ADDENDUM No. 1

RFP No. 23-61

Crescents
Water Main Replacement and Resurfacing

Due Date: December 19, 2023 by 3:00 p.m. (local time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum includes a total of 40 pages.**

The Proposer is to acknowledge **receipt of this Addendum No. 1 by signing and submitting attachment B,** including all attachments in its Proposal by so indicating in the proposal that the addendum has been received. Proposals submitted without acknowledgement of receipt of this addendum may be considered non-conforming.

The following forms provided within the RFP Document should be included in submitted proposal:

- **Attachment D - Prevailing Wage Declaration of Compliance**
- **Attachment E - Living Wage Declaration of Compliance**
- **Attachment G - Vendor Conflict of Interest Disclosure Form**
- **Attachment H - Non-Discrimination Declaration of Compliance**

Proposals that fail to provide these completed forms listed above upon proposal opening may be rejected as non-responsive and may not be considered for award.

I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the RFP documents which are outlined below are referenced to a page or Section in which they appear conspicuously. Changes highlighted in yellow reflect the changes made in this addendum. Offerors are to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

Section/Page(s)	Change
Schedule of Prices 15-18	Minor quantity revisions, shown as bold. New pay items 462.1 and 462.1 Sacrificial Anodes added New pay item 353.2 4 inch SDR 35 PVC STM Lead, Tr Detail 1B
Replacements DS-47-71	Water Main and Appurtenances
New Content Add#1-1-6	Pre-Proposal Meeting 2023.12.06 Minutes

II. QUESTIONS AND ANSWERS

Are included in the Pre-Proposal Meeting Minutes.

Offerors are responsible for any conclusions that they may draw from the information contained in the Addendum.

E. Schedule of Pricing/Cost – 20 Points

Company:

Project: Crescents Water Main Replacement and Resurfacing Project

File # 2022-012 RFP 23-61

Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
101.1	General Conditions, Max $330,000	LS	1	$	$
102.1	Digital Audio Visual Tape Coverage	LS	1	$	$
120.1	Project Supervision, Max $130,000	LS	1	$	$
140.0	Exploratory Excavation (0-10' deep)	EA	20	$	$
201.0	Allowance for Unforeseen Site Conditions	DLR	120,000	$ 1	$ 120,000
204.0	Minor Traffic Control, Max $150,000	LS	1	$	$
212.0	"No Parking" Signs	EA	100	$	$
215.0	Pedestrian Type II Barricade, Temp	EA	12	$	$
217.0	Temporary Pedestrian Mat	FT	300	$	$
219.0	Barricade Type III - Lighted, Furnish and Operate	EA	23	$	$
220.0	Temporary Sign-Type B, Furnish and Operate	SFT	186	$	$
221.0	Temporary Sign-Type B, Furnish and Operate, Special	SFT	6	$	$
222.0	Plastic Drum - Lighted, Furnish and Operate	EA	50	$	$
223.0	Channelizing Device, 42 Inch, Furnish and Operate	EA	100	$	$
230.0	Protective Fencing	FT	2,000	$	$
235.0	Tree Removal, 8-inch or Larger	EA	38	$	$
320.0	12" CL IV RCP Storm Sewer Pipe, Trench Detail I	FT	1,263	$	$
330.2	6 inch Curb Drain, HDPE DR17, HDD	FT	440	$	$
330.3	Curb Drain, Tap	EA	**7**	$	$
330.4	Curb Drain, Cleanout	EA	4	$	$
353.0	6 inch SDR 35 PVC Sanitary Lead, Trench Detail 1B-[Contingency]	FT	50	$	$
360.1	Dr Structure, 48 inch dia	EA	5	$	$
360.2	Dr Structure, 48 inch dia, Low Point Inlet	EA	2	$	$
361.1	Dr Structure, 48 inch dia, Add Depth	FT	3	$	$
362.1	Sewer Tap, 12 inch	EA	26	$	$
360.4	Dr Structure, 36 inch dia	EA	1	$	$

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Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
360.5	Dr Structure, **36 inch dia**, Add Depth	FT	2	$	$
367.1	Dr Inlet Structure, 24 inch dia	EA	46	$	$
386.2	Structure Remove, Any Size or Depth	EA	50	$	$
385.2	Sewer Remove, Any Size or Depth	FT	1,382	$	$
385.3	Sewer Bulkhead, 12 inch	EA	27	$	$
385.4	Structure, Reconstruct	FT	14	$	$
400.1	6 inch Class 50 DIP w/polywrap, Trench Detail 1A	FT	68	$	$
400.2	8 inch Class 50 DIP w/polywrap, Trench Detail 1A	FT	9,323	$	$
400.3	12 inch Class 50 DIP w/polywrap, Trench Detail 1A	FT	4	$	$
400.4	24 inch Class 50 DIP w/polywrap, Trench Detail 1A	FT	22	$	$
410.1	8" 11.25° Bend	EA	30	$	$
410.2	8" 22.5° Bend	EA	13	$	$
410.3	8" 45° Bend	EA	58	$	$
410.4	8" 90° Bend	EA	2	$	$
410.5	8"x 6" Reducers	EA	16	$	$
410.6	12"x 8" Reducers	EA	1	$	$
430.1	8" x 8" x 8" Tee	EA	25	$	$
430.2	24" x 12 x 24" Tee	EA	1	$	$
430.3	24" Oversized Coupler [Contingency]	EA	2	$	$
440.1	Fire Hydrant Assembly	EA	15	$	$
442.1	8" Gate Valve-in-Box	EA	4	$	$
446.1	8" Gate Valve-in Well	EA	24	$	$
446.2	24" Gate Valve-in-Box	EA	1	$	$
460.0	Excavate & Backfill for Water Service Tap and Lead	FT	2,276	$	$
460.1	Exc & Backfill for Water Service Tap and Lead, Mod	FT	60	$	$
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Company:

Project: Crescents Water Main Replacement and Resurfacing Project

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Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
481.1	Water Main Pipe Abandonment	LS	1	$	$
482.1	Water Main 24-inch Removal	FT	22	$	$
482.1	Gate Valve-in-Box, Abandonment	EA	11	$	$
483.1	Gate Valve-in-Well, Abandonment	EA	6	$	$
484.1	Fire Hydrant Assembly, Remove	EA	10	$	$
485.1	Temporary Water Main Line Stop, Additional Rental Day [Contigency]	EA	7	$	$
485.2	Temporary Water Main Line Stop, 8 inch or less [Contigency]	EA	4	$	$
485.3	Temporary Water Main Line Stop, 10 inch or 12 inch [Contigency]	EA	1	$	$
485.4	Temporary Water Main Line Stop, 24 inch	EA	1	$	$
485.5	Temporary Water Main Line Stop, 24 inch, Mod	EA	1	$	$
500.1	HMA Pavement Removal, Any Depth	SYD	30,781	$	$
502.1	Remove Concrete Curb or Curb & Gutter - Any Type	FT	6,252	$	$
503.1	Remove Concrete Drive - Any Thickness	SFT	6,027	$	$
516.1	6 Inch Wrapped Underdrain	FT	4,711	$	$
520.1	Machine Grading	SYD	30,773	$	$
520.2	Undercutting- Type IIC-[Contingency]	CYD	480	$	$
520.3	Geotextile - [Contingency]	SYD	540	$	$
521.2	Sidewalk Ramp Grading	EA	25	$	$
524.1	Class II Granular Material, C.I.P.	CYD	188	$	$
524.2	21AA Limestone, C.I.P.	CYD	5,250	$	$
532.1	**HMA, 4EL**	TON	7,070	$	$
550.1	Concrete Curb or Curb and Gutter - All Types	FT	4,952	$	$
550.1	Concrete Curb or Curb and Gutter - All Types High Early [Contingency]	FT	100	$	$
552.1	4" Concrete Sidewalk	SFT	2,500	$	$
552.2	Integral Sidewalk Retaining Wall, under 6 inch -[Contingency]	SFT	30	$	$
553.1	**6" Concrete Sidewalk, Ramp, Drive Approach**	SFT	800	$	$

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Company:

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Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
553.2	6" Concrete Drive or Sidewalk - High Early	SFT	2551	$	$
555.2	Driveway Opening, Conc, Detail M - High Early	FT	1476	$	$
557.1	Detectable Warning, Cast In Place	FT	190	$	$
563.1	Structure Covers	EA	93	$	$
566.1	Adjust Structure Cover	EA	119	$	$
567.1	Adjust Monument Box or Gate Valve Box	EA	10	$	$
586.1	Recessing Pavt Mrkg, Transv	SFT	1630	$	$
587.1	Pavt Mrkg, Polyurea, 12 inch, Crosswalk	FT	1570	$	$
587.2	Pavt Mrkg, Polyurea, 24 inch, Stop Bar	FT	90	$	$
702.1	Erosion Control, Inlet Filter	EA	75	$	$
703.1	Erosion Control, Silt Fence	FT	150	$	$
882.1	Turf establishment	SYD	10360	$	$
891.1	Site Clean-up	LS	1	$	$
892.1	Irrigation System, Repair	DLR	10,000	$ 1	$ 10,000
900.0	Tree, 2 inch caliper, Medium Shade Trees	EA	20	$	$
900.0	Tree, 3 inch caliper, Large Shade Trees	EA	18	$	$
462.1	**Sacrificial Anode, 17 lbs**	**EA**	**3**	$	$
462.2	**Sacrificial Anode, 32 lbs**	**EA**	**5**	$	$
353.2	**4 inch SDR 35 PVC STM Lead, Tr Detail 1B- [Contingency]**	**FT**	**50**	$	$

TOTAL THIS PAGE 18	$
TOTAL FROM PAGE 15	$
TOTAL FROM PAGE 16	$
TOTAL FROM PAGE 17	$
TOTAL BASE BID	$

Description

The Contractor shall furnish all labor, equipment, pipe, valves, fittings, restrained-joint pipe, restrained-joint gaskets, special gaskets as detailed on the plans and in the specification, polywrap, blow-off assemblies, fire hydrants, fire hydrant extensions, and all other materials necessary to complete the work as shown on the Plans, as detailed in this Detailed Specification, and as directed by the Engineer.

All water main installation and testing procedures shall be performed in accordance with the plans, the requirements of this Detailed Specification, and as directed by the Engineer. The Contractor shall excavate all trenches and pits to the required dimensions; sheet, brace, and properly support the adjoining ground or structures where necessary to comply with MIOSHA, Section 104.07.B of the MDOT 2020 Standard Specifications for Construction, and other relevant safety standards.

The work for all items shall include, but not be limited to; pavement saw-cutting; excavation and disposal of excavated material; connections to new and existing water mains; the furnishing and installation of solid sleeves and push-on-joint plugs where needed; the furnishing, installation, and removal of sheeting and/or shoring where needed; all items necessary for the protection of the trench and all persons employed in the work during the work day and “after-hours” periods; polywrap; the furnishing, placement and compaction of approved bedding and backfill materials; thrust blocks; additional labor and equipment costs associated with any required nighttime water main work; cleaning, disinfecting, flushing, bacteriological and hydrostatic testing; and any other required items to complete the work as shown on the plans, as detailed in this Detailed Specification, and as directed by the Engineer.

The work of installing a gate valve-in-well shall include installation and backfill of the specified valve, furnishing and installing pre-cast concrete gate wells including the concrete base, straight pre-cast concrete sections, transition sections, frame, cover, and the adjustment of the structure cover.

Upon completion of the work, the Contractor shall clean the Gate Well to the approval of the Engineer.

The cost of adjusting new gate valve-in-boxes shall be included in the unit price for Gate Valve-in-Box and shall not be paid for separately.

The fire hydrant assembly work shall include the hydrant, the 6-inch gate valve-in-box, 3 feet of 6-inch pipe, the thrust block, and any required extensions to install the fire hydrant to the finish grade as shown on the plans.

Materials

1. Submittals. Prior to beginning construction, the Contractor shall submit the following:

A. Product data on all ductile iron pipe, valves, fittings, asbestos concrete pipe to ductile iron pipe fittings, and hydrants.

B. Manufacturer's certifications on all pipe, fittings, and precast concrete units indicating that all materials meet the minimum requirements of these specifications.

C. Information on equipment and methods to be used for flushing, chlorination, pressure, and bacteriological testing.

2. General Specifications.

A. Cast Ductile Iron Pipe and Fittings:

Cast ductile iron pipe shall be Iron Grade 60-42-10 and meet the requirements of ANSI/AWWA C151/A21.51 in all respects; with standard thickness cement mortar lining and asphaltic seal coat in accordance with ANSI/AWWA C104/A21.4; and, coated outside with an asphaltic coating in accordance with ANSI/AWWA C151/A21.51. 100% of the ferrous metals used in the manufacture of cast ductile iron pipe shall be recycled from scrap and other sources.

All pipe (except for pipe in bored steel casing) shall be Thickness Class 50 (Table 50.15, ANSI/AWWA C150/A21.50). Pipe in bored steel casing under railroad shall be Thickness Class 56.

Cast ductile iron river crossing pipe shall be Clow Corp. "F-141 River Crossing Pipe", U.S. Pipe "USIFLEX Boltless Flexible Joint Pipe" or equal approved by the Engineer and shall be thickness Class 56 minimum. The pipe shall have a boltless flexible joint of the ball and socket type, and be designed for, and rated at, a minimum interior working water pressure of 250 psi.

Restrained joint pipe, where called for on the Plans, shall be boltless, factory-manufactured restrained joints gaskets for ductile iron pipe and fittings sizes 4-inch to 24-inch in diameter; utilizing Field Lok™ by US Pipe or Fast Grip by American Ductile Iron Pipe gaskets or approved equal. All gaskets shall be Tyton or Fast Tite joint in design with corrosion resistant stainless steel locking teeth vulcanized into the rubber. All restraining gaskets sizes 4-inches to 12-inches in diameter shall be functional for 350 psi operating pressure with a 2:1 safety factor and allowed for complete joint deflection of 5 degrees.

Cast ductile iron fittings shall be push-on joint (with the exception of solid sleeves and fire hydrants which shall be mechanical joint), meeting the requirements of ANSI/AWWA C110/A21.10 for short body cast iron fittings. Fittings shall have a cement mortar lining and asphaltic seal coat in accordance with ANSI/AWWA C104/A21.4 and ANSI/AWWA C110/A21.10. The outside of all fittings shall have an asphaltic coating in accordance with ANSI/AWWA C110/A21.10.

Solid sleeves shall be long-pattern sleeves.

B. Gate Valves and Gate Valve Boxes:

All gate valves shall be resilient seated meeting the requirements of AWWA C509. All valves shall be of the push-on joint type, unless used on tapping sleeve assemblies, or noted otherwise on the plans. The valves supplied shall be:

a. Metroseal 250 Resilient Seated Gate Valve as manufactured by U.S. Pipe & Foundry Company
b. U. S. Pipe and Foundry Tyton Joint, Resilient Wedge Seated Gate Valve, meeting the requirements of AWWA C 509, AWWA C550, and ASTM D 2794
c. American Flow Control, Series 2500, Single Resilient Wedge
d. East Jordan Iron Works FlowMaster Resilient Wedge Valve
e. Mueller Series, 4" through 12", A-2360-38, Resilient Wedge – SL x SL
f. Tyler Series DRS 250-22 Double Resilient Wedge

All valves shall come equipped with a two-inch square operating nut, opening right.

Valve Boxes shall be as described in the "Structure Covers" Detailed Specification. Contractor shall use a No. 6 Base for a valve 8 inches or less and a No. 8 base for 10- and 12-inch valves.

C. Gate Valve Wells:

Pre-cast reinforced concrete bases, bottom sections, manhole risers, grade adjustment rings, concentric cones, eccentric cones, and flat-slab tops shall conform to the requirements of ASTM C-478. Joints on precast gate wells shall meet the requirements of ASTM C-443, rubber O-ring gasket.

Flat-slab top, pre-cast, gate wells shall be designed to accommodate HS-20 Live Load requirements as determined by a Professional Engineer licensed by the State of Michigan, regardless of where they are to be installed.

D. Fire Hydrants:

Fire hydrants shall be East Jordan Iron Works Model 5-BR Water Master BR 250 with traffic flange. All fire hydrants shall have the following features: a 6 inch push-on joint pipe connection, ANSI/AWWA C111/A21.11; two 2-1/2 inch National Standard hose connections; one 5 inch integral Stortz connection (facing hydrant Stortz on right); one 3- 3/8"x7.5" pumper nozzle; 1-3/8 inch pentagon operating and cap nuts (1- 3/8 in. point-to-flat at top; 1-7/16 in. point-to-flat at base); open left; breakable flange construction; no barrel drain; and a painted red finish. Depth of bury shall be 5.5 ft (bottom of barrel to breakaway flange). The Stortz pumper connection must be 21 in. ± 3 in. above finished grade, and the breakable traffic flange must be between finished grade and 8 inch above finished grade. If the WM has a greater depth than 5.

5 ft than an the fire hydrant shall be extended with use of a hydrant extension kit which is fully compatible with the manufacturer of the fire hydrant assembly provided and be approved by the Engineer.

All fire hydrants must be certified by Underwriters Laboratory (UL) or the National Sanitation Foundation (NSF) for use in a potable water system.

E. Tapping Sleeves and Valves:

Tapping sleeves and valves shall be manufactured of cast iron or stainless steel and designed for water service with a minimum working pressure of 150 psi. The sleeve shall be a full-bodied split sleeve design manufactured by one of the following manufacturers:

a) Clow No. F-5205;
b) Mueller Co. No. H-615;
c) Waterous Series 800;
d) East Jordan Iron Works MJ Tapping Sleeve with East Jordan FlowMaster RW Valve;
e) Tyler/Union D.I. MJ Tapping Sleeve;
f) Ford Meter Box Company Style FTSS;
g) Power Seal Model No. 3490 AS;
h) Smith Blair Model No. 622;
i) JCM 432 All Stainless-Steel Tapping Sleeve; and
j) Price Brothers Company Tapping Sleeve for Prestressed Concrete Steel Cylinder Pipe (only to be used on concrete water mains.)

Tapping Sleeves for Pre-stressed Concrete Steel Cylinder Pipe shall be in accordance with AWWA M-9. The sleeves shall have a separate gland which permits installation of the sleeve prior to cutting of the prestress wires. The gland shall have a fusion epoxy coated (per AWWA C-213) waterway, and a broad gasket set in a retaining groove of a pressure plate gusseted to eliminate flexing. The gland shall be equipped with load bearing set screws to protect the cylinder. Grout under saddle is needed whether saddle is epoxy coated or not. Sleeves shall be furnished with grouting seals and grout horns to facilitate filling the space between the sleeve and the pipe. Tapping sleeves shall be a Price Brothers Company Tapping Sleeve for Prestressed Concrete Steel Cylinder Pipe or Engineer approved equal.

Tapping valves shall be double-disk type of the same manufacture as the sleeve, NRS with two-inch square operating nut-opening right, with a mechanical joint outlet.

All tapping sleeves and valves must be certified by Underwriters Laboratory (UL) or the National Sanitation Foundation (NSF) for use in a potable water system.

F. Asbestos Concrete Pipe to Ductile Iron Pipe Coupling:

The asbestos concrete pipe to ductile iron pipe coupling shall be the “Smith-Blair 415 (23.15”—21.60”) Gaskets, Alloy bolts and Epoxy” coupling or equivalent.

G. Joints:

Push-on joints shall be single gasket joint meeting the requirements of ANSI/AWWA C111/A21.11.

Mechanical joints for fire hydrants and solid sleeves shall be in accordance with ANSI/AWWA C111/A21.11 and shall be the Mega Lug Series 1100 joint restraint system manufactured by EBAA Iron Sales, Inc., or the Ford Meter Box Co. Uni-flange Retainer (UFR 1400-D-x style.)

Bolts for mechanical joints shall be high strength, low alloy steel bolts, only, meeting the requirements of ANSI/AWWA C111/A21.11. All bolts, nuts, and washers if required, shall be coated with a factory-applied flouropolymer coating meeting the following requirements:

Use Temperature: -100°F to 500°F
Salt Spray – ASTM B117 up to 4000 hours (nuts must not become frozen)
Pencil Hardness – 5H to 6H – ASTM D3363-92A Kinetic
Coefficient of Friction – 0.06 to 0.08 Thickness –
nominal 0.001” (1 mil)
Impact – 160 in-lbs as measured by ASTM D2794-93
Adhesion – 5B – ASTM D3359-95
Di-electric Strength – 500V per mil
Elongation– 35% to 50%
Tensile Strength – 4,000 psi
Operating Pressure – up to 100,000 psi
Kesternich Test – Nuts not frozen up to 30+ cycles (DIN 50018) Corrosion

Resistance: as measured by;

ASTM D 1308 Muriatic Acid 31% HCL - 24 hours - No Effect
Sulfuric Acid 93% H_2SO_4 - 24 hours - No Effect
Caustic Soda 100% NaOH - 24 hours - No Effect
Methy Ethyl Keytone MEK - 24 hours - No Effect
ASTM B117 Salt Fog - 1,000 hours - No Effect

The flouropolymer coating shall strongly adhere to surface being coated and shall not flake off or be easily removed by rubbing or brushing.

Cast ductile iron river crossing pipe joints shall be a push-on type ball and socket joint utilizing a first-grade rubber gasket. The joint shall be capable of 15-degree full turning deflection without separation, leakage, or restriction of the pipe waterway.Joint restraint shall be provided by a boltless means which is locked against accidental disengagement of the

restraining component.Pipe shall be furnished with the necessary gaskets, lubricant, and retainer locking accessories.

Restrained, push-on joint, pipe shall be American Pipe's "Fast-Grip" gasket system; U.S. Pipe's "Field-Lok 350" gasket system; or Griffin Pipe “Field- Lok 350” gasket system.

The use of retainer glands and set screws shall not be acceptable.

Lubricants used in making up joints shall be supplied by the pipe manufacturer and the joints shall be coupled in accordance with the manufacturer's requirements.

H. Pipe Wrapping:

All Cast Ductile Iron Pipe, Fittings, and Valves (except river crossing pipe) shall be fully wrapped with polyethylene per ANSI/AWWA C105/A21.5 and the details as contained on the plans.

I. Anodes

Anodes shall be high potential magnesium anode ingots with packaged backfill. Anode ingot shall meet or exceed ASTM B843, Grade M1C for high-potential magnesium anodes.

Anode shall come furnished with minimum 10 feet of coiled #12 AWG solid copper lead wire with TW, THHN or THWN insulation, firmly attached to the galvanized steel core of the anode. The core cavity shall be filled with electrical sealing compound to assure a fully insulated and protected connection. Magnesium anode and backfill shall be pre-packaged into a single unit in a permeable cloth bag.

Connection of anode lead wire to cast iron or ductile iron pipe or fittings shall be made by the thermite weld method. Thermite weld materials shall consist of wire sleeves, weld mold and weld cartridges according to the weld manufacturer’s recommendations for the specific wire and pipe sizes and materials. Weld materials from different manufacturers shall not be interchanged. Weld molds shall be graphite molds. Ceramic "one -shot" molds will not be acceptable.

J. Casing Pipe:

Steel casing pipe used for construction at railroad or State highway crossings shall comply with the following minimum requirements unless more stringent requirements are established by the railroad or State. Casing pipes at other locations shall comply with the following minimum requirements unless otherwise indicated on the Plans or in the Specifications.

Nominal Diameter of Casing Pipe (Inches)	Minimum Wall Thickness (Inches)
Under 14	0.250
14, 16, and 18	0.312
20 and 22	0.375
24, 26, 28, and 30	0.500
32 and 34	0.563
36, 38, 40, 42, and 48	0.625

Steel pipe shall be non-spiral pipe and have a minimum yield strength of 35,000 psi. All joints shall be made leakproof using full penetration, continuous welds. Welds shall be ground smooth outside and inside (except inside 22 in. diameter and less) to prevent conflict with the soil or pipe placement. Steel pipe shall meet the requirements of ASTM A 53, Type E or S, Grade B.

Pipe Marking:

The following information shall be clearly marked on each length of pipe:

a) The pipe designation and class (e.g., A 53, Type S, Grade B.)
b) The name or trademark of the manufacturer.
c) Identification of the manufacturing plant.

Inspection:

All casing pipe furnished shall be subject to inspection on arrival at the job site by the Engineer. The purpose of the inspection shall be to cull and reject pipe that, independent of physical tests specified under the standard specifications designated herein, fails to conform to the requirements of these Specifications.

Rejected pipe shall be plainly marked by the Inspector and immediately removed from the site of the work by the Contractor, without cost to the City.

K. Water Main Pipe Marking:

The following information shall be clearly marked and/or cast on each length of pipe:

a) The pipe designation and class (e.g., D.I., Class 50
b)).
c) The name or trademark of the manufacturer.
d) Country where cast.
e) The year in which the pipe was produced.

The following shall be distinctly cast on each fitting:

a) The pressure rating of the fitting.
b) Nominal diameters of openings.
c) The name or trademark of the manufacturer.
d) Country where cast.
e) The number of degrees or fraction of the circle on all bends.
f) Ductile iron fittings shall have the letters "DI" or "Ductile" cast on them.

L. Manufacturer's Certification:

All pipe furnished shall be accompanied by the manufacturer's certificate of test showing conformity with the Specifications. Each certificate shall identify a specific lot number, quantity of pipe, and show actual test results for the lot furnished. These certificates shall be submitted to the Inspector at the time of unloading.

All materials that will potentially be in contact with the City of Ann Arbor water supply must be certified by Underwriters Laboratory (UL) or the National Sanitation Foundation (NSF) for use in a potable water system. These materials shall include pipe coatings, pipe metals, cement linings, and joint lubricants and gaskets.

M. Inspection:

All pipe furnished shall be subject to inspection on arrival at the job site by the Engineer. The purpose of the inspection shall be to cull and reject pipe or fittings that, independent of physical tests specified under the standard specifications designated herein, fail to conform to the requirements of these Specifications.

The Contractor shall notify the Engineer sufficiently in advance so that an Inspector may be on the job during the unloading of materials. A minimum notice of 24 hours is required for such unloading and inspection. The Contractor shall also notify the Engineer when the material has arrived at the site.

All ductile iron water main pipe shall be stacked on pallets off the existing grade, with each end plugged or bagged so as to keep the pipe interior clean until final installation.

Cast ductile iron pipe and fittings shall be subject to rejection on account of any of the following:

a) Variation in any dimension exceeding the permissible variations given in the material specifications.
b) Any crack or defect in the cement mortar lining which, in the opinion of the Engineer, is non-repairable, including, but not limited to, loose or "hollow" lining.
c) Any signs of physical damage or poor manufacturing which might render the material unsuitable for its intended use.
d) Variation of more than 1/16 inch per lineal foot in alignment of pipe intended to be straight.
e) Damaged ends, where in the judgment of the Engineer such damage would prevent making a satisfactory joint.
f) Improper handling during delivery, unloading, or installation.

Rejected pipe shall be plainly marked by the Inspector and immediately removed from the site of the work by the Contractor, without cost to the City.

N. Water Main Bedding and Backfill Materials:

Bedding and backfill material for Trench Detail I (under roadbed), Modified, shall be Granular Material, Class II, meeting the requirements of Section 902 MDOT 2020 Spec. Bedding and backfill for Trench Detail V (outside of the 1:1 influence line of roadbed or curb and gutter), Modified, shall be Granular Material, Class II and Engineer approved native material, placed in accordance with the trench details.

Coordination with Existing Water Supply System

The Contractor may not operate City water main valves. For valve operation, contact the City of Ann Arbor Public Services Area. It is recommended that the Contractor request that the existing valves, which will need to be operated in order to perform the water main work, are checked in advance of the work to ensure that they operate properly.

Several items of work on this project require coordination with the City of Ann Arbor Public Services Area (The City). The Contractor shall notify the City three (3) full working days in advance of any items requiring coordination with the City.

The Contractor shall complete the water main work in a manner which minimizes the disruption of water service. Water quality issues arise, and treatment costs increase when the well field system is taken off line. No shutdowns at the well field shall occur on Saturdays or Sundays. Shutdowns shall not be for longer than 8.0 hours for any given shutdown event. Liquidated damages as detailed and described on page C-2 of these documents shall apply to any shutdowns that occur on Saturday or Sunday or for a period of time longer than 8.0 hours in any given 24 hour period.

The Contractor shall be responsible for coordination with the City of Ann Arbor Public

Services Area for the installation of 1-inch corporations in the gate wells to be used for testing and filling of new main. The Contractor shall pay the City of Ann Arbor's Public Works Unit all costs associated with installing the corporations.

The Contractor must have all materials, fittings, pumps and other miscellaneous equipment, and personnel on site before the City of Ann Arbor Public Services Area personnel will prepare and shutdown an existing main.

Water Main Installation, Bacteriologic and Hydrostatic Testing, and Acceptance Requirements

Installation of proposed water mains will require work in close proximity to existing utilities. This must be taken into consideration when the contractor determines the required trench safety requirements. All excavation shall conform to all relevant MIOSHA Standards; the Contractor is solely responsible for determining all excavation and trench safety requirements.

1. Dry Tap:

When a connection to an existing water main is to be made in the dry, the existing main to which a connection is to be made shall be isolated by the closing of the necessary existing valves, and the water from the existing main shall then be pumped out or removed by other means so that the connection may be made in the dry. All pipe materials and appurtenances which will come into contact with potable City water after the restoration of water service following the connections shall be disinfected with a strong chlorine solution prior to installation.

The Contractor may not operate City water main valves. For valve operation, contact City of Ann Arbor Public Services Area personnel; the City of Ann Arbor personnel will direct the operation of all valves by Contractor personnel. It is recommended that the Contractor request that the existing valves, which will need to be operated in order to perform the water main work, are checked in advance of the work to ensure that they operate properly. If the Contractor elects not to request the operation of the valves in advance of any required water main operation, then a request for extension of contract time will not be allowed.

It is possible that the valves which need to be operated to facilitate a shutdown will not close entirely, thereby allowing water to leak past the valve into the area of the shutdown. The Contractor shall provide the necessary labor, material, and equipment to enable work to be completed with a poor shut down. Under no circumstances shall the Contractor be compensated for "downtime" associated with water main valve or appurtenance failure or its inability to properly operate or close fully. An extension of contract time may be allowed, if the Contractor has requested that the water main valves have been exercised in advance of the intended water main shutdown.

Due to the size and length of pipe being shut down, and the quality of shutdown attained, large amounts of water may need to be removed from the excavation. Where possible, the water shall be run directly into nearby storm sewer inlets via pumps and hose.

The Contractor shall have all pipe, fittings and appurtenances required to complete the

water main connection prior to the excavation for the connection, or the work will not be allowed to commence.

The Contractor shall complete the water main work in a manner which minimizes the disruption of water service to the greatest extent possible.

The City must notify all businesses 48 hours in advance of a water main shut- down; residences must be notified 24 hours in advance. To give the City an opportunity to provide such notification, the Contractor shall schedule the water main shutdowns at least 72 hours in advance, and preferably a full four or five days in advance, of the water main shut-down.

No water main shutdown shall take place after 12:00 p.m. (noon), unless written permission has been granted by the Engineer and that the Contractor has sufficient lighting equipment to provide a safe and efficient work area for working after dark. No water main will be shut down until the main has been exposed and cleaned and is ready to be cut.

There shall be no gap larger than 1/4 inch left in the existing water main as a result of the tie-in. If needed, a closure piece ("thrust ring") of such size so as to meet this requirement shall be installed.

2. Wet Tap:

Prior to the installation of a tapping sleeve, the section of pipe to be tapped shall be cleaned of all foreign material and wire brushed to a smooth surface. The two halves of the sleeve shall be placed around the pipe with the gaskets installed per the manufacturer's instructions. The bolts shall be tightened evenly from the center toward the ends. The bolts shall be tightened to the manufacturer's specified torque.

When performing a wet tap in a prestressed concrete steel cylinder water main, grout is to be placed under the tapping saddle whether or not the saddle is epoxy coated.

All pipe materials and appurtenances which may come into contact with potable City water shall be disinfected with a strong chlorine solution prior to installation. This includes the pipe section to be tapped, the two halves of the sleeve, gaskets, and the gate valve.

Prior to installation of the end gaskets, the sleeve shall be blocked with cement bricks such that the outlet is in proper position. The end gaskets shall be installed with an overlap as specified by the manufacturer.

The glands shall be assembled on the pipe. The bolts around the gland shall be tightened evenly, causing the gaskets to uniformly compress.

The valve shall be installed on the sleeve following the manufacturer's instructions.
Prior to tapping, the assembly shall be tested using the test plug tap in the sleeve with the valve closed, or by placing a tapped plug on the outlet of the valve with the valve open. The assembly shall be pressurized to l50 psi and hold the pressure fifteen minutes. After the pressure test is complete, the pipe shall be tapped.

3. Oversized Water Mains:

   Portions of the proposed water mains or fittings may connect with existing water mains or fittings. The possibility exists that some of the existing water mains may have been constructed using oversized, cast iron, pipe. Where tie-ins or interconnections are specified and the existing main is found to be oversized, the Contractor shall furnish and install Clow 3501B Sleeves, Tyler Dual Sleeve 5-146L, or Rockwell 441 Sleeves. These sleeves are to be present on the jobsite prior to the excavation for the water main connection, or the work will not be allowed to commence.

4. Permissible Deflection at Joints:

   Wherever it is necessary to deflect ductile iron pipe from a straight line, either in the vertical or horizontal plane, to avoid obstructions, to plumb valve stems, or where long-radius curves are permitted, the amount of deflection allowed shall not exceed that required for satisfactory making of the joint and shall be approved by the Engineer. The deflection shall not exceed the following amounts:

Size of Pipe (Inches)	Joint Angle (Degrees)	Deflection in 18 ft. (Inches)	Approx. Radius of Curve Produced by Succession of 18 ft. Lengths (Feet)
4	5	19	205
6	5	19	205
8	5	19	205
10	5	19	205
12	5	19	205
16	3	11	340
20	3	11	340
24	3	11	340
30	3	11	340

   The above joint deflection angles apply to fittings as well as pipe joints.

5. Trench Opening:

   The Contractor shall fully comply with all laws and regulations governing construction methods and the furnishing and use of all safeguards, safety devices, protective equipment, and pollution controls. Where required to support the surfaces of adjacent roadways, structures, or excavations, or to protect the construction work, adjacent work, or workmen, the Contractor shall design and install sheeting, bracing, and shoring. The Engineer will not review the Contractor's design(s) or be responsible for the adequacy of the elements supporting the trench. The placing of such supports shall not release the Contractor of the responsibility for the sufficiency and integrity of the trench, trench opening, and the safety of all persons involved in the work.

   Sheeting, bracing, and shoring shall not be left in place after completion of the work

except as required by the Engineer. In the removing of sheeting and bracing after the construction has been completed, special care shall be taken to prevent any caving of the sides of the excavation and injury to the completed work or to adjacent property. Where the Engineer requires the sheeting, bracing, or shoring to be left in place it shall be cut off below the established surface grade as required by the Engineer.

All excavation shall be performed in such a manner as to provide adequate room for the construction and installation of the work to the lines, grades and dimensions shown on the Plans. The width of the trench shall be ample to permit the pipe to be laid and jointed properly, and the backfill to be placed and compacted as specified.

For each size of pipe, the minimum trench width shall provide clearance of four inches on each side of the bell of the pipe or fitting or six inches on each side of the pipe barrel, whichever is greater. Trenches shall be of such extra width, when required, to permit the convenient placing of timber supports, sheeting and bracing, and handling of special fittings. The Work shall be performed such that the existing utilities, asphalt curb and gutter, and existing pavement shall be protected at all times.

In excavating for water mains, the excavation shall at all times be finished to the required grade in advance of the pipeline, but unless otherwise permitted in writing by the Engineer, not more than 50 feet of trench shall be open at one time in advance of the pipe. At no time shall more than 200 feet of trench be opened and incompletely backfilled. At the end of each day, no more than 10 feet of trench may be left open, and access to all drives shall be restored.

This opening shall be surrounded by fencing and barricades or plated. The remainder of the trenching operation shall be available for safe vehicular and pedestrian traffic at all times.

It is essential that the discharge of the trench de-watering pumps be conducted to natural drainage channels, drains, or storm sewers. Engineer- approved soil erosion and sedimentation controls shall be installed and maintained at the point of discharge.

The length of street which may be occupied by the construction work at any one time shall be subject to the approval of the Engineer and will be based on the requirements of use of the street by the public.

6. Boring Pits

The means and methods of boring pit excavation and support, in whatever conditions encountered or created, shall be determined by the Contractor, subject to approval by the Engineer. All costs shall be included in the Contract Price per lineal foot of bored water main. Perform all excavations required for construction of pits, shafts, and other structures. Excavations shall include any and all materials encountered in the Work, such as topsoil, clay, sand, gravel, cinders, rocks, boulders, fill, old timber, buried trees and roots, abandoned utilities, abandoned foundations and structures, buried debris, or any combination of these, in whatever

condition found.

Provide and maintain all sheeting, shoring, and bracing required in shafts and pits, and open cut excavations to ensure protection and safety of personnel and to protect adjacent structures, property and work in place. The Contractor shall be responsible for the complete design of all sheeting, shoring, and bracing work. The design shall be appropriate for the soil conditions, shall be of such strength, quality, dimension and spacing as to prevent caving or loss of ground or squeezing within the neat lines of the excavation, and shall effectively restrain movement of the adjacent soil. Prior to installing the sheeting, shoring, or bracing, the Contractor shall submit plans for this work to the Engineer for informational purposes only. Sheeting, shoring, and bracing shall conform to the current federal or state regulations for safety.

Excavate as required to perform all boring work to the grades, lines and levels indicated on the Plans and as specified herein. Construct approach trenches, pits and shafts of sufficient length and width to accommodate the equipment being used, the pipe units to be placed and the manpower working. Locate the approach tunnel or working shaft or pit so that it will not unduly interfere with traffic or with the use of adjacent property.

Where required, control the infiltration of groundwater into the excavation. Use dewatering systems to lower the groundwater to below the bottom of the shaft or use other approved methods at no additional cost to the Owner.

Any relocations or removal and replacement of utilities, including gas mains, water mains, services, sewers, irrigation systems, signs, and other miscellaneous items required to construct shafts shall be incidental to the project unless otherwise specified.

Excavation under railroads shall conform to the requirements of the American Railroad Engineering Association (AREA) and the railroad corporation having jurisdiction.

7. Laying Pipe:

Each pipe shall be inspected for defects prior to being lowered into the trench. Inside of pipe and outside of spigot shall be cleaned of any earth or foreign matter.

Proper implements, tools, and facilities satisfactory to the Engineer shall be provided and used by the Contractor for the safe and convenient prosecution of the work. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench piece by piece by means of an excavator using chains, slings, or other suitable tools or equipment as recommended by the manufacturer, in such a manner as to prevent damage to them and their protective coatings and linings. Under no circumstances shall materials be dropped or dumped into the trench.

New water main construction shall not be connected into the existing system until it has been tested and accepted by the Engineer. The Contractor shall excavate for all bell holes and shall place the bell of the pipe in the excavated bell hole. Pipe shall be laid on the prepared trench bottom with the bell ends facing the direction of laying, unless otherwise directed by the Engineer.

The Contractor shall take every precaution to prevent foreign material from entering the pipe while it is being placed in the line. During laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug. This provision shall apply during the noon hours as well as overnight. If water is in the trench, the seal shall remain in place until the trench is pumped completely dry.

Pipe shall be jointed as specified elsewhere herein. The pipe shall be secured in place with approved backfill material tamped under it except at the bells. Pipe and fittings which do not allow a sufficient and uniform space for joints shall be removed and replaced with pipe and fittings of proper dimensions to insure such uniform space. Precautions shall be taken to prevent dirt from entering the joint space.

All pipe shall be laid at the correct line and grade as indicated by the grade stakes and offset line. Each pipe, as laid, shall be checked by the Contractor to ensure that this result is obtained. The staking shall be provided by the Engineer. No pipe shall be laid until a cut sheet for that pipe has been approved by the Engineer. The grade as shown on the Plans is that of the top-of-pipe for water main; and the work must conform to this profile. For water main construction, a variation from the profile grade of two inches with ductile iron pipe, and three inches with reinforced concrete pipe, will be deemed sufficient reason to cause the work to be rejected and re-laid. Water main pipe alignment shall be maintained so as not to vary more than three inches from the correct line. Any pipe found out of line shall be re-laid properly by the Contractor.

Due to conditions in the field, changes to the proposed vertical and horizontal alignment of the proposed water main may become necessary. The Contractor shall, where directed by the Engineer, excavate up to 60 feet in advance of the pipe laying operation to expose existing underground facilities thereby enabling the Engineer to make alignment decisions. The Contractor is required to realign (re-lay) the water main up to 2 feet vertically and/or horizontally as directed by the Engineer at no extra cost to the project. The excavation in advance of the pipe laying is intended to help eliminate the need for re-laying pipe.

8. Crossing Existing Structures and Facilities:

During the construction it may be necessary to cross under or over certain sewers, drains, culverts, water lines, gas lines, electric lines, fiber optic communication, telecommunication, and other types of underground structures or facilities, known or unknown. The Contractor shall make every effort to prevent damage to such underground structures and facilities. The Contractor shall not intentionally damage or break existing structures or facilities and repair them in order to expedite the water main installation process.

Wherever such structures or facilities may inadvertently be disturbed or broken, they shall be restored to a condition that is equal to, or better than, that was encountered prior to the damage. All damaged structures and/or facilities shall be made fully acceptable to the owner and the City, at the Contractor's expense. All crossings shall be made with a minimum of twelve inches of vertical clearance between or alongside existing structures or facilities.

9. Cutting Pipe:

   Cutting cast iron or ductile iron pipe for inserting valves, fittings, or closure pieces shall be performed in a neat and workmanlike manner without damage to the pipe or cement lining and so as to leave a smooth end at right angles to the longitudinal axis. Where the type of pipe joint in use is such that it employs push-on assembly to affect the joint seal, the outside of the cut end shall be tapered back 1/8 inch with a coarse file or a portable grinder at an angle of about 30 degrees. The tapering must remove all sharp and/or rough edges which might injure the gasket.

   The flame cutting of pipe will not be allowed. Reinforced concrete water main pipe shall not be cut.

10. Setting Water Main Fittings and Accessories:

    Valves, fittings, plugs, hydrants, etc. shall be set and joined to pipe in the manner specified in the Section entitled “Making Joints.”

    Hydrants shall be located as shown on the Plans or as directed by the Engineer in such a manner as to provide complete accessibility and minimize the possibility of damage from vehicles or injury to pedestrians.

    Hydrants shall be set to stand plumb with their nozzles parallel to the street and the pumper nozzle facing the street. Hydrants shall be set with pumper nozzles between 18 and 24 inches above finished grade, or as directed in writing by the Engineer.

11. Making Joints:

    Mechanical means shall be used for pulling home all rubber-gasket pipes regardless of trench condition where manual means will not result in pushing and holding the pipe home. When a trench box or liner is used, a cable shall be used to pull the joints home and hold them in position.

    Where work is performed in wet trenches or trenches with running sand, the Contractor shall provide and use mechanical means for pulling the pipe home in making up the joint and for holding the pipe joints tight until completion of the line. Mechanical means shall consist of a cable placed inside or outside of the pipe with a suitable winch, jack, or come along for pulling the pipe home and holding the pipe in position.

    Where not required by these Specifications, manual means will be acceptable only if the joints can be pushed home and held.

12. Anchorage for Water Main Fittings and Accessories:

    All plugs, caps, tees, hydrants, and bends shall be provided with MDOT Grade 3500 concrete meeting the requirements of Section 1004 of the 2020 MDOT SSC reaction backing (thrust block) as shown on the Plans or specified herein. Valves shall be

restrained from movement at adjacent sleeves by the use of a closure piece, or thrust ring (full size pipe section cut to fill the gap inside the sleeve to within 1/4") as specified herein.

Reaction backing shall be placed between unexcavated solid ground and the fitting to be anchored. The area of bearing on the pipe and on the ground in each instance shall be that shown on the details or directed by the Engineer. The reaction backing shall, unless otherwise shown or directed, be so placed that the pipe and fitting joints will be accessible for repairs. This shall include adequate protection of any bolts from direct contact with the concrete.

Metal harnesses of tie rods or clamps may not be used instead of concrete reaction backing. Mega-Lug joint restraint systems and restrained, push-on joint, pipe shall be used where connections to existing lines require immediate pressurization, as specified herein.

In the event that the Engineer determines a change in the anchorage or design is required due to unsuitable earth conditions, changes may be ordered by the Engineer.

The use of friction clamps or set-screw type retainer glands for thrust restraint will not be allowed.

13. Casing Pipe Installation

Casing pipe I.D. shall be a minimum of 6-inches larger than the largest O.D. of the water main pipe. Larger diameter casing pipes shall be required where so noted on the plans. Place pipe to the lines and grades indicated on the Plans. Use care to not damage pipe, joints, or joint material.

Perform boring or auguring excavation by excavating an opening larger than the outside diameter of the pipe to be installed. The diameter of the excavation shall not exceed the outside diameter of the casing pipe by more than 1-inch. Employ grouting or other methods approved by the Engineer to fill voids within 48 hours of completing the bore.

14. Abandonment or Removal of Water Main:

The Contractor shall abandon or remove water main(s) where shown on the Plans. All work shall be performed in accordance with the Detailed Specification entitled “Water Main Abandonment.”

15. Water Main Testing:

The water main shall be disinfected and tested by the Contractor in the presence of the Engineer in accordance with the requirements below. The Contractor shall furnish all piping, pumps, hoses, gauges, and other materials and equipment required to carry out the tests using water from the City's water mains. All chlorinated water shall be discharged directly to the sanitary sewer and will not be allowed to be discharged to the ground or any surrounding water course. Any hoses which are needed to direct water from blow-offs and/or hydrants during water main testing and flushing shall be

supplied by the Contractor. The City shall furnish and install one inch corporation stops at all necessary locations, at the expense of the Contractor. The tapping of water mains, the installation of all corporation stops, and the operation of valves and hydrants is reserved for City personnel. The Contractor is required to assist in valve and hydrant operation, however. The Contractor shall give the City forty-eight hours prior written notice of intent and desire to test water mains.

16. Bacteriological Testing Sequences:

In the case of all water mains connected to existing facilities, flushing, chlorination and bacteriological testing must precede pressure testing. Where mains can be totally isolated from existing facilities with air gaps or double valves, pressure testing may precede chlorination and bacteriological testing. The normal sequence and time requirements for testing are:

Isolated (Gapped) Water Main	Connected Water Main
1. Fill Main	1. Flush and Swab*
2. Pressure Test	2. Chlorinate
3. Connect One End of Main	3. Wait; 24 hours
4. Flush and Swab*	4. Flush**
5. Chlorinate	5. Wait; 24 hours
6. Wait; 24 hours	6. Bacteriological Samples
7. Flush**	7. Wait; 24 hours
8. Wait; 24 hours	8. Bacteriological Samples
9. Bacteriological Samples	9. Wait; 48 hours
10.Wait; 24 hours	10. Pressure Test (If both sets of Bacteriological samples pass)
11.Bacteriological Samples	11. Flush
12. Wait; 48 hours	12. Wait; 24 hours
13. Make Final Connection(s) – Place in Service (If both sets of bacteriological samples pass)	13. Bacteriological Samples
	14. Wait; 24 hours
	15. Bacteriological Samples
	16. Wait; 48 hours
	17. Place in Service (If both sets of bacteriological samples pass)

*Collect flush water in operable storm water retention/detention facility.
**Discharge flush water into approved sanitary sewer.

The Contractor shall not connect any end of a newly constructed water main to an existing, in-service, water main, until the newly constructed water main passes the hydrostatic test, unless approved in writing by the Engineer.

17. Hydrostatic (Pressure Test):

Insofar as is practical, mains shall be pressure tested between valves. The maximum length of water main to be tested in any one test shall be 1500 feet. The section of main to be tested shall be slowly filled with potable water and the entrained air within the pipe removed or absorbed and pumped up to a pressure of 150 psi (or other pressure if specified) and the test period shall start immediately thereafter. The lines shall then be maintained under a test pressure of 145-155 psi for a continuous period of three hours by pumping chlorinated (25 ppm) water into the line at frequent intervals. The volume of water so added shall be measured and considered to represent the leakage from the line under test during the interval. Visible leaks shall be repaired regardless of test results. The leakage under the conditions of the test shall not exceed the values shown in the table below. If one side of a double disc gate valve is under test pressure, that seat shall count as four joints.

Maximum Allowable Leakage per 100 Joints at 150 psi Avg. Test Pressure

Pipe Diameter (Inches)	4	6	8	10	12	16	20	24	30	36
Leakage (gallons/hr)	0.66	0.99	1.32	1.66	1.99	2.65	3.30	3.97	4.97	5.96

In the event that the leakage exceeds the maximum allowable leakage as specified above, the joints in the line shall be carefully inspected for leaks and repaired where necessary. Any pipes or fittings found to be leaking shall be removed and replaced with new pieces by the Contractor. After this work has been performed, all tests shall be repeated.

18. Flushing and Swabbing:

The Contractor shall flush the water main after making a connection to the existing City water main where a valve separates the new water main from the existing main. As a result, flushing will be accomplished using flow through the full size of the new water main. If a storm water retention/detention facility is to be constructed as part of the project, this facility is to be completed, stabilized, operable, and utilized for the collection of the flushing water. All pipe, materials, and appurtenances which will come into contact with potable City water after the restoration of water service following the connection shall be disinfected with a strong chlorine solution prior to installation.

Water main shall be cleaned using a high-density poly-pig, Girard Aqua Swab (2 lbs/ft3 density) swab, or Engineer approved equal and flushed. The diameter of the blow-off pipes shall be at least 50% of the diameter of the pipe being flushed. Hydrants, with internal components removed, may serve as blow-offs for mains 12 inches and less. The Contractor shall provide details, for the review and approval of the Engineer, for the various required blow-offs. Blow-off pipes, discharge hoses, where needed, and associated costs shall be included in the cost of the permanent water main being installed and will not be paid for separately. If there are no branch connections to be

swabbed, the poly-pig shall be inserted in the new water main at the time of connection described above.

The poly-pig shall be located on the "downstream" or new side of the separation valve. The poly-pig shall then be forced through the new water main during the first flush and discharged through a construction blow-off of sufficient size to allow passage of the poly-pig. For water mains with branch connections, a launching tee or wye shall be installed as shown in the details, for launching multiple poly-pigs. The main line and each branch main shall be flushed and swabbed individually. Following the successful final bacteriological testing of the water main, the launching tee/wye shall be permanently capped at its branch.

During the flushing and swabbing of a water main, the discharge point for the main shall be left open, with all other discharge points closed, to direct the poly-pig completely through the main being swabbed to its point of termination. Following the initial swabbing of water main, the separation valve shall be closed, and then the discharge point closed. If a branch water main is to be swabbed, the poly-pig is then to be placed in the launcher; the discharge point for the branch water main is to be opened; the poly-pig is to be inserted into the water main; the separation valve partially opened and the branch water main flushed and swabbed.

Following the swabbing of the water main(s), the water main(s) are to be flushed as required. If approved or directed by the Engineer, the water main(s) may be flushed overnight, provided that proper controls (i.e. hoses directed into storm structures, etc.) are installed to direct and control the flushing water.

19. Chlorination:

After the water mains to be tested have been acceptably flushed, they shall be disinfected in accordance with AWWA C651 "Disinfecting Water Mains" and these Specifications. All new mains and fittings, and any existing mains contaminated by the Contractor, shall be chlorinated to a minimum residual of fifty (50) parts per million (ppm) with commercial liquid chlorine solution (sodium hypochlorite - pool type). Other forms of chlorination and disinfection methods of water mains may be presented by the Contractor and shall receive prior approval in writing by the Engineer before being used. The minimum recommended dosage of sodium hypochlorite is as follows (based on 10% available chlorine):

Recommended Minimum Chlorine Dosage to Disinfect 100 L.F. of Pipe

Pipe Diameter (inches)	10% Chlorine Solution (gallon)
6	0.153
8	0.272
10	0.426
12	0.613
16	1.090
20	1.703
24	2.452

The chlorinated water shall remain in the mains for a minimum of 24 hours, at the end of which period the chlorinated water at all parts of the main must show free available chlorine residual of at least twenty-five (25) ppm. If less than 25 ppm residual is shown at the end of the first 24-hour period, additional chlorine shall be added until a residual of not less than 25 ppm at all parts of the system is shown after a subsequent 24-hour period. The chlorinated water shall then be removed from the mains and disposed of into an existing, approved City sanitary sewer main, or other location approved in writing by the Engineer. All chlorinated water shall be discharged directly to the sanitary sewer and will not be allowed to be discharged to the ground or any surrounding water course. The mains shall then be left full of water ready for bacteriological testing.

20. Bacteriological Testing:

The City will obtain bacteriological samples of the water in the mains for analysis from testing blow-offs, corporations, or other sampling points as determined acceptable by the City. Samples will be taken after the mains have been satisfactorily chlorinated in accordance with these Specifications, the chlorinated water flushed out and removed, and the mains filled with potable water. The water samples will only be bacteriologically tested at the City's Water Treatment Plant Laboratory; the use of other laboratories or testing locations shall not be allowed or deemed to provide satisfactory test results by the City of Ann Arbor under any circumstance. No samples will be deemed acceptable until they meet all city requirements. If the newly constructed water main is connected at one end to an in-service section of the City water main, and the chlorination precedes pressure testing, the City will also take samples after satisfactory pressure testing. In each case, two sets of samples shall be taken; a period of 24 hours must elapse between flushing of the main and drawing of the first samples, with the second samples being drawn 24 hours after the first samples were drawn. For each sample, a minimum of 48 hours is required to obtain test results. All samples must pass the bacteriological test.

The Contractor shall plan for these testing sequences and durations in his construction schedule. Contract time will continue during all water main testing phases, regardless of duration.

Construction, General Requirements

Coordination with the City of Ann Arbor Field Operations Unit for the installation of 1-inch corporations in the gate wells to be used for water main testing and/or filling of new main.

The Contractor must have all materials, fittings, pumps and other miscellaneous equipment, and personnel on-site before the City of Ann Arbor Public Services personnel will prepare and shutdown and existing main.

The bedding and backfill for Trench Detail I (under roadbed), Modified, shall be MDOT Granular Material, Class II compacted to 95% of its maximum dry density in maximum lifts of 12 inches. The bedding and backfill for Trench Detail V (within 1:1 influence of the roadbed or curb and gutter), Modified, to a point 12 inches above the top of pipe, shall be MDOT Class II sand compacted to 95% of its maximum dry density. The material above this point shall be Engineer-approved native material compacted to 90% of its maximum dry density.

The Contractor shall dig-up and expose all utility crossings prior to laying any water main pipe. This will allow the Engineer to adjust the grade of the water main, if possible, to avoid the existing utilities. The costs of the ‘dig-ups”, and all related costs, shall be included in the respective items of work in this Detailed Specification. Some “dig-ups” may need to occur out of Phase.

Should the water main, or other pay items in this Detailed Specification, conflict with abandoned sewers or water mains, the conflicting section of the abandoned sewer or water main shall be removed, and the remaining sections shall be (re)abandoned in accordance the Detailed Specification for “Water Main and Appurtenances, Abandon” and the Detailed Specification for “Sewer, Any Size or Depth, Abandon,” except that flow filling the sewer will not be required. All the work shall be included in the cost of the water main, or other pay items in this Detailed Specification.

Excavate and Backfill for Water Service Tap and Lead

This work shall consist of exposing new water mains and excavating and backfilling a trench from the water main as directed by the Engineer for the purpose of transferring existing water services to new water mains or replacing existing water services as necessary.

The trench is to be excavated to the applicable MIOSHA standards for the purposes of transferring water services, installing water service taps, leads, and curb stops and boxes. The City will furnish all labor and materials for taps, leads, and curb stops and boxes. Once Field Operations has completed the water service transfer, the Contractor shall be responsible for all coordination Field Operations for the scheduling and execution of the work.

The Contractor will not be entitled to extra compensation due to delays caused by Field Operations in performing work on the project. Field Operations staff work on site between

7:00 am and 1:15 pm each regular weekday. Excavation for short water service transfer shall be prepared the prior work day so that when AA Field Operations personnel arrive at 7:00 am they have sufficient trench excavated so they can start laying water service and tapping the main right away. Sufficient excavation effort shall be made during the service transfer day such that the AA Field Operations personnel has minimal down time between each service transfer. Trenches left overnight shall be secured as outlined in General Conditions.

Once Field Operations has completed their transfer the Contract shall furnish and install Class II granular backfill material, placed in lifts not to exceed 12 inches and compacted to a minimum of 95% of its maximum dry density as measured by the AASHTO T-180 test.

Lighting Requirements for Nighttime Water Main Work

Night work shall be lighted to an average intensity of 10 foot-candles minimum. Sufficient light sources shall be provided to achieve this illumination requirement. The lighting scheme shall be submitted to the Engineer for review and approval a minimum of 72 hours prior to the anticipated commencement of the nighttime work. Nighttime work will not be allowed to begin until such time as the lighting scheme has been approved by the Engineer.

The lighting shall allow the inspector to clearly see and inspect all work operations. Light sources shall be adjusted as directed by the Engineer, as many times as needed, in order to meet the requirement.

Lighting systems may be fixed, portable, or equipment mounted. A power source shall be supplied with sufficient capacity to operate the lighting system. The power source shall not violate any local noise ordinance requirements. The lighting system(s) shall be arranged such that they do not interfere with the vision of motorists, glare or shine in the eyes of oncoming drivers, or unnecessarily illuminate surrounding properties or residences. After initial set-up, drive through and observe the lighted area from each direction on the roadway. Adjust lighting units as many times as needed in order to comply with these requirements.

Sequence of Construction

All water main construction shall be completed in accordance with the Detailed Specification entitled “Maintaining Traffic and Construction Sequencing” and as detailed herein. The Contractor shall schedule and coordinate all water main shutdowns with the Engineer. The Contractor shall submit for the Engineer’s review and approval the sequence of all water main “shutdowns” and tie-ins such that disruption in service to existing properties is minimized to the greatest extent possible. Should the Engineer not accept the Contractor’s proposed construction sequence, it shall not be a basis of claim for extension of contract time or additional compensation.

All water main and appurtenances shall be pressure tested, cleaned, disinfected and bacteriological tested in accordance with the specifications outlined within this Detailed Specification.

After acceptance of each section of new main the Contractor shall begin coordination with the City of Ann Arbor Public Services Area for the reconnection of water services.

Measurement and Payment

The completed work will be paid for at the contract unit prices for the following contract items (pay items):

Contract Item (Pay Item)	**Pay Unit**
__ Inch CL-50, D.I.P. w/ Polywrap, Trench Detail __	Feet
___" ___◦ Bend	Each
___" x___" Reducer	Each
__" x __" Cross	Each
__" x __" x __" Tee	Each
Fire Hydrant Assembly	Each
Fire Hydrant Extension	Feet
__" Gate Valve-in Well	Each
__" Gate Valve-in Box	Each
24" Gate Valve -in-Box, Mod	**Each**
__" Tapping Sleeve, Valve-in Box	Each
__" Tapping Sleeve, Valve-in Well	Each
__" Oversized Coupler	Each
Excavate & Backfill for Water Service Tap and Lead	Feet
Excavate & Backfill for Water Service Tap and Lead, Modified	Feet
Sacrificial Anode __ lb	Each

All work shall be paid in full at the contract unit prices which shall include all labor, materials and equipment required including all required costs associated with night time work, supplemental lighting, and all other required elements of the work.

Water main pipe per lineal foot includes restrained joints, where called for on the plans. Water main in bored steel casing includes all excavation, boring pits, sheeting, shoring, bracing, backfilling, casing pipe and water main in casing.

Fittings other than those specifically listed as separate contract items, blow-off assemblies, sleeves, hoses, and restrained joint pipe and gaskets, special gaskets, and the like, shall not be paid for separately, but shall be considered included in the payment for __ Inch CL-50, D.I.P. w/ Polywrap, Trench Detail __. Crosses, tees and other fittings specifically listed as separate contract items (pay items), shall be paid for at the contract unit price for each unit installed.

Gate Valve-in-Box includes the Valve Box and cover. Valve Box Extensions will only be paid for if they are required by the plans and they are not required due to the Contractor's operations.

"Excavate and Backfill for Water Service Tap and Lead" shall be paid for per each

trench excavated in total at the location where the new and existing water services are to be reconnected. One City of Ann Arbor Publice Services has completed the reconnection of the service, contractor shall backfill and compact trench with the same materials and density as per the new water main.

"Excavate and Backfill for Water Service Tap and Lead, Modified" shall be paid for per each trench hand dug, with sufficient length and diameter to pass the new service line under a large obstruction, such as a storm sewers, where minimum cover cannot be maintained by traveling over the large pipe or structural obstruction.

Water Service Tap and Lead, the Contractor shall be aware that the plan quantities are estimates only. The actual amount of excavation and backfill may be significantly more or less based on actual field conditions. Price adjustments based upon Section 103.02.B shall not apply to this item of work. Work and materials to reinstall the water service, including making the connection to the existing water service with coupling and tapping and connection to the new water main, are to be furnished and completed by City of Ann Arbor Public Services Area.

"Sacrificial Anode, _____lb" shall include excavation, thermite welding anode lead to existing watermain, and backfilling excavation as specified.

For WM 12-inch and larger a 32 lbs anode shall be used, for WM less than 8-inch diameter a 17 lbs anode shall be use. Anodes shall be placed when existing water mains are exposed as part of other work and the water main is not poly wrapped.

"24" Oversized Coupler" shall be paid for by each unit used when proposed work involves joining to an existing WM whose outside diameter exceeds that of the standard coupling sleeve. Paid for separately when called for on the plans otherwise is considered incidental to the WM pipe installation pay item. The oversized couplers shall be available on site the day the work is being done. If they are determined to be needed the Project will pay for the restocking fee or purchase them for the invoice amount from the contractor. Shall be mechanical joint end connections.

"24" Gate Valve -in-Box, Mod" shall be EJ resilient wedge with bevel gear operator and mechanical joint end connections, including box furnished and installed ready for use by the City.

Pre-Proposal Meeting for the
Crescents Water Main Replacement and Resurfacing Project

Request for Proposal: RFP-23-61
December 6, 2023 @ 10:00 a.m. via Teams Meeting

I. Introductions Project Overview

a. Water Main +/- 9,330 ft of 8-inch split up over two phases for the entire Crescents subdivision.

Phase 1 Streets of Creal, Argyle, Helen (4,360 ft WM)

Phase 2 Streets of Hatcher, Saunders, Colley (4970 ft WM)

i. Replace 1940's 6-inch WM, some history of breaks, 28 ea since 1964
ii. Hydrants 15 Ea with 8-inch leads, 6-inch companion valve

b. Resurfacing

i. Remove HMA surface full depth curb to curb
ii. Remove and Replace, Type F3 (or match ex)- 4,952 ft and M Opening -4,476 ft
iii. Driveway Approach 6-inch, 2,550 Sft
iv. New Bump out at Hillridge and Saunders, Replace existing at Helen and Creal
v. Place 2 lifts of HMA 4EL, 7,070Ton

c. Sidewalk

i. Restore sidewalks impacted by WM construction only, 2,500 Sft
ii. Sidewalk Ramps, 800 Sft

d. Storm

i. Remove and Replace all Drop Inlets and Storm Leads to STM MH.
ii. Inlet Structures, 48 Ea
iii. 1,260 ft 12-inch RCP Storm for CB Leads to nearest Structure
iv. 6-inch Underdrain, 4,715 ft, where long sections of Curb is removed for WM and 10 ft either side of a replaced CB structure

II. Addendum Items

a. Addendum #1 – will include the following and will be issued December 11:

i. Include Pre-Bid Meeting Minutes
ii. Revised Bid Form, Name Error in Item 360.5 Dr **Structure 36 inch Dia** and Item 532.1 HMA **4EL,** 553.1 6" Concrete Sidewalk, Ramp, Drive Approach.
iii. Any revisions to the Plans and Specs related to questions received.

Question and Answers

1. Question Deadline is December 8, 2023 1:00 p.m. sent to nbayley@a2gov.org and cspencer@a2gov.og

III. General

a. Standard Specifications and Detailed Specifications, same as Last Year Old Orange Book with Detailed Specifications to include project specific information, same as 2023 Madison and Brooks projects.
    i. Project Schedule
        Bid Due Date – Dec 19, 2023 at 3:00 p.m.
        Starting Date – Mar 18, 2024. City Council Award date is anticipated to be Feb 5, 2024.
        Substantially Complete – Oct 10, 2024
        Hours of work: 7:00 a.m. to 8:00 p.m. Monday thru Saturday (Sundays with permission)
    ii. Ann Arbor Art Fair, July 18-20, 2024, UofM Home Football Game, neither will impact this project. Work can continue through the events, but no material delivery will be allowed.
    iii. Engineer's Estimate - $8.3 million
    iv. General Conditions
        1. Street sweeping & dust control
        2. Maintaining drainage
        3. Sediment build up on inlet filters, site is low at the park
    v. Access to driveways - Contractor responsible for maintaining access to driveways during construction, and notifying residents when access will be unavailable (i.e. during water main installation, during paving, concrete work)

IV. Construction

a. Utility Construction
    i. Water Main – Installation and Testing
        1. Half width HMA removal for WM trench / storm replacements this will provide a construction vehicle surface and reduce dust and soil erosion.
        2. Other Half width HMA removal prior to HMA placement
        3. Phase 1 to be HMA based out before June 28 then start on Phase 2
        4. Phase 3 24-inch WM tie in includes new t and 24-inch Valve, Can't start before Sept 9, 2024.
    ii. Adjust Structure Cover, item 566.1 applies to existing frames only. All Adjust Structure will get a new frame, if the lid cannot be reused it is paid for under Structure Cover Item 563.1 units Ea.
b. Sidewalk and ADA Ramps – ADA compliance MUST be achieved at all locations in new work, temporary sidewalk access shall be maintained via use of item 217.0 Temporary Pedestrian Mat and item 215.0 Pedestrian Type II Barricade, Temp.
c. Grading ahead of placement and backfill and compaction behind new curb is incidental to the curb placement item up to the restoration grade.
d. Restoration
    i. Turf Establishment, Syd item 882.1, includes: 4-inch topsoil, seed, fertilizer and blown mulch (all in). 10,360 Syd
e. Water Service transfers; In an effort to make best use of City Public Services personnels time, contractor may excavate holes, and secure with plate, the day before

PS is scheduled to make the transfer. In this way they have work available as soon as they arrive on site at 7:00 am.

V. Other Items

a. Certified Payroll Compliance – using Prevailing Wage Rate determination for Highway and Heavy -General Construction, current on the date 10 days before the proposals are due, shall apply to this contract.

Heavy MI20220074, Mod 6 10/20/23
Highway MI20220001, Mod 12 11/03/2023

VI. Award recommendation will be based on a point system for best value contract. Evaluation, scored on 5 criteria (20 points for each category). See Section III- for category breakdown and submittal requirements, starting at page 12. Please respond to each criterion, we can only evaluate based on information provided in the submittal package. The evaluation Committee does not research information on behalf of the contractor. Contractor EMR rate must be provided for the last 3 years. If the contractor does not have something for example an environmental citations; than this must be explicitly stated in the submittal package, we cannot assign points if nothing is provided.

VII. Geotechnical Report Soil Boring Log is attached to the Specs (reference page 200-229)

VIII. Questions due, **Friday Dec 8**, **2023** at 1:00 p.m. (reference page 3)

IX. Bids are due **Dec 19, 2023 by 3:00** a.m. 2 ea hard copy submittals with 1 full .pdf copy via USB only. Submittal package item list is included starting on page 5

Important items not discussed at the Pre-Conference

- Garbage Day is Friday in this neighborhood. The contractor will be responsible for making sure that resident carts are able to be picked up weekly. This may include moving them to and from a location that the waste collection truck is able to access them. This cost is incidental to General Conditions.
- Mail service is walked door to door. Contractor shall ensure that USPS has sufficient space to pass to make their daily deliveries.
- Coordination with other City contractors working in the neighbourhood while this contract is under construction; Storm Sewer CIPP Lining; SAK Construction LLC, work location STM on Creal south of Helen. SAK will defer their work so that it does not conflict with the active construction zone of the Crescents Project.

Questions and Answers:

Q1: Will all three or which ones in particular of the WM tie-ins between phase 1 and phase 2 will be required?
A1: Sufficient connections must be in place at the phase change to provide service to phase 1 residents. It will be contractors means and methods regarding which ones, but not all connections must be made at the phase switch.

Q2: How far into Miller will the contractor need to go to make the tie-ins?
A2: The limits are shown on the plans, Prior Miller WM project stubbed out 8-inch DI WM and that's what the contract will tie back into.

Q3: What is the duration of the 24-inch shut down during the tee valve and connection?
A: The Contractor shall provide a detailed scheduled of the process and show that they are expediting the work and minimizing the duration of the shut down. The schedule will be reviewed by the Project Engineer and water treatment plan manager.

Q4: Please clarify the size and locations of the sacrificial Anodes.
A4: Anodes will be placed at existing WM connection points where the water main is not encased in Polywrap. Sacrificial anodes 17lbs shall be used on WM 8-inch diameter and less and 32lbs shall be used on WM 12-inch diameter and greater. A Detailed Specification for Sacrificial Anodes has been included in the addendum. Bid items have been included in the bid form.

Q5: The typical detail for the precast GW SD-W-3 does not depict or call out corporation on each side of the valve. Please confirm if corporations are to be installed in the GVIW?
A5: Gate Vale in Wells do not require corporation stops.

Q6: Can a detail please be provided for the proposed 24" GVIB. Per the city standard details all valves are to be in a well.
A6: We do not have a standard detail for a Gate Valve and Box for a Horizontally actuated valve. The box will be located vertically over the bevel gear and nut. Each project has unique circumstances and the City has chosen to use a GVIB in the case.

Q7: Please clarify if any of the existing water pipe to be abandoned needs to be flow filled or will caps and bulkheads be acceptable per the special provision.
A7: Existing watermain to be abandoned under 12-inch does not need to be flow filled, bulkhead at each cut end will be sufficient.

Q8: Can consideration please be given to allow adjustment to the phasing? Switching the phase one work with the majority of the phase two work would allow for permeant connections to be made at the Miller Road and Hillridge and easier overall testing of the main.
A8: The phasing has been chosen to minimize disturbance of the newly placed asphalt, due to the quantity, weight of the construction equipment and material delivery. Phasing order shall remain the same as provided in the Project Schedule and Payment.

Q9: Is there tracer wire required with the curb drain?
A9: Yes, per the Detailed Specifications of Curb Drain under trench installation : "… An approved tracing/locating wire (12 gauge wire w/ green HDPE coating) is required to be placed during installation. Tracer wire shall be placed intact (no cutting or splicing) from the cleanout, where it is to be coiled around the end of the pipe to the storm water connection, below ground level, where it is to be wrapped around a self-tapping screw into the wall of the structure**."**

Q10: For Item #330.2 – 6 inch Curb Drain, HDPE DR 17, HDD, can you clarify how many sump pump leads need to be connected to this run of pipe on Argyle Crescent? How is the pipe installation for the sump leads paid for?
A10: The connections are paid for under Curb Drain, Tap, Ea, there is one know connection to be made along the Argyle run. The Connection is explained in the Detailed Specification.

Q11: Is there a profile for or invert information for the 6" HDD curb drain?
A11: No profile is provided. Curb drain shall be installed with positive fall draining toward the catch basin.

Q12: There is no pay item for open cut curb drain lines, is none anticipated?
A12: Correct all curb drain shall be installed via HDD in order to protect the trees.

Q13: For Item #353.0 – 6 inch SDR 35 PVC Sanitary Lead, Trench Detail 1B [Contingency], is the taps to the existing sanitary sewer main incidental?
A13: This item is intended to be used where sanitary laterals are impacted by the installation of the new watermain or storm catch basin leads. The existing wye connection to the main if exposed is assumed to be reused.

Q14: Some of the storm sewer inlet structures show a 4" pipe invert, clarify what pay item covers the 4" pipe installation and connection?
A14: These 4-inch inverts are the existing sump pump leads, the connection to the catch basin will be covered **Curb Drain, Tap, Ea**. The quantity has been revised in the bid form to reflect each of the connects at catch basins. Additionally **4 inch SDR 35 PVC STM Lead, Tr Detail 1B, FT** has been added to the Bid Form.

Q15: According to the Detailed Specification for Project Schedule, Phase 1 work is to include Creal, Argyle and Helen with HMA base paved by June 28, 2024. Does the new water main on these streets need to be temporarily tied into the existing WM along Hatcher/Saunders (that will soon to be abandoned), since the new mainline on Hatcher and Saunders is to occur in Phase 2?
A15: Yes, the new watermain in Phase 1 has to be in service via temp tie-in to the existing water main on Hatcher and Saunders. The new WM needs to have water services transferred over to it before machine grading and base HMA placement.

Q16: Are the water services being replaced to existing curb boxes or to the limits graphically represented on the drawings?

A16: Excavate & Backfill for Water Service Tap and Lead, contractor shall excavate between the new WM and existing WM such that City of Ann Arbor Public Services Area personnel can connect to the existing water service close to the existing WM and connect it to a new water service line connected to the new main, the water service material furnishing and labor will be self-performed by the City. The Contract is responsible for all excavation and backfill effort. Water services are anticipated to be replaced to the limits shown on the plans but depending on the condition of the service pipe at the assumed connect point may be extended. Payment will be made for the length of trench excavated as agreed upon by the inspector.

Q17: Can typical sections please be provided for Hatcher, Saunders, and Cooley Ave?

A17: There will be a second addendum for these.

Q18: The special provision for sidewalk grading notes a pay item for “sidewalk grading (FT)” and “sidewalk ramp grading (EA.) Item 521.2 “Sidewalk Ramp Grading” is included as a pay item but does not include a sidewalk grading item. Will the sidewalk grading item be added? If not is this work to be incidental to or included in another item?

A18: Sidewalk grading is for the installation of new sidewalk in gap filling projects. No sidewalk gaps exist within the project. Sidewalk Ramp Grading , Ea if for compensation of effort required to prepare the base for ADA compliant grades of the new ramp.

Q19: Per the proposed cross section the existing “gravel” subbase is to be graded and paved on. The proposed thickness of new asphalt is 4” while the existing thickness per the provided borings vary between just over 4” and up to 6”. What material is to be used to make up the difference? If it is 21AA will it be incidental or paid for and how will it be measured?

A19: Additional 21AA to make up the difference in existing vs proposed will be paid for under 21AA Limestone, C.I.P., Cyd.

Q20: The Machine Grading specification refers to ‘acceptable’ or ‘approved’ embankment materials. What materials are the City of Ann Arbor expecting and where is this embankment material expected to be used?

A20: MDOT Class II material is required for embankment.

Q21: If the contractor utilizes a trench box and a narrower trench then what is depicted on the proposed cross section results, will with contractor still be required to excavate the existing subgrade shown per the plans or is the intent to follow SD-TD3A which depicts one foot on each side of the trench.

A21: Utilities trenches for ridged pipe shall conform to detail for Utility Trench 1A. SD-TD3A is related to restoration over the trench.

Q22: Can you specify the limits of Item #520.1 – Machine Grading? Does machine grading include only the roadway areas, edge of metal to edge of metal?
A22: Yes Machine Grading is intended to cover the contractors effort to prepare the aggregate grade in preparing for placing the base asphalt.

Q23: Where curb is proposed to be replaced beyond the WM trench, such as at the bump-outs how is the excavation base preparation for the new curb paid?
A23: Grading in preparation for the new curb is incidental to the curb pay item.

Q24: Will MDOT CLIIA Limestone Sand be acceptable for bedding and backfill?
A24: No, backfill must meet MDOT Class II as outlined in 2020 Table 902-3.

Q25: There are many low hanging tree limes throughout the project. Will they city trim trees prior work commencing?
A25: Yes the City or its agent, will trim the tree branches to provide a min of 18ft clearance over the roadway, before the start of construction.

Q26: Can Creal Park and/or the City water softening plant at the end of Hatcher Street be utilized as a laydown/staging yard?
A26: The area off Hatcher Street has a tight 90-degree bend so would not be useful for material deliver off a 52 ft trailers. A small area to the north end of Creal Park accessed off Creal would be available for material laydown. The contractor must enter into a restoration agreement with City Parks which will include temp perimeter fence and full restoration with seed and mulch. No individual project pay items will be used to pay for this effort.

Q27: Is all new RCP storm sewer to be TV inspected?
A27: No, given that most of the work on this project relates to catch basin leads no post construction CCTV is required. Curb Drain is to be CCTV'ed.

Q28: Please confirm all proposed 21AA CIP and CLII CIP is to be paid for separately under proposed HMA and concrete pavement items and not incidental to another item of work except for the trench backfill.
A28: Correct 21AA CIP, Cyd and Class II CIP, Cyd are measured and paid for under HMA and concrete.

Q29: Can we work on two streets at the same time? For example, work on Argyle and Creal at the same time.
A29: Yes multiple streets within a phase can be under construction at the same time.

Q30: Please provide a copy of the sanitary sewer cleaning / televising reports and videos for this project.
A30: The area sanitary collections system is vitrified clay. PACP reports and CCTV video will be made available to the award contractor.

Q31: Please provide a copy of the storm sewer cleaning / televising reports and videos for this project.
A31: The area storm collection system is non-reinforced catch basin laterals and reinforced concrete sewer. PACP reports and CCTV video will be made available to the award contractor.

Q32: Will staking be performed and paid for by the City?
A32: Yes, the City or its agent, will provide staking one time for each element, re-staking will be back charged to the contractor.

Q33: Will geotechnical material testing be performed and paid for by the City?
A33: Yes, the City will have a geotechnical consultant on site during backfill, proof rolling, subgrade undercut, road base compaction, concrete base compaction, HMA placement, concrete placement.

Q34: Will this be inspected by City inspectors or Consultant inspectors?
A34: The inspection assignment has not been completed yet, the same standard will be enforced regardless of whom is providing the inspection.

Q35: How old is the gas main in this area?
A35: Michcon Miss Dig Design ticket response indicates that the whole subdivision was replaced 3-inch PA 10 lbs 1996 and 2-inch PA 10lb 2018.

Q36: Do you know if tracer wire was installed on the new gas leads to the existing homes?
A36: No

Q37: There is no pay item for Maintenance Aggregate. Should one be included for homeowner access?
A37: Maintenance of access to residential properties is by contractor means and methods and this effort is covered under General Conditions.

Q38: There is no pay item for HMA, Hand Patching (this will be required). Please add as necessary.
A38: No HMA Hand Patching is anticipated.

Q39: Will removal and restoration as required to perform Exploratory Excavations be paid for separately, or is it incidental to the pay item?
A39: If HMA or Concrete removal is required for Exploratory Ex work it will be paid for under those pay items. Earth removal and backfill to existing grade is incidental to the pay item. Turf establishment would be paid for separately.

Q40: There is no pay item for Temporary Pedestrian Ramps. I assume that these are not required for this project?

A40: Correct none is anticipated. Temporary pedestrian mats and Type II barricades will be sufficient.

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