MICHIGAN

DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

FOR

**WATER MAIN MATERIALS AND CONSTRUCTION**

BRG:TNB 1 of 3 APPR:NJM:CJD:02-26-21

**a. Description.** This work consists of installing the following materials as part of the City of Lansing’s Board of Water and Light (LBWL) water system. Unless otherwise noted below, ensure all work, materials, construction requirements, and methods of measurement and payment are in accordance with the standard specifications.

**b. Submittals**. Submit portable document format (PDF) product data consisting of shop drawings and manufacturer’s literature to the Engineer and the LBWL for approval at least 10 working days prior to construction.

1. The Contractor must submit a general work plan outlining the procedure and schedule to be used for installation of the water main.

2. The Contractor must submit documentation certifying that they are prequalified with the LBWL to complete the water main work. The Contractor must also provide documentation of training and relevant experience of personnel that will be performing the work.

**c. Materials.** Provide the listed materials below in accordance with current *AWWA* standards and the standard specifications. The specific items listed conform to LBWL water system requirements and no substitutions are permitted.

1. Pipe and Fittings. Provide Class 53 ductile iron (DI) pipe. Provide DI mechanical joint or push-on type fittings as follows: DI fittings must meet *ANSI/AWWA C153/A21.53* and be class 350. Ensure fittings are cement lined in accordance with *ANSI A21.4/AWWA C114*. Rubber gasket joints must meet *ANSI A21.11/AWWA C111*. Provide electrical conductivity at each joint.

2. Restrained Joints. Provide restrained mechanical joints from EBAA Iron, Inc. Megalug 1100 Series, Ford Meter Box Uni-Flange Series 1400, Sigma One-Lok SLD Series, or Engineer approved equal. Ensure restrained push-on joint pipe is American Fast-Grip or Field Flex-Ring, US Pipe Field-Lok, or Engineer approved equal. Ensure joints are in accordance with *ANSI A21.11/AWWA C111*. Ensure all bolts for mechanical joints are made of low-alloy weathering steel in accordance with *ANSI A21.11/AWWA C111*.

3. Gate Valves. Ensure valves meet *AWWA C509* and are resilient wedge with DI body. Ensure surfaces are epoxy coated per *AWWA C550* inside and outside. Valves must have a bronze non-rising stem (NRS) with two-inch square nut, fully encapsulated DI wedge per *ASTM D429*, with protective wedge guide covers for all sizes four inches and above. Ensure all wedges, four inches and above, are DI and fully encapsulated with ethylene propylene diene monomer (EPDM) rubber. Ensure valve stems are sealed with three O-rings that are replaceable under full pressure. Gate valves must have a clear waterway equivalent in area, when fully open equal to that of the connecting pipe. Ensure valves are made to open when turned to the left, or counterclockwise. Furnish gate valve joints with mechanical joints in accordance with *ANSI/AWWA C110/A21.10*, *ANSI/AWWA C111/A21.11,* or *ANSI/AWWA C153/A21.53*.

4. Valve Boxes. Ensure valve boxes comply with *AWWA M44* for cast-iron valve boxes. Include a slide or screw type top section, an adjustable extension length as required for depth of burial of the valve, and a plug with lettering “WATER”. Also, provide a bottom section with a base of adequate size to fit over the valve and an approximately five-inch diameter barrel. Provide boxes manufactured by American Waterous, Clow Corporation, EJ, or Engineer approved equal.

5. Hydrants. Hydrants, if needed, will be provided, and installed by (LBWL) forces and must meet all requirements of *AWWA C502-80* standard or latest version thereof, and *UL 246*.

The Contractor is responsible for installing the hydrant branch from the main to the hydrant valve and providing a safe excavation for the placement of the hydrant after the hydrant valve. Coordinate with the LBWL to schedule installation of the hydrant by LBWL forces. Once LBWL has installed the hydrant, the Contractor is responsible for all backfill and compaction.

6. Water Services. Provide water services in accordance with the standard specifications and the LBWL water system requirements. Ensure services are replaced with the same size, except the minimum size will be 3/4 inch.

7. Provide compression type corporation stops, curb stops, and fittings fabricated of brass as manufactured by Ford Meter, Mueller, or approved equal.

8. After completing disinfection, initially flush the water mains with water at a velocity of 3 feet per second.

**d. Construction.** Ensure construction is in accordance with the current *AWWA* standards, the standard specifications, and as detailed on the plans. Construct water main with a minimum of 5.5 feet of cover.

Ensure all work for replacement of water services is done in accordance with current *AWWA* standards, section 823 of the Standard Specifications for Construction, Michigan Department of Environment, Great Lakes, and Energy (EGLE) standards, and the LBWL specifications as applicable. Ensure existing services lines, as exposed by Contractor, are examined by the Engineer and LBWL for material verification. Ensure services are not taken out of service and replaced unless the Engineer and LBWL determine the material is Lead (Pb) free.

If the water service material has been determined to contain Lead (Pb) products, work will be limited to replacing water service from water main up to and including curb stop, however final connection will not be allowed. Additional water service work from the curb stop to within the resident building will be performed under a separate contract. Ensure temporary water service materials and plan is approved by the Engineer prior to installation. The installation plan must have the temporary water service in place and functional in advance of the construction activities. Maintenance of temporary water service is the Contractor’s responsibility. Take necessary precautions to prevent vandalism, joint blow offs, leaks, damage from pedestrians, vehicles, or other sources, because the construction occurs on the ground surface. Upon completion of the use of the temporary water service (i.e.: completion of the installation of the new water main and placement into service), remove the temporary system. The materials provided for the temporary water main will remain the property of the Contractor following the completion of construction.

**e. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price in accordance with subsection 823.04 of the Standard Specifications for Construction.