

City of Kalamazoo
Beekman Court Water Main Replacement

UNIT PRICES - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes descriptions of the method of measurement and the basis of payment for Unit Price Work under this Contract.
- B. Basis of Contract Payments:
1. Final Contract Price shall be determined by actual quantities installed at unit prices stated in Contractor's Bid.
 2. Engineer shall determine actual as-built quantities.
 3. All work identified on the Plans, but not included as a Bid item shall be considered incidental to construction and not paid for directly, except Work that would be considered additional Work due to unforeseen conditions.
 4. Unit price payments for individual items shall include everything necessary for such item to function as intended in the system.
 5. Owner reserves the right to increase, decrease or eliminate any quantities for items listed in Contractor's Bid or which become a part of the Contract Documents.
 6. All work shall be completed in accordance with the City of Kalamazoo Standard Specifications for Water Main and Service Installation 2021.
- C. Items included as incidental to Unit Prices for systems and appurtenances. Unless there is a specific pay item identified, the unit price payment shall include, but not be limited to:
1. Clear, excavate, trench, bedding, trench backfill, compaction, disposal of items for clearing and unsuitable or excess excavated materials.
 2. Temporary sheeting, bracing and shoring of excavations.
 3. Support, protection, repair, connection or reconnection of existing pipelines and utilities. Cleanup and surface restoration.
 4. Water service repair.
 5. Sewer lead repair.
 6. Bulkhead of pipes to be abandoned.
 7. Removal of pipes, valves, structures and appurtenances located within the excavation limits of new utilities whether identified on the removal Plans or not.
 8. Coordination of mail delivery and refuse removal with residents, post office, and refuse collectors.
 9. Coordination with public transportation and schools/buses.
 10. Support of utility poles and existing underground utilities during excavation and installation of sanitary sewer, water main and storm sewer.
 11. Remove, salvage, and replace street signs.
 12. Remove and disposal of trees/stumps less than or equal to 8-inches in diameter.
 13. Protection, repair, and/or replacement of leaching basins/storm inlets damaged by Contractor.
 14. Remove and replace guard rails.
 15. The Contractor shall provide a written statement of warranty (Warranty Bond) for a period of 2 years from the date of final acceptance (after all service connections are complete). Warranty work shall cover any necessary cost to repair water main or appurtenance leaks and water main or appurtenance leak damage at no cost to the City of Kalamazoo. Final acceptance will only be given once all water service connections are complete.

16. As-Builts

- Production of daily as-built drawings and survey of water main and features during construction, including water main location and measurements to center of: fittings, valves, hydrants, air release chambers, service taps, curb boxes, etc..
- Survey shall be completed during construction using a method with ± 1 foot lateral accuracy, or better.

City of Kalamazoo
Beekman Court Water Main Replacement

- Water main location, for generally straight runs, shall be surveyed at intervals not to exceed three lengths (sticks) of pipe, or 60 feet, whichever is less.
 - Daily field notes/as-builts shall be emailed to the City's Project Manager and Inspectors daily (sajtare@kalamazoo-city.org, buszkat@kalamazoo-city.org).
 - Final survey deliverables shall include in digital format GPS coordinates for the water main and all water main features and services (as a csv file; a column in the csv shall identify the asset (90, 45, tap, hydrant, etc.)), map depicting: the location of the water main, where joint restraint is provided, and associated features including an AutoCAD DWG file with all information.
 - Michigan State Plane South Coordinate System shall be used and grid to ground scale shall be noted. Coordinate system shall be: NAD_1983_2011_STATE PLANE FIPS 2113 (international feet).
 - Contractor shall also prepare and submit completed hydrant cards, valve cards and service cards as directed by the inspector. The following information shall be recorded for each valve installed: Make, Model, Serial Number, Actuator Model (if equipped). **Each valve shall be fully opened and closed prior to installation and the number of turns to operate the valve shall be recorded on the valve card.**
 - The deliverables shall be submitted to the City's Project Manager for review and comment prior to finalization.
- D. City provided materials
1. City shall provide all items listed in the table below at no cost to the Contractor.
 2. Contractor shall be responsible for coordinating delivery of materials by contacting the City's specified supplier a minimum of 10 working days prior to desired delivery. In advance of material delivery, a centralized delivery yard shall be established by the Contractor and agreed upon with the City and City's material supplier on or adjacent to the project site. The Contractor shall supply any materials not explicitly listed below that are necessary to construct the project. These materials shall be incidental to construction. No second hand or salvaged materials shall be allowed or supplied. All supplied products shall be "Buy American" unless otherwise specified and shall comply with the conditions of this section.
 3. Contractor shall review the plans and list of City supplied materials during bidding and throughout construction. If Contractor believes additional quantities will be required, Contractor shall immediately notify the City in writing, and the City will provide the additional quantities at no cost to the Contractor (THIS ONLY PERTAINS TO MATERIALS LISTED IN TABLE – CITY PROVIDED MATERIALS). City shall not be responsible for any downtime or construction delays associated with insufficient materials being available during construction. Contractor shall be responsible for all delays and downtime associated with Contractor supplied materials, and shall purchase, provide, and install materials not explicitly listed below that are necessary to construct the project as designed.
 4. All City provided materials, not used during construction, shall be returned to the City within one week of water main and service installation completion, unless otherwise directed by the City's project manager. The Contractor shall be responsible for transporting and unloading any excess material from the project site to 415 E. Stockbridge Ave., Kalamazoo, MI. This includes, but is not limited to, partial and full sticks of pipe, partial and full rolls of copper (including tag ends of copper services), valves, fittings, gaskets, bolts, etc.
 5. City provided materials shall be used efficiently and waste from cutting pipes, etc. shall be minimized. City provided materials shall be handled with care and protected from damage, vandalism and thievery. Contractor shall be responsible for providing additional materials due to theft, vandalism or damage caused by the contractor.
 6. Contractor shall wash the inside of all pipe and fittings with chlorinated water (maximum 200 ppm chlorine solution) immediately prior to placement in the trench. Water pressure and velocity during washing shall not exceed manufacture's recommendations or damage the pipe or fittings.

City of Kalamazoo
Beekman Court Water Main Replacement

7. Contractor shall provide 2 year warranty as described in the City of Kalamazoo Standard Specifications for Water Main and Service Installation. Warranty shall cover all City and Contractor provided parts and materials; and associated contractor labor costs.
8. Contractor and Engineer shall track City provided material delivery and usage on a daily basis.

Table - City Provided Materials

ITEM	QUANTITY
8X6 TAPPING SADDLE AND VALVE	1
16X6 TAPPING SADDLE AND VALVE	2
DIP_6 INCH (includes pipe and standard gaskets)	700
6" FIELD LOCKING GASKET	25
6" GATE VALVE	2
VALVE BOX	10
4" CAP	2
6"X2" PLUG	1
6" SOLID SLEEVE	3
6" 90 DEG BEND	1
6" 45 DEG BEND	8
6" 22.5 DEG BEND	8
6" 11.25 DEG BEND	4
6"X6" TEE	1
6" X 13" SWIVEL X SOLID ADAPTER W/ SWIVEL GLAND	4
HYDRANT	2
4" MEGA LUGS W/ GASKET AND BOLT KIT	2
6" MEGA LUGS W/ GASKET AND BOLT KIT	40
6"X1" SADDLE	6
1.25" SERVICE BRASS - STREET REDUCING	6
1.25" COPPER	360
0.75" SERVICE BRASS YARD	6
0.75" COPPER	360
CURB BOX	6

Item 1.25" SERVICE BRASS – STREET REDUCING: Shall include one each of the following parts per the Standard Specifications.

Part	Ford #	AY McDonald #
1" CC x 1.25" FC Corporation Stop	FB600-45-NL	74701B - NL, 5142-321
1.25" FCxFIP Curb Stop	B21-555-NL	76102 W - NL, 5142-356
0.75" x 1.25" Bushing	C18-35-NL	72206 D - NL; 5429-036
0.75" MIPxFC	C28-33-NL	74753 - NL, 5120-139

Item 0.75" SERVICE BRASS – YARD: Shall include one each of the following parts per the Standard Specifications.

Part	Ford #	AY McDonald #	Apollo
Angle Valve, 0.75" FC x 5/8" MC	BA23-331W-NL	74642B, 5143-195	-
Meter Connector, 5/8" MC x 0.75" MIP	C38-13-2-188-NL	74620, 5124-065	-
0.75" Ball Valve	-	-	77FLF-104-01

City of Kalamazoo
Beekman Court Water Main Replacement

1.2 GENERAL CONDITIONS

- A. Item No. 1 – Mobilization, (Maximum of 5% of Total Bid):
1. Includes:
 - Preparatory work and expenses incurred prior to beginning work onsite.
 - Transport materials, personnel, and equipment to the job site.
 - Establish temporary onsite construction facilities, including but not limited to, port-a-johns.
 - Provide insurance, bonds, and other costs associated with the project in general and not included in other pay items.
 - All required submittals.
 2. Unit of Measure:
 - Lump sum.
 - 50% payment will be made after 5% of the original contract amount is earned.
 - Final 50% payment will be made after 25% of the contract amount is earned.
- B. Item No. 2 - Cash Allowances - Testing:
1. Includes cash allowance for:
 - Material certification.
 - Material density/compaction testing.
 - Material density/compaction testing requirements shall be per City of Kalamazoo Standard Specifications for Water Main and Services Installation 2021 and the Project Plans.
 2. Cost for pressure testing and chlorination of the water main shall be included in the water main items. City will perform and pay for bacterial sampling of water main.
 3. Unit of measure:
 - Actual dollars paid to independent laboratory.
 - General Contractor allowable mark-up is 10%.
 - Documented by invoices.
- C. Item No. 3 – Traffic Control:
1. Includes the following in accordance with the Project Plans and most recent Michigan Manual of Uniform Traffic Control Devices:
 2. Furnish, install, and maintain:
 - Traffic, pedestrian and bicycle control devices including barricades, barrels, grabber cones, signage, etc. and; provide flaggers as necessary.
 - Maintain access to residential driveways.
 - Detours in accordance with the Project Plans.
 - Traffic Control as required due to Contractor's operations and City requirements.
 - Prepare and submit Right-of-Way permit to City within 2 weeks of project start (no permit fees are required).
 3. Unit of measure:
 - Lump sum.
 - 50% payment shall be made for installation of traffic control devices.
 - 50% payment shall be made after removal of traffic control devices and construction within the ROW is complete.
- D. Item No. 4 - Soil Erosion Control:
1. Includes the following:
 - Develop and implement a soil erosion and sedimentation control plan that meets EGLE requirements, including providing and maintaining the minimum required soil erosion and sedimentation control measures and any other measures necessary to adequately control soil erosion and sedimentation.
 - Apply for and obtain applicable permits, as required.

City of Kalamazoo
Beekman Court Water Main Replacement

- Provide and maintain soil erosion and sedimentation control measures.
 - Provide inspections by a certified Storm Water Operator and provide inspection documentation to the City of Kalamazoo weekly and within 24 hours of precipitation events.
 - Sweep and clean roadways and sidewalks as necessary to prevent tracking of soil and sediment transport.
 - Protect and clean catch basins and storm sewers as required.
 - Bypass pump storm water during and after rain events.
 - Implementing the soil erosion and sedimentation control plan, including providing and maintaining the minimum required soil erosion and sedimentation control measures indicated on the Plans and any other measures necessary to adequately control soil erosion and sedimentation.
 - Provide and maintain tree protection fencing.
 - Remove temporary soil erosion and sedimentation control measures after site is stabilized and turf is established.
2. Unit of Measure:
- Lump sum.
 - 50% payment shall be made for installation of soil erosion and sedimentation control measures.
 - 50% payment shall be made upon removal of soil erosion and sedimentation control measures.
- E. Item No. 5 – Tree Removal and Grubbing
1. Includes the following:
- Remove and dispose of trees, shrubs, stumps, roots, etc. as depicted on the Plans
 - Perform additional tree and shrub trimming and removal as necessary to facilitate equipment operation and project construction. Trimming and removals beyond what is depicted on the Plans shall be incidental.
 - Any additional tree removals (beyond what is specified on the Plans) will require City Tree Committee approval which meets the first Tuesday of the month.
2. Unit of Measure
- Lump Sum
- F. Item No. 6 – Remove & Replace, HMA Roadway:
1. Includes the following:
- Sawcut, remove (full depth) and dispose of existing bituminous, concrete, composite pavement materials, and aggregate base.
 - Milling at ends of pavement removal per Project Plans.
 - Preparation and compaction of subgrade.
 - Furnish, place and compact sand subbase and aggregate base.
 - Furnish and place HMA base, leveling and top course mixture to match existing roadway.
 - Paint/Stripe road to match preconstruction conditions.
 - Removal and replacement beyond that indicated on the Plans shall be incidental to construction.
2. Unit of measure: Lump Sum.
- G. Item No. 7 – Remove & Replace, Gravel Roadway/Driveway:
1. Includes the following:
- Remove and dispose of aggregate surface and base
 - Preparation and compaction of subgrade
 - Furnish, place and compact 8-inch thick MDOT 21AA aggregate surface
 - Removal and replacement beyond that indicated on the Plans shall be incidental to construction.
2. Unit of measure: Lump Sum
- H. Item No. 8 - Remove and Replace, Concrete 6”:
1. Includes the Following:
- Saw cut, remove and dispose of existing concrete surfaces subject to vehicular traffic/loading
 - Preparation and compaction of subgrade
 - Furnish, place and compact 8-inch thick 21AA aggregate base
 - Furnish and place 6-inch thick “high early strength” concrete
 - Removal and replacement beyond that indicated on the Plans shall be incidental to construction.

City of Kalamazoo
Beekman Court Water Main Replacement

2. Unit of measure: Lump Sum
- I. Item No. 9 – Remove and Replace, Sidewalk 4”
 1. Includes the following:
 - Sawcut, remove, dispose and replace existing sidewalks as necessary
 - Preparation and compaction of subgrade
 - Furnish and place 4-inch thick concrete sidewalk to match preconstruction conditions
 - Removal and replacement beyond that indicated on the Plans shall be incidental to construction.
 2. Unit of Measure: Lump Sum
- J. Item No. 10 – Remove and Replace, Concrete Curb and Gutter:
 1. Includes the following:
 - Sawcut, remove and dispose of curb and gutter as necessary.
 - Replace curb and gutter to match existing conditions
 - Removal and replacement beyond that indicated on the Plans shall be incidental to construction.
 2. Unit of Measure:
 - Lump Sum.
- K. Item No. 11 – Remove and Replace, Unsuitable Soil:
 1. Includes the following:
 - Remove and dispose of excavated soil, which in the opinion of the Engineer, is unsuitable for use as either bedding or backfill material.
 - Importation and placement of MDOT Class III material.
 2. Unit of Measure:
 - Cubic Yard compacted in-place.
- L. Item No. 12 – Water Main, Large Tap:
 1. Includes the following:
 - One 8-inch by 6-inch and two 16-inch by 6-inch taps will be furnished and installed by the City.
 - Contractor shall coordinate/schedule with City 5-days prior to needing water main tapped.
 - Contractor shall excavate and prepare existing water main for tapping – excavation shall meet MIOSHA requirements and water main shall be cleaned prior to City crew arriving onsite.
 - City will furnish and install tapping saddle and valve, pressure test saddle prior to tapping and tap the water main.
 - Contractor shall install restraints and valve box, backfill/compact trench, adjust valve box flush to grade and perform all restoration.
 - No additional payment will be allowed for delays related to work performed by the City. City can typically perform two taps per day.
 - Both 16-inch by 6-inch taps on Park Street shall occur on the same day, unless City directs otherwise.
 2. Unit of Measure
 - Each.
- M. Item No. 13 - Water Main, 6” DI
 1. Includes the following:
 - Install, restrain, flush, pressure test and disinfect water main.
 - Excavate, backfill, and compact trench.
 - Provide pipe bedding and trench backfill material.
 - Dewatering required for pipe installation.
 - Additional pressure testing and disinfection shall be completed at the Contractor’s expense until results are acceptable by the Owner.
 - City will perform and pay for bacterial sampling of water main.
 - Contractor shall provide daily and final as-builts meeting the requirements provided in 1.1(C)(16)
 2. Unit of Measure:
 - Lineal foot.

City of Kalamazoo
Beekman Court Water Main Replacement

- Measure from center of fitting to center of fitting along centerline of pipe.
 - Payment will not be authorized until as-builts are provided to and approved by the City.
- N. Item No. 14 – Water Main, 6" Fitting
1. Install fitting and joint restraint that are not specifically included with other pay items.
 2. Includes 6" bends, does not include sleeves.
 3. Unit of Measure: Each.
- O. Item No. 15 – Water Main, Polyethylene Encasement:
1. Includes the following:
 - Provide and install polyethylene encasement of water main as depicted on the Plans and directed by the City.
 - Polyethylene encasement shall be performed in accordance with City of Kalamazoo Standard Specifications for Water Main and Service Installation 2021.
- P. Unit of measure: Linear Feet as measured along the centerline of the water main.
- Q. Item No. 16 – Water Main, Hydrant Assembly:
1. Includes the following:
 - Install fire hydrant assembly, including main line tee, fire hydrant, valve and box, connecting spool (swivel x solid adapters w/ swivel gland), all 6-inch pipes, fittings and joint restraints.
 - Adjust hydrant to final grade according to City of Kalamazoo specifications.
 - Adjust valve box to final grade.
 - Hydrant extension (if necessary, furnish and install).
 - Hydrant Storz connection.
 - Hydrant marker.
 - Furnish and install hydrant drain bushings or plugs, as directed by the City.
 2. Unit of Measure: Each.
- R. Item No. 17 – Water Service, 1-1/4 inch
1. The Contractor shall be paid his unit price for each water service of the diameter specified actually installed on the proposed water main and connected to an existing or new curb stop near the existing curb stop, as depicted on the plans, or as instructed by the City. The item shall include earth excavation; jacking and boring; tapping the main; installing the service saddle, corporation stop and any other required fittings; connecting the proposed street service to the existing yard service or new curb stop; disinfecting; providing, placing, and compacting backfill, removals, restoration, disposal and any other miscellaneous materials, equipment and work necessary for the installation of the service connection of the diameter specified from the proposed water main to the existing curb stop or proposed curb stop location.
 2. This item shall include everything except for providing the new copper service pipe, the new curb stop, curb stop box, meter box or meter vault if required.
 3. Unit of Measure: Each.
- S. Item No. 18 – Curb Stop, 1-1/4 inch
1. The Contractor shall be paid his unit price for Curb Stop, ___inch for each curb stop valve and curb stop valve box actually installed, including bushing installation for 3/4 inch yard side services. Complete removal of the existing curb box shall also be included.
 2. Curb boxes on Sheet 4 of the Plans shall be installed 6 inches below grade and covered with a valve box installed flush to grade.
 3. Unit of Measure: Each.
- T. Item No. 19 and 20 – Copper Water Service Pipe, ___inch
1. The Contractor shall be paid his unit price for Copper Water Service Pipe, ___inch for each linear foot actually installed.
 2. Unit of Measure: Foot
- U. Item No. 21 – Connect to Existing Water Meter

City of Kalamazoo
Beekman Court Water Main Replacement

1. The Contractor shall be paid his unit price for each connection to an existing water meter or installing a new City provided meter at the existing meter location using City provided meter connectors, including:
 - Furnishing and installing any materials not provided by the City
 - Routing the new service line through the existing penetration into the home or creating a new penetration
 - Sealing new or existing penetration(s) with non-shrink grout
 - Removal and disposal old lead service pipe
 - Coordination and scheduling with property owner and/or occupant
 - Only to be used where service entrance will NOT be relocated (i.e. 413 Beekman, 417 Beekman and 1824 Bushouse)
 2. Unit of Measure: Each.
- V. Item 22 – Water Service Relocating:
1. Includes the following:
 - Furnish and install all interior pipe, fittings and supports necessary to relocate the water service entrance into the home as depicted on the Plans or as directed by the Engineer.
 - Additional interior pipe and fittings shall be routed from the former meter location (service entrance) to the new water service entrance into the home using Type M or Type L Copper Pipe and fittings that are NSF 61 and NSF 372 certified for drinking water.
 - Seal new service entrance with non-shrink grout
 - Connect new service line to the homes plumbing
 - Relocate meter as necessary
 - Abandon existing service connection by removing pipe from foundation and sealing the existing penetration inside and outside the structure with non-shrink grout.
 - All interior plumbing shall be performed by a plumber that is licensed in the State of Michigan.
 - All associated methods and materials shall be in compliance with City of Kalamazoo Specifications, Michigan Plumbing Code, MI Act 399, and all other local, state and federal rules and regulations.
 - Restoration of unfinished interior surfaces, excavation and backfilling shall be incidental.
 - Coordination and scheduling with property owner and/or occupant
 - Only to be used where service entrance will be relocated (i.e. 406 Beekman and 1832 Bushouse).
 2. Unit of Measure: Each
- W. Item No. 23 – Water Service Casing Pipe
1. Includes:
 - Furnish all material, labor and equipment necessary to install water service casing pipe as depicted on the plans and described in Item 24 – Meter Vault
 - Casing pipe shall be 3 inch diameter HDPE Pipe: Type III, Class C, Category 5, Grade P34, ASTM D1248 SDR 17, 100 PSI ASTM D3035. Join pipes with butt fuse equipment and methods in strict accordance with manufacture's recommendations and ASTM D3261.
 - Casing pipe shall be installed via horizontal direction drilling (HDD)
 2. Unit of Measurement: Foot
- X. Item No. 24 – Meter Vault:
1. Includes the following:
 - Furnish and install meter vault as depicted on the Plans including all excavation, bedding, backfill, concrete vault, access port, casting and frame assembly, conduits, etc.
 - Vault shall be traffic rated, have a 24-inch access opening, 12-inch steps and have the following interior dimensions: 6 feet tall x 6 feet wide (N-S) x 6 feet long (E-W). Shop drawings shall be submitted and approved by the City before proceeding with installation.
 - Casting and frame assembly shall be 24-inch diameter cast iron, traffic rated, manufactured by EJ, inscribed with "WATER" and set flush to grade
 - Conduits shall be 0.5-inch diameter SCH 40 galvanized steel, exit the vault near the southeast corner and extend 12 inches above grade. An 8 foot long pressure treated 4x4 shall be furnished and installed adjacent to the conduits and the conduits shall be secured to the 4x4. The 4x4 shall extend 3 feet below grade and be installed in a 12 inch diameter hole and concreted in place. A removable plug shall be installed at each end of the conduits.

City of Kalamazoo
Beekman Court Water Main Replacement

- Holes for water lines entering and exiting the vault shall be large enough to accommodate 3 inch diameter HDPE casing pipe
 - Two 1-1/4 inch copper service lines shall enter the vault. Reduce each 1-1/4 copper pipe to 3/4 inch copper pipe inside vault, place 3/4 inch ball valve then set 5/8-inch meter for each service line, followed by another 3/4-inch ball valve. Extend 3" casing pipe inside vault and route 3/4 – copper pipe from vault to house through the casing pipe. Extend casing pipes into vault and homes. If length of copper between the meter and house connection exceeds 100 feet, a compression coupling may be furnished and installed on the vault side of the service line to accommodate additional copper pipe.
 - Furnish and install supports for each water meter.
 - City will provide meters, radios/transmitters, and meter connectors
 - All voids and penetrations in the vault shall be filled/sealed with non-shrink grout. Voids between casing pipe and copper pipe, and conduits and wire shall be sealed with silicone caulk at each end.
 - Chamber shall be placed on 6 inches of MDOT 6A and sump shall be filled with MDOT 6A to facilitate drainage.
2. Unit of Measure: Lump Sum.
- Y. Item No. 25 and 26 – Water Main, ___ inch Cut and Plug
1. Includes the following:
- Excavate, backfill, and compact trench.
 - Arrange for the City of Kalamazoo to shut down the water main.
 - Cut the water main at the locations shown on the plans and remove required section of pipe
 - Cap the end(s) of pipe remaining in place and megalug
 - Construct the required restraint/thrust block as directed by the City or Engineer
 - Remove and dispose of abandoned pipe, gate boxes, or other appurtenances.
2. Unit of Measure: Each
- Z. Item No. 27 – Restoration, Turf Over Water Main and Services:
1. Includes the following:
- Regrade surface over areas disturbed by construction and restore to match preconstruction conditions.
 - 1) Furnish, place, and grade 4-inches of screened topsoil. Includes removal and disposal of any existing soil required to place new topsoil even with existing grade.
 - 2) Place hydroseed or match existing landscaping/surface materials.
 - 3) Place mulch and mulch anchoring where indicated on the Plans or as needed to prevent erosion until turf is established.
 - 4) Maintain until vegetation is established, including, watering, fertilizing, reseeding, additional topsoil placement, etc.
2. Payment shall not be authorized until appropriate vegetation is established.
3. Unit of measure: Lump sum.
- AA. Item No. 28 and 29 – Water Main Line Stop, _inch – See Special Provision “ Water Main Line Stop”
- BB. Item No. 30 – Traffic Control, HDD
1. Includes all items listed under Bid Item No. 3, but with modified traffic control to allow for “Bid Alternative: HDD Water Main Across Park” as presented in the Plans.
2. Unit of measure:
- Lump sum.
 - 50% payment shall be made for installation of traffic control devices.
 - 50% payment shall be made after removal of traffic control devices and construction within the ROW is complete.
- CC. Item No. 31 – Remove & Replace, HMA Roadway and Concrete Curb and Gutter, HDD
1. Includes all items listed under Bid Items No. 6 and No. 10, but as depicted on “Bid Alternative: HDD Water Main Across Park” as presented in the Plans.

City of Kalamazoo
Beekman Court Water Main Replacement

2. Unit of measure: Lump sum.

DD. Item No. 32 – Water Main HDD, 6 inch

1. Includes the following:
 - See Special Provision “Horizontal Directional Drilling”
 - Install, restrain, flush, pressure test and disinfect water main.
 - Excavate, backfill, and compact trench.
2. Unit of Measure:
 - Lineal foot.
 - Measure from center of fitting to center of fitting along centerline of pipe.

City of Kalamazoo
Beekman Court Water Main Replacement

CITY OF KALAMAZOO
SPECIAL PROVISION
FOR
WATER MAIN LINE STOP

1 of 2

Description

This work consists of providing, installing and operating a water main line stop (Hydra-Stop) to isolate a section of existing live water main as shown on the plans and described herein.

Work Included Under Other Contract Items

Water Main and Fittings
Valves and Boxes
Connect to Existing Main

Materials

Provide materials in accordance with section 823 of the 2020 MDOT Standard Specifications for Construction and with the Special Provision for Water Main and Fittings. Submit catalog cuts to the Engineer for approval prior to ordering line stop materials.

Construction

Complete all work in accordance with the Special Provision for Water Main and Fittings. Verify the material, size, ovality and condition of the existing water main prior to ordering the line stop materials.

Verify the pressure in the existing main is below the line stop manufacturer's recommendation before installation of the line stop.

Do not attempt to force, reshape, or bend saddle plates by excessive tightening of saddle studs.

Utilize concrete supports and reaction blocking for the line stop fitting.

Complete a pressure test after assembly of the line stop saddle, drain nozzle and fitting.

Install a completion plug, blind flange and check for water tightness prior to abandonment of the line stop fitting. Coat the whole assembly with a coal tar epoxy to a final minimum cured thickness of 0.020 inches.

2 of 2

City of Kalamazoo
Beekman Court Water Main Replacement

Measurement and Payment

The completed work, as described, will be measured and paid for at the contract unit price using the following pay item.

<u>Pay Item</u>	<u>Pay Unit</u>
Water Main Line Stop, 2 inch	Each
Water Main Line Stop, 4 inch	Each

Water Main Line Stop, __inch includes payment in full for furnishing all material, labor and equipment necessary to perform the work specified herein and shown on the plans.

Perform all work required in conjunction with dewatering operations, without separate payment, and consider it is included in the **Water Main Line Stop, __inch** pay item.

Furnish all labor, equipment and materials for trench excavation, disposal, and backfill and consider it is included in the **Water Main Line Stop, __inch** pay item.

Removal and replacement of pavement, curb, curb and gutter, and sidewalk shall be included.