - 1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
 - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
 - 3. Divisions 02 through 49 Sections for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Engineer's responsive action.
- B. Informational Submittals: Written information that does not require Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Engineer for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow **15** days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.

2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow **15** days for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Engineer's consultants, Owner, or other parties is indicated, allow **21** days for initial review of each submittal.
- E. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately **6 by 8 inches** on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Engineer.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
- F. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- G. Additional Copies: Unless additional copies are required for final submittal, and unless Engineer observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Engineer.
 2. Additional copies submitted for maintenance manuals will **not** be marked with action taken and will be returned.
- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will return submittals, without review, received from sources other than Contractor.
1. Transmittal Form: Use form acceptable to Owner.
 2. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Specification Section number and title.
 - i. Drawing number and detail references, as appropriate.
 - j. Transmittal number, numbered consecutively.
 - k. Submittal and transmittal distribution record.
 - l. Remarks.

- m. Signature of transmitter.
 - 3. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
- I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked as Approved."
- J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Use only final submittals with mark indicating Approved by Engineer.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
 - 1. Submit electronic submittals directly to extranet specifically established for Project.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams.
 - i. Mill reports.
 - j. Standard product operation and maintenance manuals.
 - k. Compliance with specified referenced standards.
 - l. Testing by recognized testing agency.
 - m. Application of testing agency labels and seals.
 - n. Notation of coordination requirements.
 - 4. Submit Product Data before or concurrent with Samples.
 - 5. Number of Copies: Submit **three** copies of Product Data, unless otherwise indicated. Engineer, will return **two** copies. Mark up and retain one returned copy as a Project Record Document.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Dimensions.

- b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Design calculations.
 - j. Compliance with specified standards.
 - k. Notation of coordination requirements.
 - l. Notation of dimensions established by field measurement.
 - m. Relationship to adjoining construction clearly indicated.
 - n. Seal and signature of professional engineer if specified.
 - o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
 3. Number of Copies: Submit **three** opaque copies of each submittal, unless copies are required for operation and maintenance manuals. Submit **five** copies where copies are required for operation and maintenance manuals. Engineer will retain **two** copies; remainder will be returned. Mark up and retain one returned copy as a Project Record Drawing.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of appropriate Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 4. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit **three** sets of Samples. Engineer will retain **two** Sample sets; remainder will be returned.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

- 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least **three** sets of paired units that show approximate limits of variations.
- E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Type of product. Include unique identifier for each product.
 2. Number and name of room or space.
 3. Location within room or space.
 4. Number of Copies: Submit **three** copies of product schedule or list, unless otherwise indicated. Engineer, will return **two** copies.
 - a. Mark up and retain one returned copy as a Project Record Document.
 - F. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
 - G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."
 - H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."
 - I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
 3. Drawing number and detail references, as appropriate, covered by subcontract.
 4. Number of Copies: Submit **three** copies of subcontractor list, unless otherwise indicated. Engineer will return **two** copies.
 - a. Mark up and retain one returned copy as a Project Record Document.
 - J. LEED Submittals: Comply with requirements specified in Division 01 Section "Sustainable Design Requirements."
 1. Number of Copies: Submit **three** copies of LEED submittals, unless otherwise indicated.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 1. Number of Copies: Submit **two** copies of each submittal, unless otherwise indicated. Engineer will not return copies.
 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- M. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."
- N. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- O. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

- P. **Field Test Reports:** Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- Q. **Maintenance Data:** Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment.
- R. **Design Data:** Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- S. **Manufacturer's Instructions:** Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
1. Preparation of substrates.
 2. Required substrate tolerances.
 3. Sequence of installation or erection.
 4. Required installation tolerances.
 5. Required adjustments.
 6. Recommendations for cleaning and protection.
- T. **Manufacturer's Field Reports:** Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- U. **Insurance Certificates and Bonds:** Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- A. **Construction **Photographs and Videotapes:**** Comply with requirements herein and specified in Division 01 Section "Digital Recorded Video Survey." Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
1. **Date and Time:** Include date and time in file name for each image.
- B. **Material Safety Data Sheets (MSDSs):** Submit information directly to Owner; do not submit to Engineer.
1. Engineer will not review submittals that include MSDSs and will return the entire submittal for resubmittal.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ENGINEER'S ACTION

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
 - 1. Approved
 - 2. Rejected
 - 3. Approved as noted
 - 4. Revise and Resubmit
 - 5. Submit specified item
- C. Informational Submittals: Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01 33 00

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
 - 1. Division 01 Section "Allowances" for products selected under an allowance.
 - 2. Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.4 SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use form provided by Owner.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.

- b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within **7** days of receipt of a request for substitution. Engineer will notify Contractor of acceptance or rejection of proposed substitution within **15** days of receipt of request, or **7** days of receipt of additional information or documentation, whichever is later.
- a. Form of Acceptance: Change Order.
 - b. Use product specified if Engineer cannot make a decision on use of a proposed substitution within time allocated.
- B. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
- 1. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Engineer will notify Contractor of approval or rejection of proposed comparable product request within **15** days of receipt of request, or **7** days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
 - b. Use product specified if Engineer cannot make a decision on use of a comparable product request within time allocated.
- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.
 - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 4. Store cementitious products and materials on elevated platforms.
 - 5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 - 6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 7. Protect stored products from damage and liquids from freezing.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
 - 3. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.

- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Engineer will make selection.
 5. Where products are accompanied by the term "match sample," sample to be matched is Engineer's.
 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
 7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
 3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
 4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
 5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
 6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
 7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
 8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.

2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Engineer will consider requests for substitution if received within 15 days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Engineer.

- B. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
 - 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - 2. Requested substitution does not require extensive revisions to the Contract Documents.
 - 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - 4. Substitution request is fully documented and properly submitted.
 - 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
 - 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - 7. Requested substitution is compatible with other portions of the Work.
 - 8. Requested substitution has been coordinated with other portions of the Work.
 - 9. Requested substitution provides specified warranty.

2.3 COMPARABLE PRODUCTS

- A. Conditions: Engineer will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
 - 1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 - 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - 3. Evidence that proposed product provides specified warranty.
 - 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 - 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

SECTION 33 01 30.11 – TELEVISION INSPECTION OF SEWERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Work shall include the furnishing of all labor, materials, tools, equipment, and services necessary for the visual inspection by means of closed-circuit television of the sanitary sewer shown on the drawings and/or as herein required.
- B. This Section Includes:
 - 1. Television inspection of sewers

1.3 DESCRIPTION OF WORK

- A. This work shall include preparation, and CCTV televising of interceptor, mainline sewers and structures, including removal of all debris, for condition assessment inspections.
- B. Contractor is expected to use Owner-approved software to record infrastructure data and observations during camera inspection.
- C. All labor, materials, software, and hardware costs required to complete this work shall be considered incidental to the various bid items of work and shall not be paid for separately.
- D. All sewer inspections and reporting shall conform to all applicable requirements of the most current National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP) and Manhole Assessment Certification Program (MACP), and shall be performed by PACP and/or MACP certified technicians specific to the type of inspection being performed. PACP/MACP certification numbers for technicians shall be included with submittals.
- E. Contractor shall have a cleaning crew on call for any emergency situations.
- F. All water necessary to complete work operations shall be coordinated with the local agencies having jurisdiction to provide access to structures and flushing water from designated fire hydrants. The Contractor shall update the Owner/Engineer regarding the coordination of these items and record the amount of water used in gallons each day.
- G. The Owner will not provide a dump site for disposal of debris removed from sewers as this and all associated costs shall be the Contractor's responsibility.
- H. Time spent on startup or shut down for televising, shall not be recorded separately. Downtime for abandoned runs that require cleaning shall be considered included in these items of work.

1.4 QUALITY ASSURANCE

- A. Reference Standards

1. Performance and material requirements shall meet specific Reference Standards referred to hereinafter under individual items.
- B. General Conditions
 1. This section shall conform to the Standard General Conditions of the Construction Contract.
- C. Testing
 1. No testing.

1.5 QUALIFICATIONS

- A. Operations of Closed Circuit Television (CCTV) equipment are to be controlled by a PACP/MACP-certified technician at the control panel.
- B. Evidence of NASSCO certification shall be submitted for that person at the preconstruction meeting. In order to obtain consistent observation coding, a single person, identified at the pre-construction meeting, shall be responsible for coding. This person may not be replaced without prior approval by the Engineer.
- C. The service provider performing the sanitary sewer video inspection shall demonstrate at least 5 years of experience conducting PACP/MACP certified sewer inspections.

1.6 SUBMITTALS

- A. At the end of the first day of work commencement, samples of the reports and videos collected shall be submitted to the onsite representative for review and acceptance by the Engineer.
 1. Electronic submittals to the onsite representative shall be in form of a USB flash drive / external hard drive supplied by the Contractor.
 - a. Following the delivery of the electronic submittal to the Engineer, its contents will be stored at the Engineer's office, and the flash drive / hard drive can be returned to the Contractor at their request.
- B. At the end of each day for which an asset was televised, the Contractor shall provide a hard copy pipe graphic report for each asset containing the date of the inspection and the length / depth televised for that asset.
- C. Prior to the end of each month for which a pay application is submitted, the Contractor shall submit a flash drive / external drive containing all the work applicable to that application. Only items contained on that submittal may be considered eligible for that application.
- D. Upon substantial completion of the project, Contractor shall furnish the following submittals:
 1. Two completed copies of the inspection reports
 - a. One hard copy
 - b. One electronic format

2. One final portable hard drive containing videos in a file format suitable for viewing in
 - a. Windows Media Player
 - b. VLC Media Player
 - c. An acceptable viewing software provided all videos and inspection reports.
- E. The Owner and Engineer reserves the right to request further flash drives / hard drives at any time throughout the duration of the project.
- F. General Submittal Characteristics
 1. Reports shall be filled out in their entirety and referenced to the video that contains the televised asset.
 2. Videos shall be color, high resolution, of digital quality, and also contain identifying asset ID labels for sewers and structures within the file path or be organized in a manner that allows for easy asset identification.
 3. NASSCO coding format is required including a list of defects encountered as well as a map of the sewer showing the relevant structures and pipelines in correct spatial proportions.
 4. Reports shall contain pipe graphics detailing the location of each observation with condition coding, grading, and observation family along the graphic.
 5. Reports shall contain quick ratings for each asset corresponding to the observations noted along the pipe graphic. Quick ratings shall apply to both PACP and MACP and include structural, O&M, and Overall known as QSR, QMR, and QOR, respectively.
 6. Reports shall contain pipe rating indices for each asset corresponding to the observations noted along the pipe graphic. Rating indices shall apply to both PACP and MACP.
 - a. Piping include structural, O&M, and Overall indices known as SPRI, MPRI, and OPRI, respectively.
 - b. Structures and manholes include structural, O&M, and Overall indices known as SMRI, MMRI, and OMRI, respectively.

1.7 EXISTING INFORMATION

A. Site Conditions

1. It is required that the Contractor familiarize himself/herself with site and working conditions by making a personal examination of the site or sites and its surroundings.

PART 2 PRODUCTS

2.1 None

PART 3 EXECUTION

3.1 EQUIPMENT

- A. Contractor shall notify residents/businesses of the local municipality regarding work and have cleaning crew on call for any emergency situations.
- B. The Contractor shall provide all equipment necessary for the proper rodding, bucketing, brushing, flushing, and dewatering of the sewers prior to televising.
- C. Necessary pulleys and supports shall be installed in structures so as not to restrict work or damage the existing structures.
- D. Camera equipment shall consist of a self-contained, closed circuit color pan-and- tilt camera and monitoring unit and/or a 3D optical scanner capable of digital panoramic imagery.
- E. A self-propelled unit must be made available as-required for instances where a sled-mounted camera cannot inspect, such as dead end sewer lines. The use of self-propelled camera units shall be considered included in these contract items.

3.2 CLOSED CIRCUIT TELEVISION (CCTV)

- A. The Contractor shall furnish all labor, electronic equipment, and technicians to perform the televising of the sewers and structures. Operations of the equipment are to be controlled from above ground with a skilled, PACP/MACP-certified technician at the control panel in the television studio, controlling the movement of the television camera. The technician shall have the capability to adjust the brilliance of the built-in lighting system and be able to change the focus of the television camera by remote control.
- B. The view seen by the television camera shall be transmitted to a monitor of not less than 17 inches. The monitor shall be located inside a mobile TV studio. The stationing of the television camera shall be continuously displayed on the television monitor while the sewer line is inspected. The Contractor's mobile studio shall be large enough to accommodate up to 3 people for the purpose of viewing the monitor while the inspection is in progress. The Owner's representative shall have access to view the television screen at all times.
- C. The electricity for all operations will be furnished by the Contractor. If required to improve the quality of the television inspection, a ventilating system shall be furnished and installed between structure sections at the Contractor's expense.
- D. If there is interference in the sewer line that will not allow the television camera to pass, then the camera shall be backed out of the line and an attempt shall be made to televise the line from the structure at the other end. If the entire length of sewer cannot be televised because of two or more obstructions, then the Owner/Engineer shall be notified and a determination of how to proceed shall be made in a reasonable period of time.
- E. Should any manhole rehabilitation be required, a pre-inspection and post-inspection video must be provided by the Contractor. Manholes shall be cleaned prior to the pre-inspection video. Post-inspection videos shall provide a representative view of the final structure following rehabilitation at the end of the project. Inspection reports, videos, and other related files shall become the property of the Owner.

END OF SECTION

SECTION 33 01 30.12 – MULTIPLE SENSOR INSPECTION OF SEWERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Work shall include the furnishing of all labor, materials, tools, equipment, benefits, insurance, transportation, and other related services necessary for conducting CCTV, Laser, Sonar, and Gas inspections of sanitary sewer as shown on the drawings and/or as herein required. The deployment shall provide a three-dimensional representation of internal pipe conditions about the flow line using laser/LiDAR measurement and below the flow line using sonar measurement and both combined with HD imaging.
- B. The Contractor shall format all reports and furnish certifications as required by NASSCO guidelines and the existing collection system management software in use related to Inspection services for the OWNER. In addition to such visual defects that are identified during the inspection, the contractor shall gather quantitative data sufficient to view the results in the existing collection system management software to understand levels of corrosion, deformation, and sedimentation within the pipelines.
- C. All of the services provided by The Contractor shall be completed in a good and workmanlike manner. All services provided by The Contractor shall be in compliance with all applicable statutes, rules, ordinances and regulations of, but not limited to, the USEPA, MDOT, MDEQ, MIOSHA, and local laws or regulations applicable to the Contractor or to the services described herein.
- D. The Contractor's personnel shall comply with all stated OWNER work rules and regulations when on site.
- E. The services furnished by The Contractor shall be subject to inspection and approval by the OWNER'S designated representative, but the manner and method of providing the services shall be the responsibility of The Contractor.
- F. This Section Includes:
 - 1. Multiple sensor inspection of sewers.
- G. Related Sections
 - 1. Division 33 Section "Television Inspection of Sewers."
 - 2. Division 33 Section "GIS/AM Compatible Electronic Database for Sanitary Assets."

1.3 DESCRIPTION OF WORK

- A. The purpose of this specification is to detail the minimum requirements for a condition assessment utilizing Multiple Sensor Inspection (MSI) technologies to enable condition-based asset management of interceptors and other large diameter pipelines.

- B. Manholes and other structures shall be field located prior to pipe inspection. Structure numbers used in documentation of the inspection shall conform to the manhole numbering system used in the Owner's GIS Software.
- C. Using a stable platform (tracked or winched), MSI technology shall perform CCTV, Laser, Sonar, and Gas inspections simultaneously with a single transport setup and that can be integrated into a single dataset.
- D. Following onsite inspection, offsite data processing shall occur.

1.4 QUALITY ASSURANCE

- A. Reference Standards
 - 1. Performance and material requirements shall meet specific Reference Standards referred to hereinafter under individual items.
- B. General Conditions
 - 1. This Section shall conform to the Standard General Conditions of the Project Manual.
- C. Evaluation
 - 1. Contractor shall perform an independent QA/QC review by a NASSCO PACP certified evaluator (with 1 year minimum documented experience) prior to delivering any formal submittals to the Engineer.

1.5 QUALIFICATIONS

- A. The service provider performing the multi-sensor inspection shall demonstrate at least three (3) years of experience conducting multi-sensor sewer inspections containing simultaneous video, sonar, gas, and laser data capture.
 - 1. Sample MSI reports shall be provided within 30 days, demonstrating satisfactory deliverable and sensor reporting capability.
- B. At all times during CCTV inspection, a PACP certified operator shall be used to operate the inspection equipment and code the inspection. Under no circumstances shall non-certified personnel operate equipment or code observations.
- C. The Contractor shall provide certification that they have undergone training prior to undertaking internal condition assessment. Defects Coding, as well as Material, Shape and Lining Coding used throughout the project shall conform to The Pipeline Assessment Certification Program (PACP).
- D. The Contractor shall provide sufficient Inspection units and all relevant ancillary equipment, including standby units in the event of breakdown, in order to complete all sewer Inspections as specified.

1.6 MINIMUM REQUIREMENTS

- A. The inspection platform shall at a minimum be equipped with all of the following sensors and assessment devices, which shall operate and log data continuously and simultaneously throughout the inspection:
1. CCTV Camera shall visually assess the pipeline interior for defects. The camera shall be waterproof and corrosion resistant with a minimum resolution of 460 NTSC TV lines with a minimum 40:1 zoom lens. The equipment shall either enable the operator to provide a live feed, full 360-degree pan, tilt, and zoom during the inspection, or shall capture wide-angle images of at least 3 megapixel resolution that can be immediately visually assessed without complex processing after completion of the inspection. The multi-sensor inspection platform shall be equipped with LED lights of at least 4,500 lumens that can illuminate the pipe interior sufficiently for visual condition assessment. The CCTV video system shall be capable of transmitting from an underground pipe environment to a surfaced controlled module without loss of clarity.
 2. Laser Profiler or LIDAR (Light Detection and Ranging) to accurately measure and model the interior pipe wall and geometry above the flow level. All laser devices must be eye-safe as per the US - IEC 60825-1 standard, as well as, comply with all local, state, and federal requirements. Laser devices shall measure the interior pipe wall geometry to 0.25% of true diameter.
 3. Profiling Sonar shall measure the 360-degree profile of the submerged portion of the pipeline interior. The sonar shall measure 1 profile slice per second and capable of creating continuous sonar images recorded in real time.
 4. The gas and temperature inspection shall measure H₂S concentrations and air temperature continuously along the pipe alignment. Gas detection, measured in ppm, shall be illustrated in a graph and table format. The range of the instrumentation shall be from 0 ppm to 200 ppm and capable of operating in temperatures of -50F to 102F and pressures that vary from atmospheric by +/- 10%. Sensor resolution shall be in 0.1 ppm with an accuracy of +/- 1.0 ppm.
- B. The multi-sensor inspection equipment shall be capable of inspections of 6,500 ft or greater whether traversing downstream, upstream, or a combination thereof. The inspection equipment shall be capable of inspecting either upstream or downstream from a given access point in no flow or active flow conditions.

1.7 SUBMITTALS

- A. A PDF or electronic report shall be generated for each structure-to-structure segment that is inspected. A 'flat' view of the manhole-to-manhole segment based on geometric measurements, color-coded to show areas of corrosion, sedimentation, and ovality.
1. Contractor shall provide an electronic copy on external hard drive, including but not limited to:
 - a. MSI inspection videos in sequential order.
 - b. Inspection reports in PDF format.
 - c. Digital files in a format ready for import into IT PIPE software.

- d. Digital images of defects, observations, sonar results, Laser/LiDar data, and other results of the MSI inspection.
 - e. All data obtained during the MSI inspection stored in viewer software that simultaneously displays the results of each technology (Laser/LiDAR, Sonar, HD Image, and Gas/Temperature data as the equipment moves along the pipe segment. Delivery of viewer software will be at no cost to the Owner or Engineer.
 - f. All Owner and PACP required information must be fully and accurately entered on all videos and reports. Work not following these specifications may be rejected and at the Contractor's full expense to correct or reproduce.
- B. Provide sample MSI reports and submittals. At the end of the first day of MSI work commencement, samples of the reports and videos collected for at least one segment shall be submitted to the onsite representative for review and acceptance by the Engineer prior to continuing work.
- 1. CCTV
 - a. The same requirements from 33 01 30.11 Television Inspection of Sewers.
 - b. CCTV inspection of the pipeline and the preparation of all video, digital, and written reports.
 - c. CCTV observations and PACP defect codes and their respective locations, both in clocking angle and in length along the alignment from the access point.
 - d. Must meet NASSCO PACP standards.
 - 2. Laser
 - a. Internal Diameter and Deflection graphs.
 - b. Internal pipe wall material loss/gain or deformation at a given payout location and clocking angle.
 - c. Pipe cross-sections obtained from precision high resolution scans will be used to provide quantitative information regarding internal pipe diameter, including ovality.
 - d. Ovality measurements (graph or tabular) and location in semi rigid or deformable conduit.
 - e. Corrosion measurements (graph or tabular) and location in rigid conduit or conduit subject to chemical attack.
 - f. Precision Scans with multi-color indication.
 - g. 2D cross sections.
 - h. Where the presence of fluids in the pipe necessitates interpolation and estimation, calculations to fill gaps must be presented.

3. Sonar
 - a. Sediment measurements at regular intervals (Average Sediment Accumulation).
 - b. Available System Capacity.
 - c. Cumulative Sediment Volume.
 - d. Sonar profile scans measuring sediment cross sections.
 4. Gas
 - a. Hydrogen sulfide gas concentrations.
 - b. Air temperature measurements.
 - c. Correlation of measurements to pipe corrosion and wall thickness.
 - d. Comparison of hydrogen gas concentrations over time.
- C. A copy of the CCTV operator's certificate stating certification or re-certification within the previous five years must be submitted prior to start of CCTV inspection operations.
- D. An electronic database that is compatible with the Owner's existing collection system management software either directly or via import.

PART 2- PRODUCTS

2.1 PRODUCTS

- A. RedZone Robotics technologies
- B. Or approved equal

PART 3 - EXECUTION

3.1 General

- A. The contractor shall furnish and maintain, in good condition, all televising equipment necessary for proper execution of the work.
- B. MSI inspections shall be conducted without cleaning. If the sewer line has too much debris to proceed with any sufficient technologies, the Contractor shall inform the Engineer or Owner of the condition and a work order may be issued for cleaning.
- C. Safety and Emergency Response Plans: Prior to commencing with work, the contractor shall submit written safety and emergency response procedures for review and distribution by the Owner. The plans shall at a minimum, provide primary contact information, 24-hour response information, a work sequencing plan for safety precautions to be used by on-site staff, and provide credentials and certifications of on-site staff to provide adequate safety assurances. The Owner will provide the Contractor any relevant contact information for various Owner representatives and emergency contacts as well as other agencies or jurisdiction contacts that may be required.

- D. Maintaining Flow: It will be the responsibility of the Contractor, throughout the tenure of the contract, to maintain sufficient flow at all times to pass any flash of storm flow of drainage ditches and prevent any backwater flooding due to obstruction caused by CCTV equipment.
1. The Contractor shall not schedule work during periods when the flow levels are unusually high as a result of wet conditions. Owner or Engineer will communicate to Contractor when wet conditions exist. Contractor shall communicate to Owner or Engineer when pipe is more than 40% full.
- E. Tracked, Winched, or Floating Platform/Transport: must be capable of insertion through a minimum 23" diameter circular opening and capable of inspecting pipe segments of a minimum of 6,500 feet with or against the flow, or combination thereof. The platform shall be equipped with real-time monitoring equipment in partially or fully submerged conditions. The platform must provide simultaneous collection of multiple sensor data. In the event certain conditions prevent the use of a tracked platform, such as flow, sediments, large distance between access points, or other obstacles, a floated platform may be utilized to complete the inspections if agreed upon by the Owner. The platform must be capable of skid-based operations where the platform can be pulled across the pipe surface or sediments in low flow conditions.
- F. Contractor shall use experience and judgment in selecting the technologies to use for all inspections, if conditions preclude proceeding with any of the technologies, Contractor shall use experience and judgment of what technologies to deploy.
- G. Contractor shall use MSI equipment appropriate for the size of the pipe and length of runs between access structures for all inspections.
1. The camera lens shall be location at the centerline of the pipe. The maximum speed of the camera during inspection shall not exceed 30 feet per minute.
- H. Retrieval of Materials and Equipment: It shall be the Contractor's responsibility to remove materials and equipment that has been lodged in the sewer from any cleaning, television inspection, or excavations. The costs associated with any required excavation, restoration of roads and easements, repairs to pipes and structures as needed to restore the pipeline and appurtenances back to their original shape shall be the full responsibility of the Contractor.
- I. The contractor shall not trespass upon or in any way disturb private property without written permission for the property owner. A copy shall be provided to the Owner prior to accessing the site. After work is completed, the Contractor shall obtain a written release from the property owner stating that restoration is completed. A copy of this release shall be provided to the Owner.
- J. Work Schedule: This schedule shall outline the sequence in which the Contractor proposes to conduct his operations and shall be approved by the Owner before work is started. The Contractor shall use a time-scaled logic diagram format. The level of detail of activities shall provide clear, concise communication of the plan of work. At a minimum, activities showing initial mobilization, start-up, cleaning and/or televising, access structure modifications, and restoration shall be included.
- K. Original and updated schedules must be provided to the Owner in writing. The software used for producing the schedules must have the capability to tailor the form and format of schedules, and accompanying reports, to the Owner's requirements.

- L. The Owner may require additional updates to the schedule as changes occur. These additional updates will be submitted to the Owner within 24 hours of the request. Changes to the schedule are subject to approval of the Owner.

END OF SECTION 01 30.12

SECTION 33 90 00 – GIS/AM COMPATIBLE ELECTRONIC DATABASE FOR SANITARY ASSETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This work shall include the furnishing of all labor, materials, tools, equipment, and services necessary for creation of an electronic database for sanitary assets for implementation into Geographic Information Systems (GIS) and Asset Management (AM) databases.
- B. This Section Includes:
 - 1. Electronic GIS Database submission
 - 2. Final submittal and software viewer specifications

1.3 SUBMITTALS

- A. See EXECUTION below

PART 2 - PRODUCTS

- 2.1 None

PART 3 - EXECUTION

- 3.1 Upon substantial completion of the project, Contractor shall furnish the following submittals:

- A. Two completed copies of the inspection reports
 - 1. One hard copy
 - 2. One electronic format
- B. One final portable hard drive containing videos and databases in a file format suitable for:
 - 1. Windows Media Player
 - 2. VLC Media Player
 - 3. SCREAM – condition assessment tool
 - 4. IT PIPES (digital file for import must be prepared by the Contractor)
 - 5. An acceptable viewing software provided all videos and inspection reports must be capable of displaying all multi-sensor data.

3.2 Database Requirements

- A. NASSCO coding format is required. Database shall contain all mandatory fields from the latest NASSCO PACP handbook. The final digital product submitted shall be provided in a NAASCO PACP format that can be imported in the Owners GIS software.
 - B. MACP fields include all fields required for level 2 inspections.
 - C. All data shall have the ability to be easily edited by the Engineer.
 - D. A tabulation of observations encountered during inspection assigned with an ID to link them the asset they occur on. Distances from the start structure shall also be tabulated with these observations
 - E. A tabulation of quick ratings is required for all assets including structural, O&M, and Overall Quick Ratings, respectively known as
 - 1. QSR
 - 2. QMR
 - 3. QOR
 - F. A tabulation of pipe rating indices is required for all assets including structural, O&M, and Overall Pipe Rating Indices, respectively known as
 - 1. PACP Piping
 - a. SPRI
 - b. MPRI
 - c. OPRI
 - 2. MACP Structures
 - a. SMRI
 - b. MMRI
 - c. OMRI
- 3.3 Final deliverable package and database will be reviewed by the Engineer prior to final completion.
- 3.4 Any submittal deficiencies will be noted in formal correspondence by the Engineer to the Contractor. Contractor shall respond to each noted deficiency via formal correspondence on the Contractor's letterhead.
- 3.5 Once the Engineer agrees that all deficiencies have been satisfactorily addressed, the Contractor shall re-submit the final deliverable package and database. Final completion will not be reached until the Engineer receives a fully corrected final package.

END OF SECTION

APPENDIX

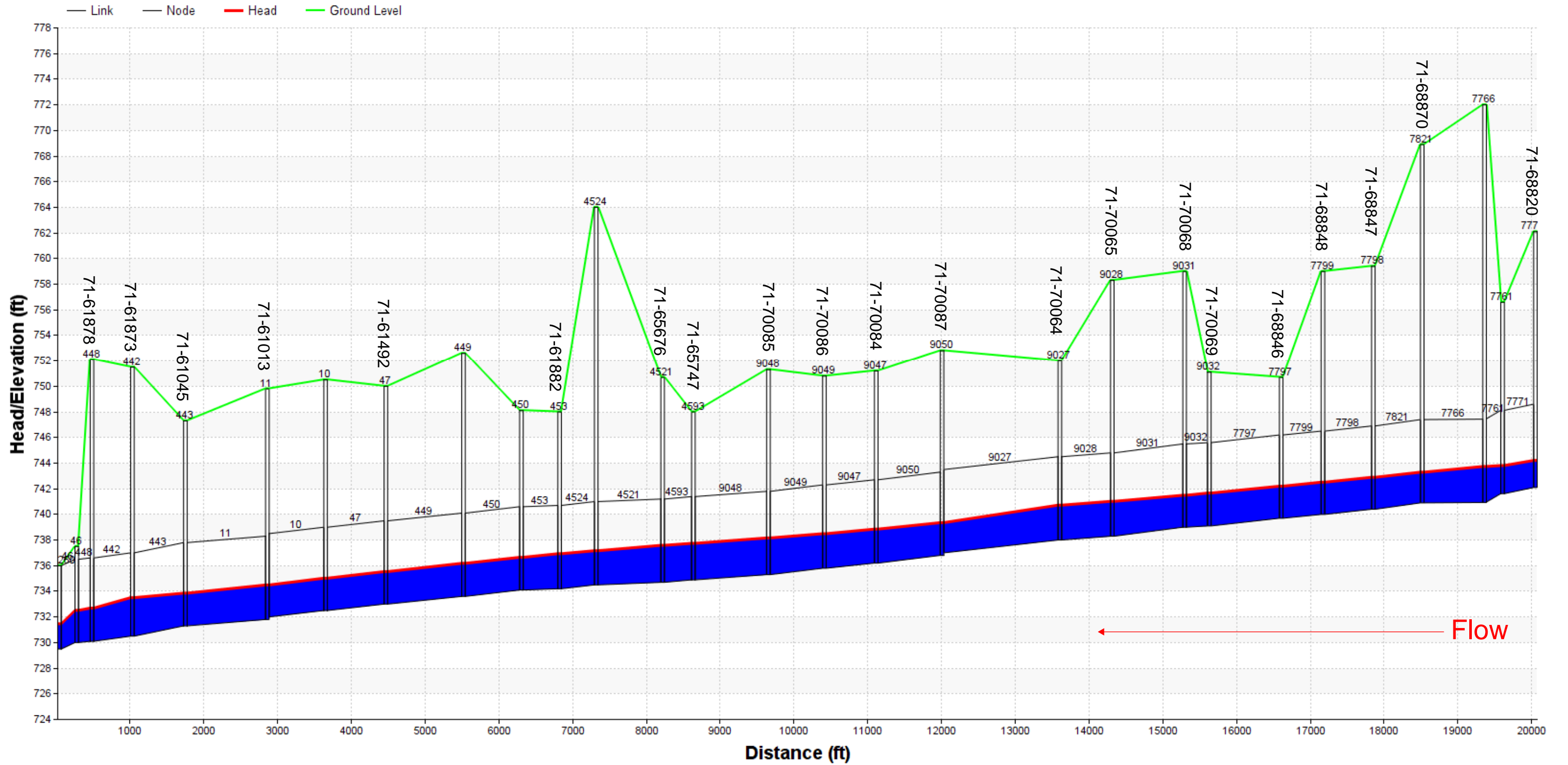
Appendix A: Northside Interceptor Dry Weather Flow Profile

Appendix B: Access Map for Concordia University

Appendix A:

Northside Interceptor Dry Weather Flow Profile

Ann Arbor Northern Interceptor with Diameter of 78 inches



Appendix B:

Access Map for Concordia University



ACCESS FROM
GEDDES RD HERE

PRIVATE PROPERTY
CONCORDIA UNIVERSITY

STAGING AREA

USE EXISTING GRAVEL DRIVE
THROUGH WOODS

MH 71-61492

78" Northside Interceptor

78" Northside Interceptor

H u r o n

ATTACHMENTS

CITY OF ANN ARBOR
LIVING WAGE ORDINANCE DECLARATION OF COMPLIANCE

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that an employer who is (a) a contractor providing services to or for the City for a value greater than \$10,000 for any twelve-month contract term, or (b) a recipient of federal, state, or local grant funding administered by the City for a value greater than \$10,000, or (c) a recipient of financial assistance awarded by the City for a value greater than \$10,000, shall pay its employees a prescribed minimum level of compensation (i.e., Living Wage) for the time those employees perform work on the contract or in connection with the grant or financial assistance. The Living Wage must be paid to these employees for the length of the contract/program.

Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from compliance with the Living Wage Ordinance. If this exemption applies to your company/non-profit agency please check here No. of employees__

The Contractor or Grantee agrees:

- (a) To pay each of its employees whose wage level is not required to comply with federal, state or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as \$13.13/hour for those employers that provide employee health care (as defined in the Ordinance at Section 1:815 Sec. 1 (a)), or no less than \$14.65/hour for those employers that do not provide health care. The Contractor or Grantor understands that the Living Wage is adjusted and established annually on April 30 in accordance with the Ordinance and covered employers shall be required to pay the adjusted amount thereafter to be in compliance (Section 1:815(3)).

Check the applicable box below which applies to your workforce


- Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage without health benefits
- Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage with health benefits

- (b) To post a notice approved by the City regarding the applicability of the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.
- (e) To take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee covered by the Living Wage Ordinance or any person contracted for employment and covered by the Living Wage Ordinance in order to pay the living wage required by the Living Wage Ordinance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services or agrees to accept financial assistance in accordance with the terms of the Living Wage Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Living Wage Ordinance, obligates the Employer/Grantee to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract or grant of financial assistance.

RedZone Robotics Inc.
Company Name

91 43rd Street
Street Address

 January 30, 2018
Signature of Authorized Representative Date

Pittsburgh PA, 15201
City, State, Zip

Dan Yingst, Chief Executive Officer
Print Name and Title

412-476-8980 ext. 298
Phone/Email address

**CITY OF ANN ARBOR
LIVING WAGE ORDINANCE**

RATE EFFECTIVE APRIL 30, 2017 - ENDING APRIL 29, 2018

\$13.13 per hour

If the employer provides health care benefits*

\$14.65 per hour

If the employer does **NOT** provide health care benefits*

Employers providing services to or for the City of Ann Arbor or recipients of grants or financial assistance from the City of Ann Arbor for a value of more than \$10,000 in a twelve-month period of time must pay those employees performing work on a City of Ann Arbor contract or grant, the above living wage.

ENFORCEMENT

The City of Ann Arbor may recover back wages either administratively or through court action for the employees that have been underpaid in violation of the law. Persons denied payment of the living wage have the right to bring a civil action for damages in addition to any action taken by the City.

Violation of this Ordinance is punishable by fines of not more than \$500/violation plus costs, with each day being considered a separate violation. Additionally, the City of Ann Arbor has the right to modify, terminate, cancel or suspend a contract in the event of a violation of the Ordinance.

* Health Care benefits include those paid for by the employer or making an employer contribution toward the purchase of health care. The employee contribution must not exceed \$.50 an hour for an average work week; and the employer cost or contribution must equal no less than \$1/hr for the average work week.

The Law Requires Employers to Display This Poster Where Employees Can Readily See It.

**For Additional Information or to File a Complaint Contact:
Colin Spencer at 734/794-6500 or cspencer@a2gov.org**



Vendor Conflict of Interest Disclosure Form

All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor's conflict of interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

1. No City official or employee or City employee's immediate family member has an ownership interest in vendor's company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor's Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Conflict of Interest Disclosure*	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	<input type="checkbox"/> Relationship to employee <input type="checkbox"/> Interest in vendor's company <input type="checkbox"/> Other (please describe in box below)
NA	

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that this Conflict of Interest Disclosure has been examined by me and that its contents are true and correct to my knowledge and belief and I have the authority to so certify on behalf of the Vendor by my signature below:		
RedZone Robotics Inc.	412-476-8980	
Vendor Name	Vendor Phone Number	
	1/30/2018	Dan Yingst, Chief Executive Officer
Signature of Vendor Authorized Representative	Date	Printed Name of Vendor Authorized Representative

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500, procurement@a2gov.org

**CITY OF ANN ARBOR
DECLARATION OF COMPLIANCE**

Non-Discrimination Ordinance

The "non discrimination by city contractors" provision of the City of Ann Arbor Non-Discrimination Ordinance (Ann Arbor City Code Chapter 112, Section 9:158) requires all contractors proposing to do business with the City to treat employees in a manner which provides equal employment opportunity and does not discriminate against any of their employees, any City employee working with them, or any applicant for employment on the basis of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight. It also requires that the contractors include a similar provision in all subcontracts that they execute for City work or programs.

In addition the City Non-Discrimination Ordinance requires that all contractors proposing to do business with the City of Ann Arbor must satisfy the contract compliance administrative policy adopted by the City Administrator. A copy of that policy may be obtained from the Purchasing Manager

The Contractor agrees:

- (a) To comply with the terms of the City of Ann Arbor's Non-Discrimination Ordinance and contract compliance administrative policy, including but not limited to an acceptable affirmative action program if applicable.
- (b) To post the City of Ann Arbor's Non-Discrimination Ordinance Notice in every work place or other location in which employees or other persons are contracted to provide services under a contract with the City.
- (c) To provide documentation within the specified time frame in connection with any workforce verification, compliance review or complaint investigation.
- (d) To permit access to employees and work sites to City representatives for the purposes of monitoring compliance, or investigating complaints of non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the Ann Arbor Non-Discrimination Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Non-Discrimination Ordinance, obligates the Contractor to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract.

RedZone Robotics Inc.

Company Name



January 30, 2018

Signature of Authorized Representative

Date

Dan Yingst, Chief Executive Officer

Print Name and Title

91 43rd Street, Pittsburgh PA 15201

Address, City, State, Zip

412-476-8980 ext. 298 dyingst@redzone.com

Phone/Email Address

Questions about the Notice or the City Administrative Policy, Please contact:
Procurement Office of the City of Ann Arbor
(734) 794-6500

CITY OF ANN ARBOR NON-DISCRIMINATION ORDINANCE

Relevant provisions of Chapter 112, Nondiscrimination, of the Ann Arbor City Code are included below.
You can review the entire ordinance at www.a2gov.org/humanrights.

Intent: It is the intent of the city that no individual be denied equal protection of the laws; nor shall any individual be denied the enjoyment of his or her civil or political rights or be discriminated against because of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight.

Discriminatory Employment Practices: No person shall discriminate in the hire, employment, compensation, work classifications, conditions or terms, promotion or demotion, or termination of employment of any individual. No person shall discriminate in limiting membership, conditions of membership or termination of membership in any labor union or apprenticeship program.

Discriminatory Effects: No person shall adopt, enforce or employ any policy or requirement which has the effect of creating unequal opportunities according to actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight for an individual to obtain housing, employment or public accommodation, except for a bona fide business necessity. Such a necessity does not arise due to a mere inconvenience or because of suspected objection to such a person by neighbors, customers or other persons.

Nondiscrimination by City Contractors: All contractors proposing to do business with the City of Ann Arbor shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All city contractors shall ensure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon any classification protected by this chapter. All contractors shall agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of any applicable protected classification. All contractors shall be required to post a copy of Ann Arbor's Non-Discrimination Ordinance at all work locations where its employees provide services under a contract with the city.

Complaint Procedure: If any individual believes there has been a violation of this chapter, he/she may file a complaint with the City's Human Rights Commission. The complaint must be filed within 180 calendar days from the date of the individual's knowledge of the allegedly discriminatory action or 180 calendar days from the date when the individual should have known of the allegedly discriminatory action. A complaint that is not filed within this timeframe cannot be considered by the Human Rights Commission. To file a complaint, first complete the complaint form, which is available at www.a2gov.org/humanrights. Then submit it to the Human Rights Commission by e-mail (hrc@a2gov.org), by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107), or in person (City Clerk's Office). For further information, please call the commission at 734-794-6141 or e-mail the commission at hrc@a2gov.org.

Private Actions For Damages or Injunctive Relief: To the extent allowed by law, an individual who is the victim of discriminatory action in violation of this chapter may bring a civil action for appropriate injunctive relief or damages or both against the person(s) who acted in violation of this chapter.

THIS IS AN OFFICIAL GOVERNMENT NOTICE AND
MUST BE DISPLAYED WHERE EMPLOYEES CAN READILY SEE IT.