SUBMIT BIDS TO:	CITY OF TUSCALOOSA P.O. BOX 2089 TUSCALOOSA, AL 35403	PURCHASING OFFICE 2201 UNIV. BLVD. TUSCALOOSA, AL 35401	INVITATION TO BID
BID TITLE **VARIOUS INFRASTRUCTURE SUPPLIES**			BID NO. 9070-090822-1
PAGE 1 OF 47 PAGES	**BIDS WILL BE OPENED AT 10:00 AM, CST ON SEPTEMBER 08, 2022 IN THE OFFICE OF THE PURCHASING AGENT, 2201 UNIVERSITY BLVD. TUSCALOOSA, AL 35401 AND MAY NOT BE WITHDRAWN FOR THIRTY (30) DAYS AFTER SUCH DATE & TIME.**		ISSUE DATE 08/16/2022

City of TUSCALOOSA

MAYOR
WALTER MADDOX

COUNCIL MEMBERS

MATTHEW WILSON	KIP TYNER
RAEVAN HOWARD	JOHN FAILE
NORMAN CROW	CASSIUS LANIER
LEE BUSBY	

PURCHASING AGENT
AMANDA GANN

Vendor Information

(SECTION TO BE COMPLETED BY VENDOR)

_____
Company Name (Please Print)

_____ _____
Phone Number Point of Contact

_____
Email Address

GENERAL CONDITIONS OF INVITATIONS TO BID

Clear Form Save As

1. **PREPARATION OF BIDS**

Bids will be prepared in accordance with the following:

(a) Our enclosed Bid forms are to be used in submitting your bid.

(b) All information required by the Bid form shall be furnished. The bidder shall print or type his name and manually sign the schedule and each continuation sheet on which any entry is made.

(c) Unit prices shall be shown and where there is an error in extension of price, the unit price shall govern.

(d) Proposed delivery time must be shown and shall include Sundays and holidays.

(e) Bidder will not include federal taxes nor State of Alabama sales, excise, and use taxes in bid prices as the City is exempt from payment of such taxes. An exemption certificate will be signed where applicable upon request.

(f) Bidders shall thoroughly examine the drawings, specifications, schedule, instructions and all other contract documents.

(g) Bidders shall make all investigations necessary to thoroughly inform themselves regarding plant and facilities for delivery of material and equipment as required by the bid conditions. No plea of ignorance by the bidder of conditions that exist or that may hereafter exist as a result of failure or omission on the part of the bidder to make the necessary examinations and investigations, or failure to fulfill in every detail the requirements of the contract documents, will be accepted as a basis for varying the requirements of the City or the compensation to the vendor.

(h) Bidders are advised that all City Contracts are subject to all legal requirements provided for in the Purchasing ordinance and/or State and Federal Statutes.

2. **DESCRIPTION OF SUPPLIES**

(a) Any manufacturer's names, trade names, brand name, or catalog numbers used in specifications are for the purpose of describing and establishing general quality levels. SUCH REFERENCES ARE NOT INTENDED TO BE RESTRICTIVE. Bids will be considered for any brand which meets the quality of the specifications listed for any items.

(b) Bidders are required to state exactly what they intend to furnish, otherwise they shall be required to furnish the items as specified.

(c) ***Bidders will submit, with their proposal, data necessary to evaluate and determine the quality of the item(s) they are bidding.***

3. **SUBMISSION OF BIDS**

(a) Bids and changes thereto shall be enclosed in sealed envelopes addressed to Amanda Gann, Purchasing Agent, 2201 University Blvd., Tuscaloosa, Alabama 35401. The name and address of the bidder, the date and hour of the bid opening and the material or service bid on shall be placed on the outside of the envelope.

(b) Bids must be submitted on the forms furnished. Telegraphic bids will not be considered.

4. **REJECTION OF BIDS**

(a) The City may reject a bid if:

1. The bidder misstates or conceals any material fact in the bid, or if,
2. The bid does not strictly conform to the law or requirement of bid, or if,
3. The bid is conditional, except that the bidder may qualify his bid for acceptance by the City on an "all or none" basis, or a "low item" basis. An "all or none" basis bid must include all items upon which bids are invited.

(b) The City may, however, reject all bids whenever it is deemed in the best interest of the City. The City may also waive any minor informalities or irregularities in any bid.

5. **WITHDRAWAL OF BIDS**

(a) Bids may not be withdrawn after the time set for the bid opening for a period of time as specified.
(b) Bids may be withdrawn prior to the time set for the bid opening.

6. LATE BIDS OR MODIFICATIONS

(a) Bids and modifications received after the time set for the bid opening will not be considered.
(b) Modifications in writing received prior to the time set for the bid opening will be accepted.

7. CLARIFICATIONS OR OBJECTION TO BID SPECIFICATIONS

If any person contemplating submitting a bid for this contract is in doubt as to the true meaning of the specifications or other bid documents of any part thereof, he may submit to the Purchasing Agent on or before five (5) days prior to scheduled opening a request for clarification. All such requests for information shall be made in writing and the person submitting the request will be responsible for its prompt delivery. Any objection to the specifications and requirements as set forth in this bid must be filed in writing with the Purchasing Agent on or before five (5) days prior to scheduled opening.

8. DISCOUNTS

(a) Bidders may offer a cash discount for prompt payment; however, such discounts shall NOT be considered in determining the lowest net cost for bid evaluation purposes. Bidders are encouraged to reflect cash discounts in the unit prices quoted.
(b) In connection with any discount offered, time will be computed from the date of receipt of supplies or services or from the date a correct invoice is received, whichever is the later date. Payment is deemed to be made on the date of mailing of the check.

9. SAMPLES

Samples, when required, must be submitted within the time specified at no expense to the City of Tuscaloosa. If not destroyed or used up during testing, samples will be returned upon request at the bidder's expense, unless stated otherwise in Special Conditions or Specifications. Each individual sample must be labeled with bidder's name and manufacturer's brand name and number.

10. AWARD OF CONTRACT

(a) The contract will be awarded to the lowest responsible bidder based upon the following factors: quality; conformity with specifications; purpose for which required; terms of delivery; transportation charges; dates of delivery.
(b) The city reserves the right to accept and award item by item, and/or by group, or in the aggregate, unless the bidder qualifies his bid by specified limitations. Re Par.4(a)3.
(c) Prices quoted must be FOB Destination to Tuscaloosa with all transportation charges prepaid unless otherwise specified in the Invitation to Bid.
(d) A written award of acceptance (Purchase Order), mailed or otherwise furnished to the successful bidder shall result in a binding contract.
(e) If two or more bids received are for the same total amount or unit price, quality and service being equal, the contract shall be awarded to a local bidder.

11. DELIVERY

(a) Deliveries are to be FOB Destination unless otherwise specified in the Invitation to Bids.
(b) Deliveries are to be made during regular business hours.

12. CONDITION OF MATERIALS AND PACKAGING

All items furnished must be new and free from defects. No others will be accepted under the terms and intent of this bid. All containers shall be new and suitable for storage or shipment, and price bid shall include standard commercial packaging.

13. CLAIMS

Successful bidder(s) will be responsible for making any and all claims against carriers for missing or damaged items.

14. LOCAL, STATE, AND FEDERAL COMPLIANCE REQUIREMENTS

Bidders shall comply with all local, state, and federal directives, orders and laws as applicable to this bid and subsequent contract(s).

15. PROVISION FOR OTHER AGENCIES

Unless otherwise stipulated by the bidder, the bidder agrees when submitting his bid to make available to all City agencies, departments, and in-city municipalities the bid prices he submits, in accordance with the bid terms and conditions, should any said department, agency, or municipality wish to buy under this proposal.

16. COLLUSION

The bidder, by affixing his signature to this proposal, agrees to the following: "Bidder certifies that his bid is made without previous understanding, agreement, or connection with any person, firm, or corporation making a bid for the same items and is in all respects fair, without outside control, collusion, fraud, or otherwise illegal action".

17. VARIANCE IN CONDITIONS

Any and all special conditions and specifications attached hereto which vary from General Conditions shall have precedence.

18. MINORITY / DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

The City of Tuscaloosa has voluntarily adopted a Minority / Disadvantaged Business Enterprise ("MBE/DBE/WBE") Program called Tuscaloosa Builds, which is designed to encourage the participation and development of minority and disadvantaged business enterprises and to promote equal business opportunities to the fullest extent allowed by state and federal law. To learn more about this program, visit the City's website at www.tuscaloosa.com.

SPECIAL CONDITIONS

The General Conditions of Invitations to Bid and any Special Conditions stated shall be considered as part of the specifications of the bid.

Reference to brand names and numbers is descriptive, but not restrictive, unless otherwise specified. Bids on equivalent items meeting the standards of quality thereby indicated will be considered, providing the bid clearly describes the article offered and indicates how it differs from the referenced brands. Descriptive literature and manufacturer's specifications plus any supplemental information necessary for comparison purposes must be submitted with the bid or the bid on that item will be rejected. Determination as to whether an item submitted for bid meets specifications shall be the sole responsibility of City personnel. Failure to include this information will subject a bid to rejection. Reference to literature submitted with a previous bid or on file with the Division of Purchasing will not satisfy this requirement. The burden is on the bidder to demonstrate that the item bid is equivalent to the item specified in the ITB. Any exceptions taken to any item(s) must be fully explained in written detail on bidders' letterhead and attached to the bid when submitted.

Awards shall be made or contracts entered into with the lowest responsible bidder(s) meeting all specifications and terms and conditions established by the Division of Purchasing. Where available, bid items are grouped into schedules by product group/type.

Bid items are grouped into schedules by product group/type. It is the City's intention to award this bid by schedule. In order to be considered for award of a schedule, bidder should submit a bid for all items in that schedule. However, the City reserves the right to make award by item or group of items if it is in the best interest of the City to do so. Delivery dates may be a factor in awards. Local Bidder Preference will be used in bid evaluation in accordance with State of Alabama Bid Law Section 41-16-50(a).

The parts/supplies listed in the bid are the ones most commonly purchased by the City. If awarded a schedule, bidder(s) must agree to extend similar pricing/discounts for those same product types in sizes/models not specifically listed. For example, if awarded the schedule for Tap Sleeves, awarded bidder will sell Tap Sleeves in sizes not listed in the bid at the same price/discount levels as the sizes listed in the bid.

The City intends to award this bid to Primary Bidder(s). The City may also choose to make an award to a Secondary Bidder to be used in the event the Primary Bidder is unable to provide an item within a reasonable amount of time as determined by the City. The Secondary Bidder (if applicable) shall be obligated to all applicable terms and conditions contained herein. By submitting a bid, all bidders agree to become Secondary Bidder if determined as such by the City.

The awarded bidder(s) shall guarantee full delivery within 90 days of receipt of order. If deliveries are not made at the time agreed upon, the City reserves the right to cancel and purchase from Secondary Bidder or the next lowest bidder, if applicable. Consistent failure to meet delivery times will constitute grounds for the termination of the awarded section of the contract. This declaration may result in the rejection of any future bids submitted by the vendor.

UNBALANCED BIDDING**:** The City will reject any bid that is unbalanced if it is in the best interest of the City to do so. A bid will be considered unbalanced when, in the opinion of the Purchasing Agent, the bid allocates a disproportionate share of costs to the price of one or more bid items in order to reduce the costs to the price of another bid item or items, and if there is a reasonable possibility that the bid will not result in the lowest overall cost to the City.

Questions concerning the bid process should be directed to Amanda Gann at agann@tuscaloosa.com.
Questions concerning Specifications should be directed to Hunter McJenkin at hmcjenkin@tuscaloosa.com.

Any addenda issued for this bid will be posted on the City Of Tuscaloosa website at http://www.tuscaloosa.com/bids. It is the responsibility of the bidder to check this page for any addendums before submitting their bid.

CONTRACT INFORMATION

The term of contracts resulting from this bid award shall be from October 1, 2022, or date of award if after that date, through September 30, 2023.

All items will be ordered on an as needed basis. There are no minimum order guarantees and no estimates for expected annual purchases.

The issuance of a City of Tuscaloosa Purchase Order or Purchasing Card is required to constitute a contract between the vendor and the City of Tuscaloosa, which shall bind the vendor to furnish and deliver the commodities and/or services ordered at the prices, terms, and conditions quoted.

Awarded bidders not honoring bid prices for the entire contract period will have their bid award rescinded for the remainder of the awarded contract period and may result in the rejection of any future bids submitted by the vendor.

The pricing structure under the terms of this contract may be adjusted on a semi-annual basis. Any price increase or decrease shall be in exact increments of any price increase or decrease imposed by the supplier, manufacturer or raw material index.

In the event a price increase is imposed upon the contractor by its supplier or manufacturer to procure labor or materials necessary to fulfill the scope of services and/or products to be provided under the terms of the contract due to unforeseeable economic and supply chain issues, the contractor may request a price increase equal to that imposed by its supplier or product manufacturer.

With any price increase request, the contractor shall provide a copy of the supplier's price increase notification along with the written request to the City. Price increase requests should be the result of an increase at the manufacturer's level that the contractor incurred after contract commencement date with the City and not produce a higher profit margin than that on the original contract. The documentation provided must clearly identify the items impacted by the increase.

The City will review the request and its sole discretion make a decision. If accepted, the adjustment shall become effective and will be firm for the remainder of the period. At no time shall the price increase(s) granted under the terms of this contract cumulatively exceed ten-percent (10%) in a single calendar year. Contract pricing adjustments shall not be considered for fuel price fluctuations and fuel surcharges shall not be paid under this contract.

BID DOCUMENTS, BID SUBMISSION & IMPORTANT COVID-19 INFORMATION

Bid Documents include:

1. These IFB pages are to be used in submitting your bid.
    a. Complete IFB via the fillable PDF provided or typed text when available.
2. Include any necessary literature and/or specifications outlined in this document.
3. Include any additional information, forms, or documents that are requested in this document.
4. Provide completed certified W9, which a template can be found at https://www.irs.gov/pub/irs-pdf/fw9.pdf.
5. When submitting paper copies, Vendor must submit an original bid and one complete paper copy or the bid may be rejected.
6. When applicable, completed and signed Addendums. *It is the responsibility of the bidder to monitor the City's webpage for any addendums before submitting their bid.*

NOTE: Sheet(s) submitted without Company Name & Signature WILL NOT be considered for bid award.
Addendums and Preliminary bid tabs are posted on the city's website at https://www.tuscaloosa.com/bids

Options for Bid Submission:

1. Electronic Submission

Submission of the bid documents as .pdf files can now be done at www.centralbidding.com. For any questions about the electronic bid document submission process, please contact City of Tuscaloosa Purchasing or Central Bidding at 225-810-4814 or support@centralbidding.com.

2. Submitting Bids by Mail/Package Carrier

Bidders who submit bids by mail or package carriers should do the following:

a. Correctly label the outer envelope as instructed in this bid document to insure proper identification and delivery to Purchasing.
b. Use a shipping method that includes tracking information and an estimated delivery time. USPS standard mailing without tracking is not recommended.
c. Do not wait until the last minute. Allow at least a day's cushion in case deliveries are delayed unexpectedly.

Bid submissions shall be submitted in a sealed envelope and addressed to:
Amanda Gann, Purchasing Agent, 2201 University Blvd., Tuscaloosa, AL 35401.
The name and address of the bidder, the date and hour of the bid opening and the Bid Title shall be placed on the outside of the envelope.
One bid and copy of the same bid per sealed envelope.
Failure to properly address, package, and label sealed envelope may result in bid rejection.
Note: Keep in mind that the City is not responsible for deliveries from mail/package carriers that are delivered after the bid deadline.

3. Submitting Bids by Hand

Bidders submitting bids by hand must enter at the City Hall complex entrance located on the 4th level of the City's Intermodal Facility parking deck; the entrance to the deck is located on 7th Street beside Government Plaza. Bidders are to turn in sealed bids to the security guard on duty at the desk. Security will notify Purchasing that a bid has been turned in.

Bid submissions shall be submitted in a sealed envelope and addressed to:
Amanda Gann, Purchasing Agent, 2201 University Blvd., Tuscaloosa, AL 35401.
The name and address of the bidder, the date and hour of the bid opening and the Bid Title shall be placed on the outside of the envelope.
One bid and copy of the same bid per sealed envelope.
Failure to properly address, package, and label sealed envelope may result in bid rejection.
Note: Masks/face coverings may be required for entry into areas inside City Hall.

Bid Opening & Potential Date Change

If bidders choose to attend the bid opening, only one representative per bidder will be allowed to attend. All attendees shall be healthy and display no symptoms of sickness. Social distancing of at least six (6) feet shall be maintained. Face coverings that fully cover the nose and mouth may be required while in certain areas of all City-owned/operated facilities. Circumstances related to COVID-19 may warrant a change to the bid opening date. Any such date change will be published in an addendum and posted on our City's website at https://www.tuscaloosa.com/bids.

SPECIFICATIONS

Schedule 1

PIPE, COPPER

All copper pipe must be equivalent to the following:

- Pipe to be seamless.
- Must conform to ASTM Specification B-88-62 "TYPE K SOFT"
- ¾" & 1" pipe must be in 60 foot rolls only.
- 2" pipe to be in 40 or 60 foot rolls as requested by purchaser.
- Price must be on a per foot basis.

PIPE, BRASS

All brass pipe must be equivalent to the following:

- Pipe to be seamless.
- Must conform to ASTM Specification B-43 Red Brass (Copper Alloy C230).
- Price must be on a per foot basis.

Schedule 2

PIPE, DUCTILE IRON

4" thru 12" Ductile Iron Pipe will be Class 350.
14" and Larger Ductile Iron Pipe will be Class 250.
Compression type joint.
Pipe must meet requirements of ANSI, AWWA C151/A21.51, and Federal Specifications**.**
Plain end of pipe should be beveled.
Pipe must come complete with gaskets (ANSI, AWWA C151/A21.51) and joint lubricant.

Pipe is to be cement lined in accordance with Specifications ASA A21.4 (AWWA C104) and/or Federal Specifications WW-P-421B.
Pipe is to have a bituminous seal coat, NSF 61.

All pipe must be new and shall be manufactured in accordance with ANSI/AWWA C151/A21.51 in the United States of America (USA); all ductile iron pipe shall be cast, cleaned, lined, coated, tested, and certified at a manufacturing facility located in the USA.
The raw material for ductile iron shall have an average minimum content consisting of at least 90% or more recycled ferrous scrap iron and steel.

Bids must be on a price per linear foot basis.
PIPE TO BE ORDERED AS NEEDED.

APPROVED MANUFACTURERS
American Cast Iron Pipe Co.
U. S. Pipe
McWane Pipe
Approved Equal

Schedule 3

HDPE DRAINAGE PIPE

High-density polyethylene conforming to the minimum requirements of cell classification 435400C.
Pipe should have smooth interior and annular exterior corrugations.

Schedule 4

PIPE, PVC PRESSURE

All PVC Pipe must be equivalent to or better than the following:

- SDR 21 - CLASS 200 PVC
- ASTM - D1784-69 PVC Resins
- ASTM - D72.2-67 for PVC Pipe

All pipe to be in 20' lengths.
Gaskets are to be permanently attached to couplings.
Sufficient lubricant must be supplied with pipe.
Bids must be on a price per linear foot basis.
PIPE TO BE ORDERED AS NEEDED.

PIPE, P V C SEWER

All PVC Pipe sizes 4”-12” must be equivalent to or better than the following:

SDR 26 - Heavy wall sewer pipe
ASTM D-3034 and F-679
ASTM F477 and ASTM D3139.
ASTM D-3034 and ASTM D-2729 Standards
All pipe to be in 14’ lengths.

Gaskets are to be permanently attached to couplings.
Sufficient lubricant must be supplied with pipe.
Bids must be on a price per linear foot basis.

PIPE TO BE ORDERED AS NEEDED.

Schedule 5

FIRE HYDRANT

Fire hydrants with M.J. Shoe and fire hydrants with Flanged Shoe will be bid.

All fire hydrants must have test pressure of 300 psig and working pressure of 175 psig.
All fire hydrants must have 4 1/2" valve opening.
All fire hydrants must have 3'0", 3’6”, 4'0", 5'0" bury.
All fire hydrants must have two (2) 2 1/2 hose MOZ GA NS and One (1) 4 1/2" Pumper NOZ GA 4-556.
All fire hydrants must have 1 1/2" Pent open left operating nut (bronze).
All fire hydrants must have 6" M.J. or Flanged Shoe complete with gland and plain rubber gaskets.
All fire hydrants must comply with AWWA Specifications C-502.
All fire hydrants must be painted with fire hydrant red enameled paint completely.
All fire hydrants must be equipped with safety flange (break away traffic model).

All fire hydrants must be equipped with the following:

- Non-kinking chains on nozzle caps with rubber gasket seal or "O" ring seals.
- Double drain valves and double drain openings
- Bronze seat ring with compression type main valve
- Positive stop stem (eliminates over-travel of stem)

The hydrant main valve shall close with the pressure and all operating parts including the stem operating nut, hold down nut, valve top, drain ring, and seat shall be all-bronze.

Friction losses through the hydrant shall not exceed 5.0 psig at 1000 gpm through the pumper nozzle and 2.0 psig through two hose nozzles at 500 gpm, when simultaneously tested as outlined by AWWA C-502. Hydrants shall be such that easy installation of extensions can be accommodated either at the ground line or to connection, without shutting off the water.

All hydrants shall utilize integral cast flanges. The hydrant shall have a 6" inlet connection of the mechanical joint type, suitable for all classes of cast iron or ductile iron pipe, unless otherwise noted.

The bonnet assembly shall be one-piece and provided with an oil reservoir and lubrication system that automatically circulates lubricant to all threads and bearing surfaces each time the hydrant is operated. The system shall be completely sealed from the waterway and all external contaminants by two (2) O-ring stem seals and a weather shield attached directly to the operating nut. Hydrants shall be factory pre-filled with a lubricant suitable for a working temperature range of a -60 degree Fahrenheit to a +150 degree Fahrenheit.

The drain valve system shall be fully automatic and free of springs, toggles, or other devices, requiring field adjustment. Both the valve seat ring and drain ring shall have no less than two (2) openings that are forced-flushed during opening and closing cycles, but are sealed when the hydrant is fully open.

Hydrant shall have a three foot bury unless otherwise noted, with the painting and coating as prescribed in AWWA C-502, with the color painted red enamel above the ground line. The cast iron components below ground shall be asphalt varnish and subscribing to the current standards and practices.

Each proposal shall include an expanded view of the hydrant, which shows all parts and their proper locations. A price list of repair parts may be requested for review purposes.

APPROVED MANUFACTURERS AND MODELS

American Cast Iron Pipe Co.	Mark 73
Mueller Company	Centurion
M & H Valve Company	Model 129
Clow Valve Company	Medallion
U. S. Pipe Company	Metropolitan 250 M-94

Schedule 6

MANHOLE FRAME AND COVER

MATERIAL: Grey Iron castings shall conform to the requirements of AASHTO M 105 Class 35 B or ASTM A 48 Class 35 B, unless otherwise specified.

MANUFACTURING: Castings shall be manufactured true to pattern and component parts shall fit together in a satisfactory manner. They shall be smooth and well cleaned by shot blasting. Circular manhole rings, covers and grates shall be furnished with machined horizontal bearing surfaces unless otherwise specified.

TOLERANCES: As cast dimensions may vary by plus or minus 1/16 inch per foot in critical areas relating to fit, load bearing capacity and drainage openings. Non-critical dimensions may be modified slightly to facilitate proper casting techniques, without notice. Notwithstanding these tolerances, all rings, covers, frames, grates, and curb hoods of the same nominal size are interchangeable.

WEIGHTS: Casting weights are accurate, and shall be within plus or minus 5% of the specified weight.

NOTE: Frame and cover castings shall be clearly marked with the manufacturer's name, product catalog number and Made in the USA in cast letters. All frame and covers shall meet the dimensions specified in standard details provided by the City.

APPROVED MANUFACTURERS AND MODELS
Vulcan Foundry No. V-1344-1
U.S. Foundry No. USF 420
Approved equal with City of Tuscaloosa Logo.

WATERTIGHT FRAME AND COVER

MATERIAL: Grey Iron castings shall conform to the requirements of AASHTO M 105 Class 35 B or ASTM A 48 Class 35 B, unless otherwise specified.

MANUFACTURING: Castings shall be manufactured true to pattern and component parts shall fit together in a satisfactory manner. They shall be smooth and well cleaned by shot blasting. Circular manhole rings, covers and grates shall be furnished with machined horizontal bearing surfaces unless otherwise specified.

TOLERANCES: As cast dimensions may vary by plus or minus 1/16 inch per foot in critical areas relating to fit, load bearing capacity and drainage openings. Non-critical dimensions may be modified slightly to facilitate proper casting techniques, without notice. Notwithstanding these tolerances, all rings, covers, frames, grates, and curb hoods of the same nominal size are interchangeable.

WEIGHTS: Casting weights are accurate, and shall be within plus or minus 5% of the specified weight.

NOTE: MANHOLE RIM AND COVER SHALL BE WATERTIGHT.

Frame and cover castings shall be clearly marked with the manufacturer's name, product catalog number and Made in the USA in cast letters. All frame and covers shall meet the dimensions specified in standard details provided by the City.

Approx. weight of frame and cover – 350 lbs. minimum.

APPROVED MANUFACTURERS AND MODELS
East Jordan Iron Works No. V-2358
US Foundry No. 1452
Approved equal with City of Tuscaloosa Logo.

PRECAST CONCRETE MANHOLES

(1.) Precast concrete manholes shall be of reinforced concrete sections manufactured in accordance with ASTM C 478, latest revision. In addition, the fine aggregate used shall be natural silica sand. The concrete when tested in compression shall be not less than 4,000 psi and absorption shall not exceed 9%. Minimum wall thickness of the manhole riser sections shall be as follows:

I.D. Wall th.
48" 5"
60" 6"
72" 7"
84" 8"
96" 9"

Cone sections shall be made with minimum wall thicknesses of 5" at the bottom and 8" at the top. The minimum thickness of the bottom slab shall be 6" for all manhole diameters. Manhole diameters to be used shall be as indicated on the plans.

(2.) Joints between the manhole sections will be made with offset joints with rubber gaskets or preformed butyl sealants. Rubber gaskets shall meet the requirements of ASTM C 443, latest revision. Sealants shall meet ASTM C 990 and AASHTO M-198B.

(3.) Steel reinforcement shall conform to ASTM A-82 or A-185. The circumferential reinforcement may consist of either one or two lines of steel. The total steel area per vertical foot shall not be less than 0.0025 times the inside diameter in inches.

(4.) For purposes of handling and placement: The 48" diameter manholes shall have lift inserts which shall be cast in each section. Two lift holes shall be cast in sections larger than 48" in diameter.

(5.) Openings for inlet and discharge sewer pipes shall be provided in the manhole base section and in the riser section for drop-manholes. Openings shall be at positions and elevations as indicated on the plans or predetermined in the field, and may be cast into the manhole wall or mechanically cored on completed sections. Where pipes are to be sealed into the manhole wall with mortar, openings shall be large enough to permit such variations in both horizontal and vertical position as field conditions may dictate. Cored openings shall be sized to accommodate the flexible manhole sleeve specified for the project.

A.) Mortar for sealing pipes into manholes shall be a non-shrink or hydraulic cement grout.

B.) Flexible manhole connectors suitable for use in precast or cored openings utilizing pre-molded shapes positioned with expansion rings shall comply with the requirements of ASTM C 923. Flexible connectors shall be installed as recommended by the manufacturer.

(6.) Manhole steps shall be reinforced plastic step complying with the requirements of ASTM C 478.

APPROVED MANUFACTURERS
Hanson Pipe & Products
Sherman-Dixie Concrete Industries
Foley Products
Approved equal

PRECAST CONCRETE MANHOLE FLAT TOP WITH OPEN HOLE

Flat Tops will match all specs from above.
Flat Tops will be 48” Diameter and will be cast to fit on common manhole riser.
Flat Tops will have open hole in top for the City to add their own Ring & Cover.

APPROVED MANUFACTURERS
Hanson Pipe & Products
Sherman-Dixie Concrete Industries
Foley Products
Approved equal

Schedule 7

CURB STOPS

Curb valves shall be of the closed bottom design and sealed against external leakage at the top and port by utilizing non-adjustable resilient seals. Shut off shall be affected by a resilient pressure actuated seal placed in the key or plug as to completely enclose the inlet port flow way in the closed position. All curb valves shall have the open/closed positions controlled by check lugs which are integral parts of the key and the body. Curbs Stops shall be of a 300 psi rating.
Curb Stops shall have compression nut with gripper ring and gasket providing a water tight seal by compressing gasket around tubing and compressing the gripper ring providing high pull out resistance.

Compression nuts requiring a split type clamp with screw or bolt will not be accepted.

Valves for the respective installation (s) must have the following laying lengths to facilitate change-outs at a minimum of cost and time:

	SIZE	LENGTH (IN.)
FIP X FIP VALVES	3/4"	3.21" + or - 0.0625
	1"	3.96" + or - 0.0625
COMPRESSION X FIP	3/4"	.84" + or - 0.0625
	1"	4.35" + or - 0.0625

NOTE: ALL CURB VALVE OPENINGS SHALL BE *FULL PORT OPENING*.
(3/4" X 3/4" X 3/4") AND (1" X 1" X 1")

Curb Stops shall be Ball Valve type with Lock Wing.

METER COUPLINGS

All meter couplings shall be fully machined both inside and out, meeting ASTM B-62, with each component easily interchanging with all existing meters/meter couplings. Laying lengths shall be specified at time of ordering or the 2 1/2" length shall be supplied unless notified.

NOTE: Meter couplings to be full opening.
3/4" coupling to have 3/4" inside diameter opening.
1" coupling to have 1" inside diameter opening.

CORPORATION STOP

All components of the corporation stops shall be manufactured of certified ingot, conforming to AWWA C-800.
The stem and retaining nut shall be so designed that failure from over-tightening of the nut results in thread stripping rather than stem fracture.

Corporation stops shall be of a 300 psi rating.

Corporation Stops shall have compression nut with gripper ring and gasket providing a water tight seal by compressing of gasket around tubing and compressing the gripper ring providing high pull out resistance.

Compression nuts requiring a split type clamp with screw or bolt will not be accepted.

Corporation stops shall be **BALL VALVE** type. ALL CORPORATION STOPS TO BE **FULL PORT OPENINGS**.

MALE IRON PIPE X COMPRESSION ADAPTERS

All adapters shall fully comply with the AWWA C800 specifications.
All adapters shall have FULL 3/4" or 1" opening.

Adapters shall have compression nut with gripper ring and gasket providing a water tight seal by compressing of gasket around tubing and compressing the gripper ring providing high pull out resistance.

Compression nuts requiring a split type clamp with screw or bolt will not be accepted.

BRASS PACK JOINT COUPLINGS

All Pack Joint fittings will be brass and sized properly to fit Schedule 40 and Schedule 80 PVC Pipe.
The following sizes will be needed: ½", ¾", 1", 1 ¼", 1 ½", 2".
Ford C77-xx-NL or equal.

BRASS RANGER COUPLINGS

All Ranger fittings must be brass.
The following sizes will be needed: ¾" and 1"
AY McDonald 74758-11

Schedule 8

METER VAULTS

Panel vaults must be constructed of reinforced polymer concrete manufactured in molded structural shapes. The inner surface should consist of a heavy gel coat of polyester resin to provide a smooth non-abrasive working surface. The surface is to be backed by a double layer of heavy weave fiberglass type material.

Each enclosure shall include a one-piece collar to keep the enclosure square during backfill operation or after the ground settles.

The lid shall be a non-locking type with a logo "WATER" imprinted.

Cover shall have a service load of approximately 8,000# over a 10 inch square.

Meter vaults shall be CDR MODEL WA00(SIZE) - one piece only or approved equal.

Meter Vaults 3' x 5' x 3' and larger shall be delivered on individual pallets.

NO DOUBLE STACKED VAULTS WILL BE ACCEPTED.

Schedule 9

METER BOXES

STANDARD METER BOXES

- PLASTIC METER BOX (10” X 15” X 10”) BOX ONLY
- STANDARD METER BOX LID (SOLID) LC-528
- STANDARD METER BOX LID (WITH 2" HOLE) LC-528T

JUMBO METER BOXES

- JUMBO METER BOXES (13” X 20” X 12”) BOX ONLY
- JUMBO METER BOX LID (SOLID) LC-2115
- JUMBO METER BOX LID (WITH 2" HOLE) LC-2115T

APPROVED MANUFACTURERS
CARSON – MODEL 1220-12
APPROVED EQUAL

SOLID CAST IRON LIDS:
RUSSELL – MODEL LC2115 OR APPROVED EQUAL

METER BOXES FOR USE IN CONCRETE

- 11” X 18” X 12” METER BOX & D I LID WITH MAXIMUM READER(MSP)
- 13” X 24” X 12” METER BOX & D I LID WITH MAXIMUM READER(MSP)

APPROVED MANUACTURER
MID-STATES PLASTICS – MODEL BCF SERIES
APPROVED EQUAL

Schedule 10

BACKFLOW PREVENTERS

All types, General Specifications

ALL BACKFLOW PREVENTERS 3" AND LARGER SHALL COME COMPLETE WITH RESILIENT SEAT (RS) GATE VALVES.

Shall have replaceable seats. Shall be serviceable in-line.
Backflow preventers shall consist of two independently operating, internally loaded check valves.

All Backflow Preventers/Check Valve assemblies shall conform to applicable sections of the ANSI/AWWA, ASSE and USC Foundation for Cross-Connection Control and Hydraulic Research.

DOUBLE CHECK VALVE BACKFLOW PREVENTER 2-1/2” – 12”

Double Check Valve Backflow Preventers shall conform to ANSI/AWWA C510, and ASSE 1015, latest revisions. All assemblies shall be approved by both ASSE and the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research, and shall be supplied only in approved configurations, including shut-off valves.

Double Check Valve Backflow Preventers shall consist of two line-sized independently acting check valves, internally force loaded to a normal closed position, designed and constructed to operate under intermittent or continuous pressure conditions. Body shall be stainless steel and contain necessary test cocks.

Unless specified otherwise at the time of order, all assemblies shall be supplied with non-rising stem gate valves.

Approved Manufacturers/Models (or Part Numbers)
1. Ames Series 2000SS
2. Conbraco DCLF 4A
3. Watts 774
4. Wilkins 350AST

DOUBLE DETECTOR CHECK VALVE BACKFLOW PREVENTER 2-1/2" – 12"

Double Detector Check Valve Backflow Preventers shall conform ANSI/AWWA C5IO, and ASSE 1015 and 1048, latest revisions. All assemblies shall be approved by both ASSE and the University of Southern California Foundation for Cross- Connection Control and Hydraulic Research, and shall be supplied only in approved configurations, including shut-off valves.

The Double Detector Check Backflow Preventer shall be composed of a line-sized approved Double Check Backflow Preventer assembly with piping for a by-pass water meter and a meter-sized approved Double Check Backflow Preventer. All assemblies shall be supplied complete. By-pass meter will be a standard 5/8" x ¾" meter. By-pass piping shall be constructed of brass and shall include properly spaced meter nut connections for insertion of water meter with no modifications. Assembly shall be designed such that by- pass meter shall register all low flow demands of 3 CF or less, with static pressure drop across by-pass assembly at least 2 psi less than static pressure drop across the line size assembly in order to assure accurate measurement of low flow demands. Check valves should be accessible from the top of the device for maintenance without removing the device from in-line. All assemblies shall be supplied with O.S. & Y. gate valves.

Approved Manufacturer/Models (or Part Numbers)
1. Ames 3000SS
2. Conbraco DCDA2LF 4A
3. Watts 774DCDA
4. Wilkins 350ASTDA

REDUCED PRESSURE ZONE DOUBLE CHECK VALVE BACKFLOW PREVENTER

Reduced Pressure Zone Double Check Valve Backflow Preventers ANSI/AWWA C511, and ASSE 1013, lalest revisions. All assemblies shall be approved by both ASSE and the University of Southern California Foundation for Cross-CoMection Control of Hydraulic Research, and shall be supplied only in approved Configurations, including shut-off valves.

Reduced Pressure Zone Double Check Valve Backflow Preventors shall consist of two line-sized independently acting check valves, internally force loaded to a normal closed position, and separated by an intermediate chamber (or zone) in which there is a hydraulically operated relief means for venting atmosphere, which is internally force loaded to a normally open position.

Unless specified otherwise at the time of order, all assemblies shall be supplied with non-rising stem gate valves.

1-1/2" & 2" assemblies shall be constructed of Lead-Free Brass.
2-1/2" – 12" assemblies shall have stainless steel bodies.

Approved Manufacturers/Models (or Part Numbers)

1-1/2" & 2"	**2-1/2" – 12"**
1. Ames 4000B	1. Ames 4000SS
2. Conbraco RPLF4A	2. Conbraco RPLF4A
3. Watts LF009	3. Watts 994
4. Wilkins 375XL	4. Wilkins 375AST

DUAL CHECK VALVE BACKFLOW PREVENTER

Dual Check Valve Backflow Preventers shall conform to ANSI/AWWA C506, and ANSI/ASSE 1024, latest revisions.

Dual Check Valve Backflow Preventers shall consist of two independently acting poppet type check valves, internally force loaded to a normal closed position, designed and constructed to operate under intermittent or continuous pressure conditions. Unless otherwise specified, Dual Check Valves shall be of the straight-body design and shall be designed such that check assemblies may be field replaced without removal of valve body from line. Rated working pressure for Dual Check Valves shall be a minimum of 175 psi.

Unless specified otherwise at the time of order, Dual Check Valves shall show female iron pipe threads on inlet connections as well as outlet (FIP x FIP).

Approved Manufacturers/Models (or Part Numbers)

¾" – 1"	1-1/2" – 2"
1. A.Y. McDonald 711	1. Ames LF2000B
2. Conbraco DUCLF4N	2. Conbraco DCLF4A
3. Watts LF7	3. Watts LF007
4. Wilkins 700XL	4. Wilkins 350XL

IMPORTANT INFORMATION: No-Lead Brass Fittings

a. All fittings and valves shall be manufactured in accordance with AWWA Standard C-800, latest revision, and as further specified in these technical specifications.

a.i Exception: Any brass part of the fitting or valve in contact with potable water shall be made of a "No-Lead Brass", defined for this specification as UNS Copper Alloy No. C89520 or C89833 in accordance with the chemical and mechanical requirements of ASTM B584 and AWWA C-800. This "No-Lead Brass" alloy shall not contain more than nine one hundredths of one percent (0.25% or less) total lead content by weight.

a.ii Any Brass part of the fitting or valve not in contact with potable water shall be made of 85-5- 5-5 brass as defined for this specification as UNS Copper Alloy C83600 per ASTM B62, ASTM B584 and AWWA C-800.

Schedule 11

METER, WATER - ELECTROMAGNETIC

5/8" - 1" ELECTROMAGNETIC WATER METERS

Meters shall be electromagnetic flow measurement technology with an operating range as shown below in Specifications.

Must conform to the following standards as most recently revised: American Water Works Standard C-700 and C-710 for accuracy and pressure loss requirements; NSF Standard 61 Annex G.

Construction

External housing shall be thermal plastic. The encased measuring device shall be comprised of a polyphenylene sulfide alloy flow tube with externally-threaded spud ends. Embedded in the flow tube shall be magnetic flow sensors and a replaceable strainer screen. The register shall be all electronic, programmable, and hermetically sealed with a tempered glass cover. The meter system shall have a twenty (20) year life cycle, along with a twenty (20) year battery life guarantee. Meter must prevent removal of the register and have a means to indicate any attempt to tamper with the meter.

Electronic register

- Must read in cubic feet
- Must have AMR output from a single register
- Must be supplied with three AMR connections (red, green, black wires)
- Connection between register and meter transceiver unit shall be accomplished with use of all three terminals & Touch Coupler connection (or approved equivalent)
- AMR output data format shall be 7-bit ASCII (American Standard Code of Information Interchange) digital, plus an even parity bit
- Upon AMR interrogation the meter shall transmit a reading (# of digits customer specified) and an eight (8) digit register identification number which is to be factory programmed as to protect the system integrity and eliminate possible field programming duplication
- AMR resolution units fully programmable
- Highest AMR Resolution Required: 5/8" – 1" = .1 (Hundredths) Cubic Feet & 4" – 8" = 1 (Single) Cubic Foot
- Integral data logging capability
    - 1056 data points minimum
    - Interval available: 15 minutes, hourly, or daily
    - Logged information to include date, time, hourly max flow, hourly consumption, max flow, average flow, average consumption, and total consumption
- Large, easy-to-read LCD display that includes battery life and empty pipe indicators
- 20-year battery life and accuracy guarantee

Performance

Meters shall operate up to a working pressure of 200 pounds per square inch, without leakage or damage to any parts. Accuracy shall not be affected by variations in pressure up to 200 psi. The meter shall be accurate and perform for twenty (20) years from date of shipment.

AMR/AMI Systems

Meter must be compatible with current Sensus (or approved equivalent) AMR/AMI systems.

Specifications

Service	Measurement of cold water with flow in one direction only
Normal Operating Flow Range (100% +/- 1.5% of actual throughput)	5/8" (DN 15mm) size: 0.11 to 25 gpm (0.02 m^3h to 5.7 m^3h) ¾" (DN 20 mm) size: 0.11 to 35 gpm (0.02 m^3h to 8.0 m^3h) 1" (DN 25mm) size: 0.4 to 55 gpm (0.09 m^3h to 12.5 m^3h)
Low Flow Registration (95%-101.5%)	5/8" (DN 15mm) size: 0.03 gpm (0.007 m^3h) ¾" (DN 20 mm) size: 0.03 gpm (0.007 m^3h) 1" (DN 25mm) size: 0.11 gpm (0.025 m^3h)
Maximum Pressure Loss	5/8" (DN 15mm) size: 4 psi at 15 gpm (0.3 bar at 3.4 m^3h) ¾" (DN 20 mm) size: 2 psi at 15 gpm (0.1 bar at 3.4 m^3h) 1" (DN 25mm) size: 2 psi at 25 gpm (0.1 bar at 5.7 m^3h)
Maximum Operating Pressure	200 psi (13.8 bar)

Guarantee

All meters will be guaranteed to perform accuracy levels above for a period of 20 years from the date of shipment.

Intent

Subject meter specifications are designed to establish minimum guidelines for selecting an extremely critical metering device. Areas of concern to be evaluated in the selection process include, but are not limited to, ease of installation, operational features and benefits, readability, and future system maintenance expense. A design which reflects longevity of proper operation in all elements and high degree of sustained accuracy within the entire range of the meter assembly is to be considered mandatory. Enhanced accuracy levels and performance are desired and will not be compromised.

METER, WATER – TURBINE

1 1/2" - 10" TURBINE WATER METERS

The meter package shall meet or exceed all requirements of ANSI/AWWA Standard C701 for Class II turbine meter assemblies as well as ANSI/AWWA C700 Residential Standard. Each meter assembly shall be performance tested to ensure compliance.

Maincases

The meter main case shall be of epoxy coated ductile iron composition. The epoxy coating shall be provided as standard fusion-bonded and adhere to NSF for No-lead regulation compliance.

A built-in test port is mandatory. Must be available in these various laying length options:

1 ½" – 13", 2" – 15 ¼" & 17", 3" – 17" & 19", 4" – 20" & 23", 6" – 24" & 27", 8" – 31 1/8", 10" – 41 1/8"

Performance

The meter assembly shall have performance capability of continuous operation up to the rated maximum flows as listed below without affecting long-term accuracy or causing any undue component wear. The meter assembly shall also provide a 25% flow capacity in excess of the maximum flows listed for intermittent flow demands. Maximum headloss through the meter / strainer assembly shall not exceed those listed in the Operating Characteristics table per meter size.

Measuring Chamber

The measuring chamber shall consist of a measuring element, removable housing, and an all-electronic register. The measuring element shall be mounted on a horizontal, stationary stainless steel shaft with sleeve bearings and be essentially weightless in water (only one moving part). The measuring element comes integrated with the advanced Floating Ball Technology design. The measuring chamber shall be capable of operating within the above listed accuracy limits without calibration when transferred from one main case to another of the same size. The measuring shall be so configured to capture all flows as specified below, without the requirement of an automatic valve. Meters with manual calibration adjusters will not be accepted.

Operating Characteristics

Meter Size	Low Flow (95% Min)	Operating Range (98.5-101.5%)	Intermittent Flows (98.5-101.5%)	Pressure Loss (Not to Exceed)
1 ½"	0.75 gpm	1.25 to 160 gpm	200 gpm	6.9 psi @ 160 gpm
2"	1.0 gpm	1.5 to 200 gpm	250 gpm	7.0 psi @ 200 gpm
3"	1.5 gpm	2.5 to 500 gpm	650 gpm	5.1 psi @ 500 gpm
4"	2.0 gpm	3.0 to 1000 gpm	1250 gpm	8.7 psi @ 1000 gpm
6"	2.5 gpm	4.0 to 2000 gpm	2500 gpm	8.2 psi @ 2000 gpm
8"	4.0 gpm	5.0 to 3500 gpm	4700 gpm	5.1 psi @ 3500 gpm
10"	5.0 gpm	6.0 to 5500 gpm	7000 gpm	7.2 psi @ 5500 gpm

Direct Magnetic Drive System

The direct magnetic drive shall occur between the motion of the measuring element blade position and the electronic register. The direct drive system with Floating Ball Technology is designed to extend service life, enhance low flow sensitivity and provide extended flow capacity and overall accuracy of the meter assembly. Any and all additional intermediate, magnetic or mechanical, drive couplings or gearing are not acceptable.

Electronic Register

- Must read in cubic feet
- Must have AMR & pulse outputs from a single register
- Must be supplied with three AMR connections (red, green, black wires)
- Connection between register and meter transceiver unit shall be accomplished with use of all three terminals & Touch Coupler connection (or approved equivalent)
- AMR output data format shall be 7-bit ASCII (American Standard Code of Information Interchange) digital, plus an even parity bit
- Upon AMR interrogation the meter shall transmit a reading (# of digits customer specified) and an eight (8) digit register identification number which is to be factory programmed as to protect the system integrity and eliminate possible field programming duplication
- AMR resolution units fully programmable
- Highest AMR Resolution Required: 1.5" – 3" = .1 (Tenths) Cubic Feet & 4" – 10" = 1 (Single) Cubic Feet
- Pulse output frequency fully programmable
- Highest Pulse Resolution Required: 1.5" – 3" = .1 (Tenths) Cubic Feet & 4" – 10" = 1 (Single) Cubic Feet
- Integral data logging capability
- Integral resettable meter accuracy testing feature
- Large, easy-to-read LCD display
- 10-year battery life guarantee

Maximum Operating Pressure

The meter assembly shall operate properly without leakage, damage, or malfunction up to a maximum working pressure of 200 pounds per square inch (psig).

Strainers

The meter strainer shall be integral and cast as part of the meter's main case. The strainer's screen shall have a minimum net open area of at least two (2) times the pipe opening and be a V-shaped configuration for the purpose of maintaining a full unobstructed flow pattern. The strainer body shall be a coated ductile iron fusion-bonded epoxy identical to that of the meter's main case. All fasteners shall be stainless steel capable of maintaining the following static pressure ratings and physical dimensions:

Meter Size	Maximum Operating Pressure	Centerline to Strainer Base	Overall Length (Not to Exceed)
1 ½"	200 psig	2 5/16"	13"
2"	200 psig	2 5/16"	17"
3"	200 psig	4 1/8"	19"
4"	200 psig	4 ¾"	23"
6"	200 psig	5 ¾"	27"
8"	200 psig	6 ¾"	30 1/8"
10"	200 psig	8 1/2"	41 1/8"

Straightening Vanes

A straightening vane assembly is mandatory and shall be positioned directly upstream of the measuring element. The straightening vane assembly shall be an integral component of the measuring chamber.

Connections

Flanges for the 1-1/2" and 2" size meter assemblies shall be of the 2-bolt oval flange configuration. The 3", 4", 6", 8" & 10" size meter assemblies shall have flanges of the Class 125 round type, flat faced and shall conform to ANSI B16.1 for specified diameter, drilling and thickness.

Certifications and Markings
All sizes of meter packages shall display the sizes, model, manufacturer name, and direction of flow. Such display shall be cast on the side of the meter main case.

Guarantee
All meters will be guaranteed against defects in materials and workmanship for a period of one (1) year from the date of shipment.

Intent
Subject meter specifications are designed to establish minimum guidelines for selecting an extremely critical metering device. Areas of concern to be evaluated in the selection process include, but are not limited to, ease of installation, operational features and benefits, readability, and future system maintenance expense. A design which reflects longevity of proper operation in all elements and high degree of sustained accuracy within the entire range of the meter assembly is to be considered mandatory. Enhanced accuracy levels and performance are desired and will not be compromised.

AMR/AMI Systems
Meter must be compatible with current Sensus (or approved equivalent) AMR/AMI systems.

METER, WATER – COMPOUND

1 1/2" - 10" COMPOUND WATER METERS

The meter package shall meet or exceed all requirements of ANSI/AWWA Standard C701 and C702 for Class II compound and turbine meter assemblies. Each meter assembly shall be performance tested to ensure compliance.

Main cases
The meter main case shall be of epoxy coated ductile iron composition. The epoxy coating shall be provided as standard fusion-bonded and adhere to NSF for No-lead regulation compliance.
A built-in test port is mandatory. Must be available in these various laying length options: 1-½" – 13", 2" – 15 ¼" & 17", 3" – 17" & 19", 4" – 20" & 23", 6" – 24" & 27", 8" – 31-1/8", 10" – 41-1/8"

Performance
The meter assembly shall have performance capability of continuous operation up to the rated maximum flows as listed below without affecting long-term accuracy or causing any undue component wear. The meter assembly shall also provide a 25% flow capacity in excess of the maximum flows listed for intermittent flow demands. Maximum head loss through the meter / strainer assembly shall not exceed those listed in the following table per meter size.

Measuring Chamber
The measuring chamber shall consist of a measuring element, removable housing, and an all-electronic register. The measuring element shall be mounted on a horizontal, stationary stainless steel shaft with sleeve bearings and be essentially weightless in water (only one moving part). The measuring element comes integrated with the advanced Floating Ball Technology design. The measuring chamber shall be capable of operating within the above listed accuracy limits without calibration when transferred from one main case to another of the same size. The measuring shall be so configured to capture all flows as specified above, without the requirement of an automatic valve. Meters with manual calibration adjusters will not be accepted.

Operating Characteristics

Meter Size	Low Flow (95% Min)	Operating Range (98.5-101.5%)	Intermittent Flows (98.5-101.5%)	Pressure Loss (Not to Exceed)
1 ½"	0.25 gpm	0.5 to 160 gpm	200 gpm	6.9 psi @ 160 gpm
2"	0.25 gpm	0.5 to 160 gpm	200 gpm	4.3 psi @ 160 gpm
3"	0.5 gpm	1.0 to 400 gpm	500 gpm	3.2 psi @ 400 gpm
4"	0.75 gpm	1.5 to 800 gpm	1000 gpm	6.4 psi @ 800 gpm
6"	1.5 gpm	3.0 to 1600 gpm	2000 gpm	5.5 psi @ 1600 gpm
8"	2.5 gpm	4.0 to 2700 gpm	3400 gpm	4.0 psi @ 2700 gpm
10"	3.5 gpm	5.0 to 4000 gpm	5000 gpm	4.5 psi @ 4000 gpm

Direct Magnetic Drive System

The direct magnetic drive shall occur between the motion of the measuring element blade position and the electronic register. The direct drive system with Floating Ball Technology is designed to extend service life, enhance low flow sensitivity and provide extended flow capacity and overall accuracy of the meter assembly. Any and all additional intermediate, magnetic or mechanical, drive couplings or gearing are not acceptable.

Electronic Register

- Must Read in Cubic Feet
- Must have AMR & Pulse outputs from a single register
- Must be supplied with three AMR connections (Red, Green, Black wires)
- Connection between register and meter transceiver unit shall be accomplished with use of all three terminals & Touch Coupler connection (or approved equivalent)
- AMR output data format shall be 7-bit ASCII (American Standard Code of Information Interchange) digital, plus an even parity bit
- Upon AMR interrogation the meter shall transmit a reading (# of Digits Customer specified) and an eight (8) digit register identification number which is to be factory programmed as to protect the system integrity and eliminate possible field programming duplication
- AMR resolution units fully programmable
- Highest AMR Resolution Required: 1.5" – 3" = .1 (Tenths) Cubic Feet & 4" – 10" = 1 (Single) Cubic Feet
- Pulse output frequency fully programmable
- Highest Pulse Resolution Required: 1.5" – 3" = .1 (Tenths) Cubic Feet & 4" – 10" = 1 (Single) Cubic Feet
- Integral data logging capability
- Integral resettable meter accuracy testing feature
- Large, easy-to-read LCD display
- 10-year battery life guarantee

Maximum Operating Pressure

The meter assembly shall operate properly without leakage, damage, or malfunction up to a maximum working pressure of 200 pounds per square inch (psig).

Strainers

The meter strainer shall be integral and cast as part of the meter's main case. The strainer's screen shall have a minimum net open area of at least two (2) times the pipe opening and be a V-shaped configuration for the purpose of maintaining a full unobstructed flow pattern. The strainer body shall be a coated ductile iron fusion-bonded epoxy identical to that of the meter's main case. All fasteners shall be stainless steel capable of maintaining the following static pressure ratings and physical dimensions:

Meter Size	Maximum Operating Pressure	Centerline to Strainer Base	Overall Length (Not to Exceed)
1 ½"	200 psig	2 5/16"	13"
2"	200 psig	2 5/16"	15 ¼"
3"	200 psig	4 1/8"	17"
4"	200 psig	4 ¾"	20"
6"	200 psig	5 ¾"	24"
8"	200 psig	6 ¾"	30 1/8"
10"	200 psig	8 ½"	41 1/8"

Straightening Vanes
A straightening vane assembly is mandatory and shall be positioned directly upstream of the measuring element. The straightening vane assembly shall be an integral component of the measuring chamber.

Connections
Flanges for the 1-1/2" and 2" size meter assemblies shall be of the 2-bolt oval flange configuration. The 3" and 4" size meter assemblies shall have flanges of the Class 125 round type, flat faced and shall conform to ANSI B16.1 for specified diameter, drilling and thickness.

Certifications and Markings
All sizes of meter packages shall display the sizes, model, manufacturer name, and direction of flow. Such display shall be cast on the side of the meter main case.

Guarantee
All meters will be guaranteed against defects in materials and workmanship for a period of one (1) year from the date of shipment.

Intent
Subject meter specifications are designed to establish minimum guidelines for selecting an extremely critical metering device. Areas of concern to be evaluated in the selection process include, but are not limited to, ease of installation, operational features and benefits, readability, and future system maintenance expense. A design which reflects longevity of proper operation in all elements and high degree of sustained accuracy within the entire range of the meter assembly is to be considered mandatory. Enhanced accuracy levels and performance are desired and will not be compromised.

AMR/AMI Systems
Meter must be compatible with current Sensus (or approved equivalent) AMR/AMI systems.

METER, WATER – ELECTROMAGNETIC WITH ITRON CABLE

5/8" - 1" ELECTROMAGNETIC WATER METERS WITH ITRON CABLE

Meters shall be electromagnetic flow measurement technology with an operating range as shown below in Specifications.

Must conform to the following standards as most recently revised: American Water Works Standard C-700 and C-710 for accuracy and pressure loss requirements; NSF Standard 61 Annex G.

Construction
External housing shall be thermal plastic. The encased measuring device shall be comprised of a polyphenylene sulfide alloy flow tube with externally-threaded spud ends. Embedded in the flow tube shall be magnetic flow sensors and a replaceable strainer screen. The register shall be all electronic, programmable, and hermetically sealed with a tempered glass cover. The

meter system shall have a twenty (20) year life cycle, along with a twenty (20) year battery life guarantee. Meter must prevent removal of the register and have a means to indicate any attempt to tamper with the meter.

Electronic register

- Must read in cubic feet
- Must have AMR output from a single register
- Must be supplied with three AMR connections (red, green, black wires). Cable must be compatible with ITRON.
- Connection between register and meter transceiver unit shall be accomplished with use of all three terminals & Touch Coupler connection (or approved equivalent)
- AMR output data format shall be 7-bit ASCII (American Standard Code of Information Interchange) digital, plus an even parity bit
- Upon AMR interrogation the meter shall transmit a reading (# of digits customer specified) and an eight (8) digit register identification number which is to be factory programmed as to protect the system integrity and eliminate possible field programming duplication
- AMR resolution units fully programmable
- Highest AMR Resolution Required: 5/8" – 1" = .1 (Hundredths) Cubic Feet & 4" – 8" = 1 (Single) Cubic Foot
- Integral data logging capability
    - 1056 data points minimum
    - Interval available: 15 minutes, hourly, or daily
    - Logged information to include date, time, hourly max flow, hourly consumption, max flow, average flow, average consumption, and total consumption
- Large, easy-to-read LCD display that includes battery life and empty pipe indicators
- 20-year battery life and accuracy guarantee

Performance

Meters shall operate up to a working pressure of 200 pounds per square inch, without leakage or damage to any parts. Accuracy shall not be affected by variations in pressure up to 200 psi. The meter shall be accurate and perform for twenty (20) years from date of shipment.

AMR/AMI Systems

Meter must be compatible with ITRON (or approved equivalent) AMR/AMI systems.

Specifications

Service	Measurement of cold water with flow in one direction only
Normal Operating Flow Range (100% +/- 1.5% of actual throughput)	5/8" (DN 15mm) size: 0.11 to 25 gpm (0.02 m^3h to 5.7 m^3h) ¾" (DN 20 mm) size: 0.11 to 35 gpm (0.02 m^3h to 8.0 m^3h) 1" (DN 25mm) size: 0.4 to 55 gpm (0.09 m^3h to 12.5 m^3h)
Low Flow Registration (95%-101.5%)	5/8" (DN 15mm) size: 0.03 gpm (0.007 m^3h) ¾" (DN 20 mm) size: 0.03 gpm (0.007 m^3h) 1" (DN 25mm) size: 0.11 gpm (0.025 m^3h)
Maximum Pressure Loss	5/8" (DN 15mm) size: 4 psi at 15 gpm (0.3 bar at 3.4 m^3h) ¾" (DN 20 mm) size: 2 psi at 15 gpm (0.1 bar at 3.4 m^3h) 1" (DN 25mm) size: 2 psi at 25 gpm (0.1 bar at 5.7 m^3h)
Maximum Operating Pressure	200 psi (13.8 bar)

Guarantee

All meters will be guaranteed to perform accuracy levels above for a period of 20 years from the date of shipment.

Intent

Subject meter specifications are designed to establish minimum guidelines for selecting an extremely critical metering device. Areas of concern to be evaluated in the selection process include, but are not limited to, ease of installation, operational features and benefits, readability, and future system maintenance expense. A design which reflects longevity of proper operation in all elements and high degree of sustained accuracy within the entire range of the meter assembly is to be considered mandatory. Enhanced accuracy levels and performance are desired and will not be compromised.

METER, WATER – TURBINE WITH ITRON CABLE

1 1/2" - 10" TURBINE WATER METERS WITH ITRON CABLE

The meter package shall meet or exceed all requirements of ANSI/AWWA Standard C701 for Class II turbine meter assemblies as well as ANSI/AWWA C700 Residential Standard. Each meter assembly shall be performance tested to ensure compliance.

Main cases

The meter main case shall be of epoxy coated ductile iron composition. The epoxy coating shall be provided as standard fusion-bonded and adhere to NSF for No-lead regulation compliance.
A built-in test port is mandatory. Must be available in these various laying length options:
1 ½" – 13", 2" – 15 ¼" & 17", 3" – 17" & 19", 4" – 20" & 23", 6" – 24" & 27", 8" – 31 1/8", 10" – 41 1/8"

Performance

The meter assembly shall have performance capability of continuous operation up to the rated maximum flows as listed below without affecting long-term accuracy or causing any undue component wear. The meter assembly shall also provide a 25% flow capacity in excess of the maximum flows listed for intermittent flow demands. Maximum head loss through the meter / strainer assembly shall not exceed those listed in the Operating Characteristics table per meter size.

Measuring Chamber

The measuring chamber shall consist of a measuring element, removable housing, and an all-electronic register. The measuring element shall be mounted on a horizontal, stationary stainless steel shaft with sleeve bearings and be essentially weightless in water (only one moving part). The measuring element comes integrated with the advanced Floating Ball Technology design. The measuring chamber shall be capable of operating within the above listed accuracy limits without calibration when transferred from one main case to another of the same size. The measuring shall be so configured to capture all flows as specified below, without the requirement of an automatic valve. Meters with manual calibration adjusters will not be accepted.

Operating Characteristics

Meter Size	Low Flow (95% Min)	Operating Range (98.5-101.5%)	Intermittent Flows (98.5-101.5%)	Pressure Loss (Not to Exceed)
1 ½"	0.75 gpm	1.25 to 160 gpm	200 gpm	6.9 psi @ 160 gpm
2"	1.0 gpm	1.5 to 200 gpm	250 gpm	7.0 psi @ 200 gpm
3"	1.5 gpm	2.5 to 500 gpm	650 gpm	5.1 psi @ 500 gpm
4"	2.0 gpm	3.0 to 1000 gpm	1250 gpm	8.7 psi @ 1000 gpm
6"	2.5 gpm	4.0 to 2000 gpm	2500 gpm	8.2 psi @ 2000 gpm
8"	4.0 gpm	5.0 to 3500 gpm	4700 gpm	5.1 psi @ 3500 gpm
10"	5.0 gpm	6.0 to 5500 gpm	7000 gpm	7.2 psi @ 5500 gpm

Direct Magnetic Drive System

The direct magnetic drive shall occur between the motion of the measuring element blade position and the electronic register. The direct drive system with Floating Ball Technology is designed to extend service life, enhance low flow sensitivity and provide extended flow capacity and overall accuracy of the meter assembly. Any and all additional intermediate, magnetic or mechanical, drive couplings or gearing are not acceptable.

Electronic Register

- Must read in cubic feet
- Must have AMR & pulse outputs from a single register
- Must be supplied with three AMR connections (red, green, black wires) Cable must be compatible with ITRON.
- Connection between register and meter transceiver unit shall be accomplished with use of all three terminals & Touch Coupler connection (or approved equivalent)
- AMR output data format shall be 7-bit ASCII (American Standard Code of Information Interchange) digital, plus an even parity bit
- Upon AMR interrogation the meter shall transmit a reading (# of digits customer specified) and an eight (8) digit register identification number which is to be factory programmed as to protect the system integrity and eliminate possible field programming duplication
- AMR resolution units fully programmable
- Highest AMR Resolution Required: 1.5” – 3” = .1 (Tenths) Cubic Feet & 4” – 10” = 1 (Single) Cubic Feet
- Pulse output frequency fully programmable
- Highest Pulse Resolution Required: 1.5” – 3” = .1 (Tenths) Cubic Feet & 4” – 10” = 1 (Single) Cubic Feet
- Integral data logging capability
- Integral resettable meter accuracy testing feature
- Large, easy-to-read LCD display
- 10-year battery life guarantee

Maximum Operating Pressure

The meter assembly shall operate properly without leakage, damage, or malfunction up to a maximum working pressure of 200 pounds per square inch (psig).

Strainers

The meter strainer shall be integral and cast as part of the meter’s main case. The strainer’s screen shall have a minimum net open area of at least two (2) times the pipe opening and be a V-shaped configuration for the purpose of maintaining a full unobstructed flow pattern. The strainer body shall be a coated ductile iron fusion-bonded epoxy identical to that of the meter’s main case. All fasteners shall be stainless steel capable of maintaining the following static pressure ratings and physical dimensions:

Meter Size	Maximum Operating Pressure	Centerline to Strainer Base	Overall Length (Not to Exceed)
1 ½”	200 psig	2 5/16”	13”
2”	200 psig	2 5/16”	17”
3”	200 psig	4 1/8”	19”
4”	200 psig	4 ¾”	23”
6”	200 psig	5 ¾”	27”
8”	200 psig	6 ¾”	30 1/8”
10”	200 psig	8 1/2”	41 1/8”

Straightening Vanes

A straightening vane assembly is mandatory and shall be positioned directly upstream of the measuring element. The straightening vane assembly shall be an integral component of the measuring chamber.

Connections

Flanges for the 1-1/2" and 2" size meter assemblies shall be of the 2-bolt oval flange configuration. The 3", 4", 6”, 8” & 10” size meter assemblies shall have flanges of the Class 125 round type, flat faced and shall conform to ANSI B16.1 for specified diameter, drilling and thickness.

Certifications and Markings
All sizes of meter packages shall display the sizes, model, manufacturer name, and direction of flow. Such display shall be cast on the side of the meter main case.

Guarantee
All meters will be guaranteed against defects in materials and workmanship for a period of one (1) year from the date of shipment.

Intent
Subject meter specifications are designed to establish minimum guidelines for selecting an extremely critical metering device. Areas of concern to be evaluated in the selection process include, but are not limited to, ease of installation, operational features and benefits, readability, and future system maintenance expense. A design which reflects longevity of proper operation in all elements and high degree of sustained accuracy within the entire range of the meter assembly is to be considered mandatory. Enhanced accuracy levels and performance are desired and will not be compromised.

AMR/AMI Systems
Meter must be compatible with ITRON (or approved equivalent) AMR/AMI systems.

METER, WATER – COMPOUND WITH ITRON CABLE

1 1/2" - 10" COMPOUND WATER METERS WITH ITRON CABLE

The meter package shall meet or exceed all requirements of ANSI/AWWA Standard C701 and C702 for Class II compound and turbine meter assemblies. Each meter assembly shall be performance tested to ensure compliance.

Main cases
The meter main case shall be of epoxy coated ductile iron composition. The epoxy coating shall be provided as standard fusion-bonded and adhere to NSF for No-lead regulation compliance.
A built-in test port is mandatory. Must be available in these various laying length options: 1-½" – 13", 2" – 15 ¼" & 17", 3" – 17" & 19", 4" – 20" & 23", 6" – 24" & 27", 8" – 31-1/8", 10" – 41-1/8"

Performance
The meter assembly shall have performance capability of continuous operation up to the rated maximum flows as listed below without affecting long-term accuracy or causing any undue component wear. The meter assembly shall also provide a 25% flow capacity in excess of the maximum flows listed for intermittent flow demands. Maximum head loss through the meter / strainer assembly shall not exceed those listed in the following table per meter size.

Measuring Chamber
The measuring chamber shall consist of a measuring element, removable housing, and an all-electronic register. The measuring element shall be mounted on a horizontal, stationary stainless steel shaft with sleeve bearings and be essentially weightless in water (only one moving part). The measuring element comes integrated with the advanced Floating Ball Technology design. The measuring chamber shall be capable of operating within the above listed accuracy limits without calibration when transferred from one main case to another of the same size. The measuring shall be so configured to capture all flows as specified above, without the requirement of an automatic valve. Meters with manual calibration adjusters will not be accepted.

Operating Characteristics

Meter Size	Low Flow (95% Min)	Operating Range (98.5-101.5%)	Intermittent Flows (98.5-101.5%)	Pressure Loss (Not to Exceed)
1 ½"	0.25 gpm	0.5 to 160 gpm	200 gpm	6.9 psi @ 160 gpm
2"	0.25 gpm	0.5 to 160 gpm	200 gpm	4.3 psi @ 160 gpm
3"	0.5 gpm	1.0 to 400 gpm	500 gpm	3.2 psi @ 400 gpm
4"	0.75 gpm	1.5 to 800 gpm	1000 gpm	6.4 psi @ 800 gpm
6"	1.5 gpm	3.0 to 1600 gpm	2000 gpm	5.5 psi @ 1600 gpm
8"	2.5 gpm	4.0 to 2700 gpm	3400 gpm	4.0 psi @ 2700 gpm
10"	3.5 gpm	5.0 to 4000 gpm	5000 gpm	4.5 psi @ 4000 gpm

Direct Magnetic Drive System

The direct magnetic drive shall occur between the motion of the measuring element blade position and the electronic register. The direct drive system with Floating Ball Technology is designed to extend service life, enhance low flow sensitivity and provide extended flow capacity and overall accuracy of the meter assembly. Any and all additional intermediate, magnetic or mechanical, drive couplings or gearing are not acceptable.

Electronic Register

- Must Read in Cubic Feet
- Must have AMR & Pulse outputs from a single register
- Must be supplied with three AMR connections (Red, Green, Black wires) Cable must be compatible with ITRON.
- Connection between register and meter transceiver unit shall be accomplished with use of all three terminals & Touch Coupler connection (or approved equivalent)
- AMR output data format shall be 7-bit ASCII (American Standard Code of Information Interchange) digital, plus an even parity bit
- Upon AMR interrogation the meter shall transmit a reading (# of Digits Customer specified) and an eight (8) digit register identification number which is to be factory programmed as to protect the system integrity and eliminate possible field programming duplication
- AMR resolution units fully programmable
- Highest AMR Resolution Required: 1.5" – 3" = .1 (Tenths) Cubic Feet & 4" – 10" = 1 (Single) Cubic Feet
- Pulse output frequency fully programmable
- Highest Pulse Resolution Required: 1.5" – 3" = .1 (Tenths) Cubic Feet & 4" – 10" = 1 (Single) Cubic Feet
- Integral data logging capability
- Integral resettable meter accuracy testing feature
- Large, easy-to-read LCD display
- 10-year battery life guarantee

Maximum Operating Pressure

The meter assembly shall operate properly without leakage, damage, or malfunction up to a maximum working pressure of 200 pounds per square inch (psig).

Strainers

The meter strainer shall be integral and cast as part of the meter's main case. The strainer's screen shall have a minimum net open area of at least two (2) times the pipe opening and be a V-shaped configuration for the purpose of maintaining a full unobstructed flow pattern. The strainer body shall be a coated ductile iron fusion-bonded epoxy identical to that of the meter's main case. All fasteners shall be stainless steel capable of maintaining the following static pressure ratings and physical dimensions:

Meter Size	Maximum Operating Pressure	Centerline to Strainer Base	Overall Length (Not to Exceed)
1 ½"	200 psig	2 5/16"	13"
2"	200 psig	2 5/16"	15 ¼"
3"	200 psig	4 1/8"	17"
4"	200 psig	4 ¾"	20"
6"	200 psig	5 ¾"	24"
8"	200 psig	6 ¾"	30 1/8"
10"	200 psig	8 ½"	41 1/8"

Straightening Vanes
A straightening vane assembly is mandatory and shall be positioned directly upstream of the measuring element. The straightening vane assembly shall be an integral component of the measuring chamber.

Connections
Flanges for the 1-1/2" and 2" size meter assemblies shall be of the 2-bolt oval flange configuration. The 3" and 4" size meter assemblies shall have flanges of the Class 125 round type, flat faced and shall conform to ANSI B16.1 for specified diameter, drilling and thickness.

Certifications and Markings
All sizes of meter packages shall display the sizes, model, manufacturer name, and direction of flow. Such display shall be cast on the side of the meter main case.

Guarantee
All meters will be guaranteed against defects in materials and workmanship for a period of one (1) year from the date of shipment.

Intent
Subject meter specifications are designed to establish minimum guidelines for selecting an extremely critical metering device. Areas of concern to be evaluated in the selection process include, but are not limited to, ease of installation, operational features and benefits, readability, and future system maintenance expense. A design which reflects longevity of proper operation in all elements and high degree of sustained accuracy within the entire range of the meter assembly is to be considered mandatory. Enhanced accuracy levels and performance are desired and will not be compromised.

AMR/AMI Systems
Meter must be compatible with ITRON (or approved equivalent) AMR/AMI systems.

HYDRANT METER
Sensus Omni H2 hydrant meter, with built in strainer and techno check valve, hydrant support rod, 6' TR/PL cable, Cubic feet measuring, NST fire hose adapters

Meter Part # H3X2HX1FXAXX1ND

ITRON METER CABLE
Iperl/Ally 5' iTron Cable SM50546439006

Schedule 12

BRASS FITTINGS

All fittings must be Lead Free.
Brass Nipples produced from Red Brass Pipe (conforming to ASTM B43).
All Threads for Brass Fitting will be NPT.
Haystite Nut Assembly will be CTS sizing and Cambridge Brass Model# 81 or equal.

Schedule 13

FITTINGS, DUCTILE IRON, MECHANICAL JOINT

All fittings need to be Ductile Iron.
All fittings are to have mechanical joint ends.

Must meet all applicable terms and provisions of standards ANSI/AWWA C153/A21.53-84 and ANSI/AWWA C111 ANSI A21.11 (current revisions). Specifications and Federal Specifications WW-p-421B.
Plain ends of all mechanical joint fittings to be beveled.
All mechanical joint fittings 4 through 36 inch must be at least 250 psig working pressure.
Mechanical joint fittings are to have a bituminous seal coat, NSF 61.

NOTE: Fittings are to be compact or standard (NO LONG RADIUS) and consist of tees, bends, wye branches, crosses, reducers and increasers, etc., without accessories.

Bids must be on a price per fitting less accessories basis to be acceptable.
Bids for mechanical joint caps and plugs must include center tapped with a 2 inch iron pipe thread tap.

FITTINGS TO BE ORDERED AS NEEDED.

APPROVED MANUFACTURERS
American Cast Iron Pipe
Clow
U. S. Pipe
Tyler Union Foundry
Approved equal

GLANDS, MEGALUG

Mechanical joint restraint shall be incorporated in the design of the follower gland and shall include a restraining mechanism which, when actuated, imparts multiple wedging action against the pipe, increasing its resistance as the pressure increases.

Flexibility of the joint shall be maintained after burial. Glands shall be manufactured of ductile iron conforming to ASTM A 536-80. Restraining devices shall be of ductile iron heat treated to a minimum hardness of 370 BHN. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI/AWWA A21.11 and ANSI/AWWA/A21.53 of latest revision. Twist-off nuts shall be used to insure proper actuating of the restraining devices. The mechanical joint restraint device shall have a working pressure of at least 250 psig with a minimum safety factor of 2:1 and shall be EBAA Iron, Inc., MEGALUG, UNIFLANGE or approved equal.

APPROVED MANUFACTURERS
EBAA Iron, Inc.
Tyler Union Foundry
Sigma
Ford Meter Box

COUPLINGS FOR 4" - 36" PIPE

Couplings should meet the specifications set forth in AWWA Standard C219.

Followers shall meet Ductile Iron ASTM A536 or Steel ASTM A36. Middle ring shall meet Ductile Iron ASTM A536 or Steel ASTM A36.

Middle ring lengths stated for Items 900 - 929 are ***minimum acceptable lengths***.
Gaskets Styrene Butadiene Rubber (SBR) for water in accordance with ASTM D2000
Bolts minimum 5/8 inch and shall meet AWWA C111, ANSI A21.11 or ASTM A242
Minimum corrosion resistant shop coat NSF 61 approved.

APPROVED MANUFACTURERS
Ford Meter Box
JCM Industries
Romac Industries

Schedule 14

FITTINGS, DUCTILE IRON, FLANGED JOINT

All fittings need to be Ductile Iron.
All fittings are to have flanged ends.

Must meet all applicable requirements to ANSI/AWWA C110/A21.10 (current revisions) Specifications and Federal Specifications WW-p-421B.

All flanged fittings 4 through 36 inch must be at least 250 psig working pressure.
Flanges are to be ANSI Class 125 B16.1.
Flanged fittings are to come without accessories.
Flanged fittings are to have a bituminous seal coat, NSF 61.
NOTE: Fittings consist of tees, bends, wye branches, crosses, reducers and increasers, etc.

Bids for flanged joint caps and plugs must include center tapped with a 2 inch iron pipe thread tap.
Fittings to be compact or standard (NO LONG RADIUS); ANSI, AWWA, C153/A21.53-84.

FITTINGS ARE TO BE ORDERED AS NEEDED.

APPROVED MANUFACTURERS
American Cast Iron Pipe
Clow
U. S. Pipe
Tyler Union Foundry
Approved equal

Schedule 15

JOMAR THREAD SEALANT (Green Stuff)

Slow-Drying Soft-Set General Purpose Thread Sealant
NSF Certified and CSA Certified

T&T Tools Mighty Probing Rod
48" Overall Length
With Current Insulator

Schedule 16

HYMAX DRESSER COUPLINGS
Working Pressure – 260 psi
2 Top Facing Bolts
Meets or exceeds AWWA Stadards C219.

Schedule 17

Snap Repair Clamps
Shell- Type 304 Stainless Steel
Lugs- Ductile Iron per ASTM A536

Wrap Repair Clamps
Shell- Type 304 Stainless Steel
Lugs- Ductile Iron per ASTM A536

Schedule 18

FITTINGS, P V C SEWER

4" through 18" gasket SDR 26 HW sewer fittings shall be manufactured in accordance with ASTM D 3034 and F1336 standards.
Fitting gaskets shall comply with ASTM F 477 or ASTM F 913.
Fitting gaskets shall be locked firmly in position to prevent displacement.
4" through 8" fittings shall be injection molded from virgin PVC compound having a minimum cell classification of 12454-B in accordance with, and certified by the National Sanitation Foundation (NSF), to meet ASTM D 1784.
10" through 15" gasket SDR 26 sewer fittings may be injection molded or fabricated from pipe meeting the requirements of ASTM D 3034.
Gasket joints of all fitting sizes must comply with ASTM D 3212 Internal Pressure Test (exfiltration) and Vacuum Test (infiltration) at 5 degrees of gasket joint deflection. Gasket SDR 26 sewer fittings shall be certified by the National Sanitation Foundation (NSF) to meet ASTM D 3034.
FITTINGS ARE TO BE ORDERED AS NEEDED

STAINLESS STEEL SHIELDED/SHEAR RING REPAIR COUPLINGS

1.0 Flexible Transition Couplings These shall be manufactured from elastomeric materials that comply with the applicable requirements of ASTM C 1173 Standard Specification for Flexible Transition Couplings.

2.0 The **purpose** of Flexible Transition Couplings is to form a leak proof joint between sections plain end pipe or fittings of the same or different materials such as cast iron, clay, ductile iron, concrete and plastic pipe in sizes ranging from 1 ¼" up to 30" with larger sizes available upon request.

3.0 Stainless Steel Hose Clamps Hose clamps should be constructed of series 300 premium grade stainless steel, including the housing and screw to insure a positive seal ranging in size from 1 1/16" through 21". The stainless steel hose clamps shall be tested to withstand the required minimum torque of 60 in-lbs and maximum free running torque of 4 in-lbs as to the applicable requirements in ASTM C 1173.

4.0 Stainless Steel Bolt Clamps Bolt clamps should be constructed of 316 stainless steel, to include the band, nut and screw. The stainless steel bolt clamps range in sizes from 4" through 15" and meet the required minimum torque of 60 in-lbs and maximum free running torque of 4 in-lbs as to the applicable requirements in ASTM C 1173.

5.0 Stainless Steel Shear Ring Shear rings should be manufactured from all series 300 premium grade stainless steel construction to ensure extra rigidity and strength, and provide protection in even the most unstable ground conditions. The shear rings need to be available for several types of piping, in the most popular sizes. They should be available in thicknesses of 0.007" and 0.012". Shear ring couplings need to be manufactured to conform to the functional requirements of ASTM C 1173.

6.0 Sealing Resistance Flexible Transition Couplings shall show no visible leakage while under an internal hydrostatic pressure of 4.3 psi as to the applicable requirements of ASTM C 1173.

7.0 Durometer Hardness Testing Flexible Transition Couplings shall have a shore "A" durometer (hardness) of 50-75 as to the applicable requirements of ASTM C 1173 and ASTM Test Method D 2240.

8.0 Marking Flexible Transition Couplings shall be marked with the manufacturers name or trademark, or both. The type and size of pipe for which the coupling is intended of the manufacturer's product number shall be marked on or attached to each coupling as to the applicable requirements of ASTM C 1173.

APPROVED MANUFACTURERS
Fernco
Mission Rubber
Indiana Seal

Schedule 19

TAPPING SLEEVES, STAINLESS STEEL

Tapping sleeve shall be fabricated from 304 Stainless Steel or its equivalent, CF8 Cast Stainless Steel. They shall have a pass through bolt design and provide 360 deg. seal around the pipe. Sleeve shall be fully passivized to return the stainless steel to its highest corrosion resistance. Flange outlets shall be indexed per MSS-SP60 to accept tapping valve. The lugs shall have a pass-through bolt design, to avoid alignment problems and allow tightening from either side of the pipe. Bolts shall not be integrally welded to the sleeve. Bolting lug shall be triangular design with a maximum of 3" bolt center spacing. Bolting hardware shall be a minimum of 304 Stainless Steel.

Body: Stainless Steel, 18-8 Type 304
Flange: CF8 Cast Stainless Steel - equivalent to 18-8 Type 304 Stainless Steel. ANSI 150lb. Drilling, recessed for tapping valve per MSS-SP 60.
Bolts: Stainless Steel, 18-8 Type 304
Branch Outlet: Schedule 10 Stainless Steel Pipe
Gasket: Full circumferential Virgin Styrene-Butadiene Rubber (SBR) - Compounded for use with water, salt solutions, mild acids and bases. Per ASTM D-2000 M4AA 607. Standard temperature range from -40 deg. to 150 deg. F (-40 deg. to 65 deg. C) constant, maximum intermittent 180 deg. F (82 deg. C).
Sleeve pressure rating with standard CF8 cast stainless steel flange: Sleeves 4" – 24" nominal pipe sizes: 175 PSI working pressure, hydrostatic test pressure of 218 PSI (pressures per ANSI/AWWA C207 Standard).

APPROVED MANUFACTURERS
JCM
Ford Meter Box
Romac

TAPPING SLEEVES, MECHANICAL JOINT DUCTILE IRON

Tapping sleeves shall be ductile iron construction meeting ASTM A536. Sleeve shall be coated with asphaltic varnish in compliance with NSF-61. Tapping sleeves shall be of the mechanical joint type. The mechanical joint ends shall be sealed by neoprene gaskets, compressed tightly around mains by means of a second flange or gland bolted to the end flange of the sleeve. Gasket and its seat inside the end flange of the sleeve shall be tapered or wedge shaped. The gasket shall be totally confined to prevent cold-flow when gland is tightened.
Tapping sleeves shall be suitable for use on pipe with AWWA specifications as follows: C102-53, C105-53, and C108-53.

Tapping sleeves shall have a working pressure of 200 psig.

The side outlet or branch connection outlet shall be machined and with a machined recess to match the machined projection of the tapping valve flange to assure correct alignment regardless of valve brand.

The longitudinal or side gaskets shall be of neoprene and shall be confined in a cored grove.

APPROVED MANUFACTURERS
American 2800-C
Mueller H-615

Schedule 20

VALVES, GATE 2" (Ductile Iron Cast)

All gate valves must comply with the latest revision of AWWA Standard C-509/C-515 for Water Works Distribution Resilient Seat Valves.

All gate valves must have "O" Ring seals.
All gate valves must open left (counterclockwise) with 2" square operating wrench nut.
All gate valves should have a minimum working pressure of 200 psi and prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to the requirements of ANSI/AWWA C-509/C-515 (and UL/FM where applicable).
All gate valves to be non-rising stem.
All 2" gate valves are to have threaded ends in accordance with ASME B16.4, Class 125.

The stem must be capable of being removed without disassembly of the valve and shall interchange with all valves of the same nominal pipe size, as produced by each representative manufacturer.

The valve shall be coated with an applied fusion-bonded epoxy coating in accordance with AWWA C-550 and be NSF 61 certified.

APPROVED MANUFACTURERS
American Cast Iron Pipe
Clow
U. S. Pipe
M & H Valve Company
Mueller

VALVES, GATE 3" AND LARGER (Ductile Iron Cast)

All gate valves must comply with the latest revision of AWWA Standard C-509/C-515 for Water Works Distribution Resilient Seat Valves.

All gate valves must have "O" Ring seals.
All gate valves must open left (counterclockwise) with 2" square operating wrench nut.

All gate valves should have a minimum working pressure of 200 psi and prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to the requirements of ANSI/AWWA C-509/C-515 (and UL/FM where applicable).

All gate valves to be non-rising stem.
All gate valves to have mechanical joint ends or flanged ends.

The stem must be capable of being removed without disassembly of the valve and shall interchange with all valves of the same nominal pipe size, as produced by each representative manufacturer.
The valve shall be coated with an applied fusion-bonded epoxy coating in accordance with AWWA C-550 and be NSF 61 certified.

APPROVED MANUFACTURERS
American Cast Iron Pipe
Clow
U. S. Pipe
M & H Valve Company
Mueller

VALVES, TAPPING

All tapping valves shall comply with AWWA Specifications C-509 for resilient seat valves and the following design specifications.

All tapping valves are to be non-rising stem - open left.
Tapping valves 12 inch and smaller shall have a working pressure of 200 psig and tested at 400 psig and tap valves 14" and larger shall have a working pressure of 150 psig and test pressure of 300 psig.
All tapping valves shall be furnished with "O" Ring seals.

Tapping valves shall have an outlet end connection of the mechanical joint type. Inlet ends shall have an inlet flange for attaching to a sleeve or cross. A machine projection on this flange shall be made with a machined recess in the tapping sleeve outlet flange to assure correct alignment.
Seat opening of tapping valves shall be larger than the nominal size to permit full diameter cuts to be made.

All valves to have tap sleeve ends complete with bolts, glands and 1/8” thick rubber gaskets.

APPROVED MANUFACTURERS
American Cast Iron Pipe
Clow
U. S. Pipe
M & H Valve Company
Mueller

VALVE BOXES

Valve boxes shall be adjustable from 18" to 24" and 24" to 36".

Valve boxes shall be made from cast iron.
Valve boxes tops shall have the word "water" cast into the top.
The inside diameter shall be at least 5 1/4".
The adjustable top shall be the screw type.
The valve box top must have 2 slots for hooks to open top.
The bottom section must have a flair bottom to prevent settling.

***Valve boxes shall be shipped fully assembled*.**

APPROVED MANUFACTURERS
Opelika Foundry #4905
Tyler-Union Foundry #6850
Bingham & Taylor #4905

Schedule 21

VALVES, PRESSURE REGULATING

Sizes - 3/4", 1", 1 1/2" and 2".
Pressure reducers to have spring range of 24 - 75 psi.
Pressure reducers are to be preset at 50 psi.
Shall have all bronze body and bell housing.
Shall have a built in by-pass to prevent buildup of excessive system pressure caused.
Shall be serviceable in-line.
Shall be Female Iron Pipe thread by Female Iron Pipe Thread (FIP x FIP).

APPROVED MANUFACTURERS
Watts
Wilkins

Schedule 22

METER READING PRODUCTS

100W Water Communication ERT Module – ERW-1300-403
- Two “A” cell lithium batteries warranted for 20 years
- Maximum meter register pulse frequency: 4 Hertz
- Compatible with Sensus iPERL and Omni

100W Through the Lid Mount Kit – CFG-1300-004
- Compatible with the ERW-1300-403
- Compatible with a 2” hole through meter box lid

100W+ Through the Lid Antenna – CFG-0900-003
- TTL antenna American Disabilities Act compliant
- Compatible with the ERW-1300-403

Itron Splice Kit – OEM-0034-002
- Qty. 3 wire connectors
- 1 Gel Tube

5’ Cable with In-Line Connector with .167” Protective Coating – CFG-0151-010
- Itron connection X bare end wires (3 wires inside protective coating)

Schedule 23

INVERTED MARKING PAINT

Quik-Mark Solvent-Based Inverted Marking Paint

- Colors needed – Blue, Green, Red, Orange, Black, and White
- 17 OZ Cans

Schedule 24

1 ½" and 2" METER SETTER BYPASS

Inlet and Outlet Ball Valve
No Rise
Female Iron Pipe Thread on Inlet and Outlet for Service Line
No Lead Alloy
Lay-Length Spacing for 1 ½" Sensus Omni Compound C2 Meter and 2" Sensus Omni Compound C2 Meter
AY McDonald 720R600WWFF 666 and 720R700WWFF 777 or equals
Ford Meter Box VBB76-00B-11-66-NL and VBB77-00B-11-77-NL or equals
Any Substitutions will have to be approved by the City of Tuscaloosa

Schedule 25

¾" AND 1" KAMSTRUP FLOWIQ 2100 AND 3101 WATER METERS

¾" meters will be offered in 2 lay lengths in composite. 7 ½" (02U-23-C08-8EC) and 9" (02U-23-C08-8EC+)
¾" meters will be offered in 1 lay length in stainless. 7 ½" (03U-23-C0R-8EC).
1" meters will be 10 ¾" lay length and stainless (02U-23-C0S-8EC).
All meters will be FlowIQ 2100 OR 3101 meters, equipped to be used with AMI systems.
Meters can be ordered in fiberglass reinforced Polyphenylene Sulfide or Stainless Steel.
Meter must be compatible with ITRON (or approved equivalent) AMR/AMI systems.
Meters will read by Cubic Feet.
Meter cable will have the following features: Type 23 5' cable with Itron connector, factory mounted to meter, cable plugs into 3-pin socket on register face. Type Code: 5000490.2

Schedule 26

¾" AND 1" DIEHL HYDRUS WATER METERS

¾" meters will be offered in 2 lay lengths. 7 ½" (OEM-6222-002) and 9" (OEM-6222-003)
1" meters will be 10 ¾" lay length (OEM-6222-004).
All meters will be Diehl Hydrus meters, equipped to be used with AMI systems.
Meter must be compatible with ITRON (or approved equivalent) AMR/AMI systems.
Meters will read by Cubic Feet.
Meters will be shipped with iTron compatible cable.

Bidder Company Name

Bidder Signature

ITEM LIST & BID SUBMISSION FORM

	Schedule 1	Copper Pipe			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
1	3/4" COPPER PIPE TYPE K SOFT		WD0100	LF	
2	1" COPPER PIPE TYPE K SOFT		WD0101	LF	
	Schedule 2	**Ductile Iron Pipe**			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
3	4" CLASS 350 - D. I. PIPE		WD0131	LF	
4	6" CLASS 350 - D. I. PIPE		WD0132	LF	
5	8" CLASS 350 - D. I. PIPE		WD0133	LF	
6	12" CLASS 350 - D. I. PIPE		WD0125	LF	
7	24" CLASS 250 - D. I. PIPE		WD0128	LF	
8	8" CL-350 DI PERMOX LINED		WD7150	LF	
9	10" CL-350 PERMOX LINED DI PIPE		WD7092	LF	
10	16" DI PIPE W/PERMOX LINING		WD7120	LF	
	Schedule 3	**HDPE Pipe**			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
11	15" HDPE PIPE		WD3612	LF	
12	18" HDPE PIPE		WD3613	LF	
13	24" HDPE PIPE		WD3614	LF	
14	30" HDPE PIPE		WD3615	LF	
15	36" HDPE PIPE		WD3616	LF	
	Schedule 4	**PVC Pipe**			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
16	2" PVC PIPE, CLASS 200		WD0115	LF	
17	4" SCHEDULE 40 PVC PIPE		WD7001	LF	
18	6" PVC PIPE, CLASS 200		WD0118	LF	
19	12" SCHEDULE 40 PVC PIPE		WD7005	LF	
20	4" SDR-26 HW SEWER PIPE 14LF		WD7058	LF	
21	6" SDR-26 HW SEWER PIPE 14LF		WD7059	LF	
22	8" SDR-26 HW SEWER PIPE 14LF		WD7060	LF	
23	10" SDR-26 HW SEWER PIPE 14LF		WD7061	LF	
24	12" SDR-26 HW SEWER PIPE 14LF		WD7062	LF	

	Schedule 5	Fire Hydrants and Accessories			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
25	FIRE HYDRANTS (SPECIFY BRAND AND MODEL) M. J. 3 FT. BURY		WD1900	EACH	
26	FIRE HYDRANTS (SPECIFY BRAND AND MODEL) M. J. 3 FT 6 IN BURY		WD3269	EACH	
27	FIRE HYDRANTS (SPECIFY BRAND AND MODEL) M. J. 4 FT. BURY		WD1901	EACH	
28	FIRE HYDRANTS (SPECIFY BRAND AND MODEL) M. J. 5 FT. BURY		WD1902	EACH	
	Schedule 6	**Manhole Rings, Covers, Risers and Accessories**			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
29	MANHOLE RING, STANDARD V1344		WD7075	EACH	
30	MANHOLE COVER, LOGO STANDARD AND LOW PROFILE (V1344-1)		WD7156	EACH	
31	MANHOLE RISER 48" X 36" OPEN BOTTOM		TBD	EACH	
32	MANHOLE 48" FLAT TOP WITH OPEN HOLE FOR RING AND COVER		TBD	EACH	
33	MANHOLE ADJUSTMENT RING 3"		WD7080	EACH	
34	MANHOLE ADJUSTMENT RING 4"		WD7081	EACH	
35	MANHOLE ECCENTRIC CONE TOP 48" X 36"		WD7091	EACH	
36	MANHOLE BAR (KEN-TOOL#33223)		WD7151	EACH	
37	1" ORLANDO RISER RING (23-2-1)		WD7155	EACH	
	Schedule 7	**Meters Accessories**			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
38	3/4" COMP X FIP CURB STOP MCDONALD 6102WT OR EQUAL		WD1700	EACH	
39	3/4" COPPER FLARE X F.I.P. CURB STOPS MCDONALD 76102W OR EQUAL		WD1731	EACH	
40	3/4" FIP X FIP CURB STOP MCDONALD 6101W OR EQUAL		WD1701	EACH	
41	1" COMP X FIP CURB STOPS MCDONALD 6102WT OR EQUAL		WD1702	EACH	
42	1" FIP X FIP CURB STOPS MCDONALD 6101W OR EQUAL		WD1703	EACH	
43	2" FIP X FIP CURB STOP MCDONALD 6101W OR EQUAL		WD1704	EACH	
44	3/4" CORPORATION STOPS MCDONALD 74701BT OR EQUAL		WD1710	EACH	
45	1" CORPORATION STOPS MCDONALD 4701T OR EQUAL		WD1711	EACH	
46	3/4" MALE ADAPTERS MCDONALD 4753T OR EQUAL		WD1708	EACH	
47	3/4" FEMALE ADAPTERS MCDONALD 4754T OR EQUAL		WD1709	EACH	
48	1" MALE ADAPTERS MCDONALD 4753T OR EQUAL		WD1722	EACH	
49	1" FEMALE ADAPTERS MCDONALD 4754T OR EQUAL		WD1723	EACH	
50	3/4" 3-PART UNIONS MCDONALD 4758T OR EQUAL		WD1724	EACH	
51	1" 3-PART UNIONS MCDONALD 4758T OR EQUAL		WD1725	EACH	
52	1" X 1" X 1" COPPER COMPRESSION TEES MCDONALD 4760T OR EQUAL		WD1726	EACH	

Line Item	Part Description	City Part ID	UOM	Bid Price
53	1" X 3/4" X 3/4" U-BRANCH MCDONALD 708UQM	WD1727	EACH	
54	1" X 3/4" BRASS COMPRESSION WYES MCDONALD 708YSTT OR EQUAL	WD1728	EACH	
55	3/4" COMP. X M.I.P. 90 DEGREE BENDS MCDONALD 4779MT OR EQUAL	WD1729	EACH	
56	1" COMP. X M.I.P. 90 DEGREE BENDS MCDONALD 4779MT OR EQUAL	WD1730	EACH	
57	3/4" BRASS COMPRESSION TEES MCDONALD 4760T OR EQUAL	WD1733	EACH	
58	3/4" METER COUPLINGS 1 1/2" LONG	WD1714	EACH	
59	3/4" METER COUPLINGS 2" LONG	WD1715	EACH	
60	3/4" METER COUPLINGS 2 1/2" LONG	WD1716	EACH	
61	3/4" METER COUPLING 2 3/4" LONG	WD1717	EACH	
62	1" METER COUPLINGS 2 1/2" LONG	WD1720	EACH	
63	1" METER COUPLINGS 1 1/2" LONG	WD1719	EACH	
64	1/2" BRASS PACK JOINT COUPLING (C77-XX-NL OR EQUAL)	WD4000	EACH	
65	3/4" BRASS PACK JOINT COUPLING (C77-XX-NL OR EQUAL)	WD4001	EACH	
66	1" BRASS PACK JOINT COUPLING (C77-XX-NL OR EQUAL)	WD4002	EACH	
67	1 1/4" BRASS PACK JOINT COUPLING (C77-XX-NL OR EQUAL)	WD4003	EACH	
68	1 1/2" BRASS PACK JOINT COUPLING (C77-XX-NL OR EQUAL)	WD4004	EACH	
69	2" BRASS PACK JOINT COUPLING (C77-XX-NL OR EQUAL)	WD4005	EACH	
	Schedule 8 **METER VAULTS**			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
70	2' X 3' X 30" METER VAULT	WD1762	EACH	
71	3 X 5 X 36" METER VAULT	WD1766	EACH	
72	4 X 6 X 48" METER VAULT (927 LB BODY,391 LB FOR LIDS)	WD1768	EACH	
73	4 X 8 X 48" METER VAULT (927 LB BODY,391 LB FOR LIDS)	WD1770	EACH	
	Schedule 9 **NDS METER BOXES**			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
74	STANDARD PLASTIC METER BOX (10"X15"X10") (BOX ONLY)	WD1772	EACH	
75	STANDARD METER BOX LID (SOLID) LC-528	WD3728	EACH	
76	STANDARD METER BOX LID (WITH 2" HOLE) LC-528T	WD3729	EACH	
77	STANDARD PLASTIC METER BOX LID (WITH 2" HOLE) D1200-DITRL	TBD	EACH	
78	JUMBO PLASTIC METER BOX (13"X20"X12") (BOX ONLY)	WD1773	EACH	
79	JUMBO METER BOX LID (SOLID) LC-2115	WD3726	EACH	
80	JUMBO METER BOX LID (WITH 2" HOLE) LC-2115T	WD3727	EACH	
81	JUMBO PLASTIC METER BOX LID (WITH 2" HOLE) D1500-DISBTRLD	TBD	EACH	

Line Item	Part Description	City Part ID	UOM	Bid Price
82	MSP STANDARD 11" X 18" X 12" METER BOX & LID	WD3208	EACH	
83	MSP JUMBO 13" X 24" X 12" METER BOX & LID	WD3232	EACH	
	Schedule 10 BACKFLOWS			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
84	3/4" WILKINS #700 (FIP X FIP) BACKFLOW PREVENTERS OR EQUAL	WD1774	EACH	
85	1" WILKINS #700 (FIP X FIP) BACKFLOW PREVENTERS OR EQUAL	WD1775	EACH	
86	1 1/2" BACKFLOW PREVENTER(WATTS 007QT 16 3/4" LONG)	WD3049	EACH	
87	2" WILKINS #950 BACKFLOW PREVENTERS OR EQUAL (19 1/2" LONG)	WD1776	EACH	
88	3" BACKFLOW PREVENTER	WD001778	EACH	
89	3" BACKFLOW PREVENTER RPZ	WD001775	EACH	
90	4" BACKFLOW PREVENTER	WD001780	EACH	
91	4" BACKFLOW PREVENTER RPZ	WD001781	EACH	
	Schedule 11 Water Meters			
	Meters with Standard Cable			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
92	3/4" SHORT ELECTROMAGNETIC WATER METER	TBD	EACH	
93	3/4" ELECTROMAGNETIC WATER METER	TBD	EACH	
94	1" ELECTROMAGNETIC WATER METER	TBD	EACH	
95	1 1/2" RESIDENTIAL WATER METERS, CU. FT.	TBD	EACH	
96	1 1/2" COMPOUND WATER METER, CU. FT. (13" long)	TBD	EACH	
97	2" COMPOUND WATER METERS, CU. FT. (15 1/4" long)	TBD	EACH	
98	2" RESIDENTIAL WATER METERS, CU. FT.	TBD	EACH	
99	3" COMPOUND WATER METERS, CU. FT. (17" long)	TBD	EACH	
100	4" COMPOUND WATER METERS, CU. FT. (20" long)	TBD	EACH	
	Meters with ITRON Cable			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
101	3/4" SHORT ELECTROMAGNETIC WATER METER	WD1747	EACH	
102	3/4" ELECTROMAGNETIC WATER METER	WD1748	EACH	
103	1" ELECTROMAGNETIC WATER METER	WD1749	EACH	
104	1 1/2" RESIDENTIAL WATER METERS, CU. FT.	WD1750	EACH	
105	1 1/2" COMPOUND WATER METER, CU. FT. (13" long)	WD3438	EACH	
106	2" COMPOUND WATER METERS, CU. FT. (15 1/4" long)	WD3283	EACH	
107	2" RESIDENTIAL WATER METERS, CU. FT.	WD1751	EACH	
108	3" COMPOUND WATER METERS, CU. FT. (17" long)	WD1752	EACH	

Line Item	Part Description	City Part ID	UOM	Bid Price
109	4" COMPOUND WATER METERS, CU. FT. (20" long)	WD1754	EACH	
	Cables for Meters			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
110	IPERL/ALLEY 5' ITRON CABLE SM50546439006	WD004114	EACH	
111	SENSUS CABLE	TBD	EACH	
	Hydrant Meter			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
112	SENSUS OMNI H2 HYDRANT METER, H3X2HX1FXAXX1ND - OR EQUAL	TBD	EACH	
	Schedule 12 **2" and Smaller Pipe Accessories**			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
113	1/2" X 2" BRASS NIPPLES	WD1348	EACH	
114	1/2" X 4" BRASS NIPPLES	WD1349	EACH	
115	1/2" X 6" BRASS NIPPLES	WD1350	EACH	
116	3/4" CLOSE BRASS NIPPLE	WD3276	EACH	
117	3/4" X 2" BRASS NIPPLES	WD1351	EACH	
118	3/4" X4" BRASS NIPPLES	WD1352	EACH	
119	3/4" X 6" BRASS NIPPLES	WD1353	EACH	
120	1" X CLOSE BRASS NIPPLE	WD3233	EACH	
121	1" X 2" BRASS NIPPLES	WD1354	EACH	
122	1" X 4" BRASS NIPPLES	WD1355	EACH	
123	1" X 6" BRASS NIPPLES	WD1356	EACH	
124	1 1/2" X 12" BRASS NIPPLES	WD3437	EACH	
125	2" X 2 1/2" BRASS NIPPLES	WD1366	EACH	
126	2" X 4" BRASS NIPPLES	WD1367	EACH	
127	2" X 6" BRASS NIPPLES	WD1368	EACH	
128	2" X 8" BRASS NIPPLES	WD1369	EACH	
129	2" X 12" BRASS NIPPLES	WD1370	EACH	
130	3/4" BRASS HAYSTITE NUT (CAMBRIDGE BRASS 81-J3)	WD3057	EACH	
131	1" BRASS HAYSTITE NUT (CAMBRIDGE BRASS 81-J4)	WD3058	EACH	
132	2" UNIFLANGE 1300-S (RESTRAINT DEVICE)	WD3160	EACH	
133	3/4" BRASS PLUG	WD1301	EACH	
134	1" BRASS PLUG	WD1302	EACH	
135	2" BRASS PLUGS	WD1305	EACH	
136	3/4" BRASS CAPS	WD1308	EACH	
137	1" BRASS CAPS	WD1309	EACH	

Line Item	Part Description	City Part ID	UOM	Bid Price
138	2" BRASS CAPS	WD1312	EACH	
139	3/4" X 1/2" BRASS BUSHINGS	WD1313	EACH	
140	1" X 3/4" BRASS BUSHINGS	WD1315	EACH	
141	1" X 3/4" BRASS REDUCERS	WD1332	EACH	
142	3/4" BRASS 90 DEGREE ELLS	WD1397	EACH	
143	1" BRASS 90 DEGREE ELLS	WD1398	EACH	
144	1 1/2" BRASS 90 DEGREE ELLS	WD1400	EACH	
145	2" BRASS 90 DEGREE ELLS	WD1401	EACH	
146	3/4" BRASS 45 DEGREE ELLS	WD3682	EACH	
147	1" BRASS 45 DEGREE ELLS	WD3683	EACH	
148	2" BRASS 45 DEGREE ELLS	WD1417	EACH	
149	3/4" BRASS TEES	WD1421	EACH	
150	1" BRASS TEES	WD1423	EACH	
151	2" X 3/4" BRASS TEES	WD1436	EACH	
152	2" X 1" BRASS TEES	WD1437	EACH	
153	2" X 2" BRASS TEES	WD1440	EACH	
154	1/2" BRASS COUPLINGS	WD1447	EACH	
155	3/4" BRASS COUPLINGS	WD1448	EACH	
156	1" BRASS COUPLINGS	WD1449	EACH	
157	1 1/2" BRASS COUPLINGS	WD1451	EACH	
158	2" BRASS COUPLINGS	WD1452	EACH	
159	2" BRASS UNION	WD1460	EACH	
160	2" BRONZE METER FLANGES WITH BOLTS & GASKETS	WD0845	EACH	
161	1 1/2" BRONZE METER FLANGES WITH BOLTS & GASKETS	WD0844	EACH	
162	3/4" SPIGOTS, ARROWHEAD OR EQUAL	WD1707	EACH	
	Schedule 13 **Mechanical Joint Pipe Accessories**			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
163	6" FOSTER ADPT & ACCESS	WD3346	EACH	
164	6" RUN X 4" BRANCH M. J. TEES	WD0201	EACH	
165	6" RUN X 6" BRANCH M. J. TEES	WD0202	EACH	
166	8" RUN X 6" BRANCH M. J. TEES	WD0204	EACH	
167	8" X 6" CONCENTRIC M. J. REDUCERS	WD0242	EACH	
168	6" 90 DEGREE MECHANICAL JOINT BEND	WD0333	EACH	
169	8" 90 DEGREE MECHANICAL JOINT BEND	WD0334	EACH	
170	4" 45 DEGREE MECHANICAL JOINT BEND	WD0341	EACH	

Line Item	Part Description	City Part ID	UOM	Bid Price
171	6" 45 DEGREE MECHANICAL JOINT BEND	WD0342	EACH	
172	6" 22 1/2 DEGREE MECHANICAL JOINT BEND	WD0351	EACH	
173	8" 22 1/2 DEGREE MECHANICAL JOINT BEND	WD0352	EACH	
174	4" MJ PLUG WITH 2" IPT TAP	WD0372	EACH	
175	8" MJ PLUG WITH 2" IPT TAP	WD0374	EACH	
176	12" MJ CAP WITH 2" IPT TAP	WD0392	EACH	
177	6" SOLID M.J. SLEEVES	WD0538	EACH	
178	8" SOLID M.J. SLEEVES	WD0539	EACH	
179	12" SOLID M.J. SLEEVES	WD0540	EACH	
180	4" X 12" ANCHOR COUPLINGS, DUCTILE IRON	WD0368	EACH	
181	6" X 12" ANCHOR COUPLINGS, DUCTILE IRON	WD0369	EACH	
182	8" X 12" ANCHOR COUPLINGS, DUCTILE IRON	WD0370	EACH	
183	4" UNIFLANGE 1300-C (RESTRAINT DEVICE)	WD3161	EACH	
184	6" UNIFLANGE 1300-C (RESTRAINT DEVICE)	WD3162	EACH	
185	8" UNIFLANGE 1300-C (RESTRAINT DEVICE)	WD3163	EACH	
186	12" UNIFLANGE 1300-C (RESTRAINT DEVICE)	WD3165	EACH	
187	4" MJ ACCESSORY PACK (T-BOLTS AND MJ GASKET)	WD004599	EACH	
188	6" MJ ACCESSORY PACK (T-BOLTS AND MJ GASKET)	WD004600	EACH	
189	8" MJ ACCESSORY PACK (T-BOLTS AND MJ GASKET)	WD004601	EACH	
190	12" MJ ACCESSORY PACK (T-BOLTS AND MJ GASKET)	TBD	EACH	
191	24" MJ ACCESSORY PACK (T-BOLTS AND MJ GASKET)	TBD	EACH	
192	4" MEGALUG RESTRAINED GLAND, DUCTILE IRON	WD0643	EACH	
193	6" MEGALUG RESTRAINED GLAND, DUCTILE IRON	WD0644	EACH	
194	8" MEGALUG RESTRAINED GLAND, DUCTILE IRON	WD0645	EACH	
195	10 " MEGALUG RESTRAINED GLAND, DUCTILE IRON	WD3242	EACH	
196	12" MEGALUG RESTRAINED GLAND, DUCTILE IRON	WD0646	EACH	
197	16" MEGALUG RESTRAINED GLAND, DUCTILE IRON	WD0647	EACH	
198	8" MJ SOLID SLEEVE PERMOX LINED	TBD	EACH	
199	10" MJ SOLID SLEEVE PERMOX LINED	WD003152	EACH	
200	16" MJ SOLID SLEEVE PERMOX LINED	WD7138	EACH	
	Schedule 14 **Flanged Pipe Accessories**			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
201	4" RUN X 4" BRANCH FLANGED TEES	WD0396	EACH	
202	4" 90 DEGREE FLANGED BEND	WD0493	EACH	
203	3" 90 DEGREE FLANGED BEND	WD3404	EACH	

Line Item	Part Description	City Part ID	UOM	Bid Price
204	3" RUN X 3" BRANCHED FLANGED TEE	WD3405	EACH	
205	4" M.J. X 3" FLANGED REDUCER	WD3407	EACH	
206	3" MJFA-3-I FLANGE COUPLING ADAPTER	WD3408	EACH	
207	4" MJFA-4-I FLANGE COUPLING ADAPTER	WD1003	EACH	
208	6" MJFA-6-I FLANGE COUPLING ADAPTER	WD1004	EACH	
209	3" X 12" FLANGE X PE SPOOL	WD3410	EACH	
210	3" x 12" FLANGE X FLANGE SPOOL	WD3435	EACH	
211	3" X 24" FLANGE X FLANGE SPOOL	WD3411	EACH	
212	3" X 36" FLANGE X FLANGE SPOOL	WD3412	EACH	
213	4" X 12" FLANGE X FLANGE SPOOL	WD3077	EACH	
214	4" X 24" FLANGE X FLANGE SPOOL	WD3218	EACH	
215	4" X 48" FLANGED X FLANGED SPOOL	WD3464	EACH	
216	4" X 36" FLANGE X FLANGE SPOOL	WD3287	EACH	
217	6" X 36" LONG FLANGE X FLANGE SPOOL	WD3074	EACH	
218	3" FLANGE PACKS (NUTS, BOLTS, GASKETS)	WD3406	EACH	
219	4" FLANGE PACK (BOLTS, NUTS, GASKET)	WD0800	EACH	
220	6" FLANGE PACK (BOLTS, NUTS, GASKET)	WD0801	EACH	
	Schedule 15 **Pipe Accessories**			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
221	PIPE LUBRICANT - 1 QUART CONTAINERS	WD2001	EACH	
222	PIPE LUBRICANT - 1 GALLON CONTAINERS	WD2002	EACH	
223	JOMAR PIPE LUBRICANT (GREEN STUFF) - PINT CONTAINERS	WD2003	EACH	
224	WATER LINE MARKERS (6x2 1/2") CARSONITE OR EQUAL	WD2004	EACH	
225	LOCATING WIRE (14 GUAGE SOLID COPPER)	WD3211	EACH	
226	DUCTILE LUGS DUCTILE IRON (MEETING ASTM A536-80)	WD0823	EACH	
227	3/4" ALL THREAD ROD	WD3032	EACH	
228	HAND PUMP (METER BOX)	WD3555	EACH	
229	PROBING RODS	WD3011	EACH	
	Schedule 16 **Hymax Dresser Couplings**			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
230	2" HYMAX DRESSER COUPLING FOR 2" OR 2 1/2" COPPER (PART # 2000-0303-260)	WD3426	EACH	
231	3" HYMAX DRESSER COUPLING COPPER PART# 2000-0433-260	WD3424	EACH	
232	4" HYMAX DRESSER COUPLING RANGE (4.25-5.63)	WD3484	EACH	
233	6" HYMAX DRESSER COUPLING (O.D. 6.42-7.68)	WD3489	EACH	
234	8" HYMAX DRESSER COUPLING (OD 8.54-9.84)	WD3488	EACH	

	Schedule 17	Repair Clamps			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
235	2" X 7-1/2" FULL CIRCLE REPAIR CLAMP (F1-263-75)		WD3342	EACH	
236	1/2" X 3" HANDIBAND REPAIR CLAMP FOR STEEL		WD0951	EACH	
237	1/2" X 6" HANDIBAND REPAIR CLAMP FOR STEEL		WD0952	EACH	
238	3/4" X 3" HANDIBAND REPAIR CLAMP FOR STEEL		WD0953	EACH	
239	3/4" X 6" HANDIBAND REPAIR CLAMP FOR STEEL		WD0954	EACH	
240	1" X 3" HANDIBAND REPAIR CLAMP FOR STEEL		WD0955	EACH	
241	1" X 6" HANDIBAND REPAIR CLAMP FOR STEEL		WD0956	EACH	
242	2" X 3" HANDIBAND REPAIR CLAMP		WD0961	EACH	
243	2" X 6" HANDIBAND REPAIR CLAMP		WD0962	EACH	
244	2" x 7.50" COLLAR LEAK REPAIR CLAMP		WD3178	EACH	
245	1 1/2" X 3" WRAP CLAMP REPAIR CLAMP (FSC-190-3R)		WD3503	EACH	
246	1 1/4" X 3" WRAP CLAMP REPAIR CLAMP		WD3504	EACH	
247	2" X 3" WRAP REPAIR CLAMP		WD3509	EACH	
248	2" X 6" WRAP REPAIR CLAMP		WD3510	EACH	
	Schedule 18	Sewer Pipe Accessories and Related Items			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
249	4" CLAY TO PVC FERNCO SHEAR COUPLING		WD7063	EACH	
250	6" CLAY TO PVC FERNCO SHEAR COUPLING		WD7064	EACH	
251	4" PVC TO PVC FERNCO SHEAR COUPLING		WD7069	EACH	
252	8" PVC TO PVC FERNCO SHEAR COUPLING		WD7071	EACH	
253	SANITARY SEWER MANHOLE MARKERS (WHITE)		WD7021	EACH	
254	FULL RANGE 3M MARKER WASTE WATER		WD7053	EACH	
255	2" SEWER AIR RELEASE VALVE (ARV) APCO MN:402WA.1		WD7087	EACH	
256	2" SEWER ARV (CRISPIN MN: SL20) W/BACKFLUSH VALVE		WD7125	EACH	
257	2" STAINLESS ARV (CRISPIN - UX, D434G00UX20)		WD3656	EACH	
258	WATER PLUG (50 LB PAILS)		WD7023	EACH	
	Schedule 19	Tap Sleeves and Saddles			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
259	2" X 3/4" BRONZE SADDLES, CC THREAD FOR PVC PIPE (MCDONALD 3892)		WD1606	EACH	
260	2" X 1" BRONZE SADDLES, CC THREAD FOR PVC PIPE (McDONALD 3892)		WD1607	EACH	
261	3" X 3/4" BRONZE TAP SADDLE FOR PVC		WD3466	EACH	
262	4" X 2" TAP SADDLES, I.P.T. DOUBLE STRAP FOR C.I. 4.76 - 5.26		WD1612	EACH	
263	6" X 1" TAP SADDLES, CC THREAD, DOUBLE STRAP PVC 6.63 - 6.90		WD1626	EACH	

Line Item	Part Description	City Part ID	UOM	Bid Price
264	6" X 2" TAP SADDLES, I.P.T. DOUBLE STRAP, FOR DI 6.84 - 7.60	WD1613	EACH	
265	8" X 2" TAP SADDLES, I.P.T. DOUBLE STRAP, FOR C.I. PIPE 8.99 - 9.79	WD1614	EACH	
266	12" X 2" TAP SADDLES, I.P.T. DOUBLE STRAP, FOR C.I. PIPE	WD1616	EACH	
267	16" X 2" TAP SADDLES, I.P.T. DOUBLE STRAP, FOR C.I. PIPE	WD1618	EACH	
268	6" X 6" SS TAP SLEEVE (JCM #432 OR EQUAL)(OD 7.05 -7.40)	WD3351	EACH	
269	6" X 6" SS TAP SLEEVE DI (JCM #432 OR EQUAL)(O.D. 6.83-7.16)	WD3383	EACH	
270	8" X 8" SS TAP SLEEVE (JCM #432 OR EQUAL) (OD 8.98-9.37)	WD3354	EACH	
271	12" X 8" TAP SLEEVE (AMERICAN #AFC-2800 OR EQUAL)	WD0611	EACH	
	Schedule 20 **Valves and Accessories**			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
272	2" RS THREADED GATE VALVE	WD3462	EACH	
273	4" TAPPING VALVES (AMERICAN 2500 RS OR EQUAL)	WD0734	EACH	
274	6" TAPPING VALVES (AMERICAN 2500 RS OR EQUAL)	WD0735	EACH	
275	8" TAPPING VALVES (AMERICAN 2500 RS OR EQUAL)	WD0736	EACH	
276	4" GATE VALVES - (M.J.) (AMERICAN 2500 RS OR EQUAL)	WD0710	EACH	
277	6" GATE VALVES - (M.J.) (AMERICAN 2500 RS OR EQUAL)	WD0711	EACH	
278	8" GATE VALVES - (M.J.) (AMERICAN 2500 RS OR EQUAL)	WD0712	EACH	
279	3" GATE VALVES (FLANGED) (AMERICAN 865 RS OR EQUAL)	WD3414	EACH	
280	4" GATE VALVES (FLANGED) (AMERICAN 2500 RS OR EQUAL)	WD0724	EACH	
281	VALVE BOX, 18" X 24" SCREW TYPE W/LID (5-1/4" DIA.)	WD0757	EACH	
282	1" ADAPTERS FOR 5 1/4" VALVE BOXES	WD0759	EACH	
283	1 1/2" ADAPTERS FOR 5 1/4" VALVE BOXES	WD0760	EACH	
284	6" X 5 1/4" VALVE BOX RISER	WD3431	EACH	
285	5 1/4" VALVE BOX WATER LID ONLY	WD3439	EACH	
	Schedule 21 **Pressure Reducing Valves**			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
286	3/4" PRESSURE REDUCER VALVES WILKINS #600 OR EQUAL	WD1816	EACH	
287	1" PRESSURE REDUCER VALVES WILKINS #600 OR EQUAL	WD1817	EACH	
288	1 1/2" PRESSURE REDUCER VALVES WILKINS #600 OR EQUAL	WD1818	EACH	
289	2" PRESSURE REDUCER VALVES WILKINS #600 OR EQUAL	WD1819	EACH	
	Schedule 22 **New Meter Reading Products**			
Line Item	**Part Description**	**City Part ID**	**UOM**	**Bid Price**
290	ENCODER WITH INTEGRAL CONNECTOR AND LEAK SENSOR ERW-1300-403	WD4106	EACH	
291	100W THROUGH THE LID MOUNT KIT CFG-1300-004	WD4107	EACH	

Line Item	Part Description		City Part ID	UOM	Bid Price
292	THROUGH THE LID REMOTE MOUNT ANTENNA KIT CFG-0900-003		TBD	EACH	
293	ITRON SPLICE KIT OEM-0034-002		WD4108	EACH	
294	5' CABLE WITH IN-LINE CONNECTOR WITH .167" PROTECTIVE COVER CFG-0151-010		WD4109	EACH	
	Schedule 23	**Locating Products**			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
295	BLUE INVERTED MARKING PAINT (KRYLON INDUSTRIAL QUIK MARK)		WD2000	EACH	
296	GREEN INVERTED MARKING PAINT (KRYLON INDUSTRIAL QUIK MARK)		WD7000	EACH	
297	WHITE INVERTED MARKING PAINT (KRYLON INDUSTRIAL QUIK MARK)		WD3598	EACH	
298	RED INVERTED MARKING PAINT (KRYLON INDUSTRIAL QUIK MARK)		WD4120	EACH	
299	ORANGE INVERTED MARKING PAINT (KRYLON INDUSTRIAL QUIK MARK)		WD4121	EACH	
	Schedule 24	**1 1/2” and 2” No-Rise Meter Setter Bypass**			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
300	1 1/2" NO-RISE METER SETTER BYPASS		WD003302	EACH	
301	2" NO-RISE METER SETTER BYPASS		WD003303	EACH	
	Schedule 25	**3/4" and 1" Kamstrup Water Meters**			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
302	3/4" FLOWIQ 2100 PPS 7 1/2" LAY LENGTH 02U-23-C08-8EC - 0100200023583		TBD	EACH	
303	3/4" FLOWIQ 2100 PPS 9" LAY LENGTH 02U-23-C08-8EC+ - 0100200023583		TBD	EACH	
304	3/4" FLOWIQ 3101 STAINLESS 7 1/2" LAY LENGTH 03U-23-C0R-8EC - 0100200023583		TBD	EACH	
305	1" FLOWIQ 3101 STAINLESS 10 3/4" LAY LENGTH 02U-23-C0S-8EC - 0100200023583		TBD	EACH	
306	TYPE 23 CABLE WITH ITRON CONNECTOR TYPE CODE: 5000490.2		TBD	EACH	
	Schedule 26	**3/4" and 1" Diehl Water Meters**			
Line Item	**Part Description**		**City Part ID**	**UOM**	**Bid Price**
307	3/4" DIEHL - 3101088 - HYDRUS 7.5" LAY LENGTH OEM-6222-002		TBD	EACH	
308	3/4" DIEHL - 3101089 - HYDRUS 9" LAY LENGTH OEM-6222-003		TBD	EACH	
309	1" DIEHL - 3101092 - HYDRUS 10.75" LAY LENGTH OEM-6222-004		TBD	EACH	

BIDDER'S RESPONSE FORM

MESSAGE TO BIDDERS: Please review your bid documents for accuracy, completeness, required documentation, and necessary signatures before submitting. Please label the outer mailing/shipping package with the bid information as directed.

BIDDER INFORMATION			
Company Name		**Contact Name**	
Email Address		**Telephone Number**	
Business Address		**Mailing Address for Payments**	
Authorized Signature			

COPIES SUBMITTED:

_____VENDOR MUST SUBMIT AN ORIGINAL BID AND ONE COMPLETE COPY OR THE BID MAY BE REJECTED.

Awarded bidder(s) will be required to obtain a City of Tuscaloosa business license in order to provide goods and/or services in response to this bid and subsequent contract(s). Inquiries regarding business license requirements should be directed to the City's Revenue & Financial Services Division at (205) 248-5200. Failure to obtain and maintain required city business license(s) may result in rescinding of bid award and contract termination.

Note: By signing this contract, the contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama. Furthermore, a contracting party found to be in violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom.

FAILURE TO COMPLETE ALL OF THE ABOVE WITH AN AUTHORIZED SIGNATURE MAY SUBJECT BID TO REJECTION.