



ADDENDUM #1

Bid # 14-026 Water Meters

June 3, 2014

The following changes/clarifications have been made to the specifications:

1. The **bid due date and time has not changed and is due Monday, June 9, 2014 @ 1:00PM.**
2. The following statement was updated and applies to all Meters: The City of Carrollton has an inventory tracking system for meters. The successful bidder, at the time meter orders are placed, will be given a series of numbers, beginning with the fiscal year, followed by a sequential series. **These numbers are to be imprinted on each meter AND the register lid in a clearly visible area.**
3. **On Page 19** the words **4A & 4B Fire Service Type Meters** was removed from the header and **Type 4"** Meters are no longer required as a part of this bid.
4. **On Page 22;** the words **#5B & #5C** was removed and **2" Compound Meters** are no longer required as a part of this bid.
5. **On Page 22;** The Description **3.A.** now reads; Meters shall be of the **DUAL** register compound type. The word "single" was removed.
6. **On Page 23; Item I.** The following descriptions were removed

2"	2 - 160	1/4
3"	4 - 320	1/2
7. **On Page 29;** Item 18; the wording now reads; **Main Case Connections:** For 1 1/2" turbine meters the laying length shall be 13"; the connections shall be two (2) Bolt oval/elliptical flanges on both ends; For 2" turbine meters the laying length shall be 17"; the spud size shall be 1 1/4". (the words; the type shall be an external thread; were removed)
8. **Please use the UPDATED attached Proposal Schedule; this document must be submitted with your bid.**
 - a. Item 1 – requested quality has been increased to 4000
 - b. Item 4 – was removed 4" Fire Service Type Water Meters and replaced (see proposal schedule)
 - c. Item 4A – 6x3" MFM2/MVR SG, SSB/BN/BBX/EP – was replaced (see proposal schedule)

- d. Item 4B – 8x4 MFM/MVR SG, SSBBN, BBX/LID – was replaced (see proposal schedule)
- e. Item 5, 5A, 5A2 the wording Turbine Meters was removed and replace with **Compound Type Meters**
- f. MVR350,SG,BBX,SHSOK2't, EPX with Spool piece (3') was removed (originally item 10)
- g. MVR650, SG, BBX, SHSPL,2'TAP. EPX (4') with Spool piece was removed (originally item 11)
- h. 6' Inch Turbine Meter was updated to **6 " x 1½"** inch turbine meters for fire service
- i. 8' Turbine Meter was updated to **8 x2"** INCH TURBINE METERS FOR FIRE SERVICE
- j. **Additional Meters have been added (see pricing proposal)**

**UPDATED: 14-026 WATER METERS – ADDENDUM #1
PROPOSAL SCHEDULE**

Variations from the aforementioned Specifications may be acceptable provided such differences are noted on the bid and are deemed to be advantageous to the City.

Any substitution from brand names mentioned must be proved to be equal and may be considered for award by the Purchasing Manager and requesting department if so proven.

ITEM	QTY	DESCRIPTION	UNIT PRICE	TOTAL PRICE	MODEL NAME/#
1	4000	5/8 INCH DISC METERS			
1A	150	1 INCH DISC METERS			
1B	500	REGISTERS			
2	150	1 1/2 INCH DISC METERS			
2A	150	2 INCH DISC METERS			
3	30	3 INCH FIRE HYDRANT METERS			
3A	30	TESTABLE 2" DOUBLE CHECK VALVE ASSEMBLY			
4	2	6 INCH FIRE SERVICE TYPE WATER METERS			
4A	2	8 INCH FIRE SERVICE TYPE WATER METERS			
4B	1	10 INCH FIRE SERVICE TYPE WATER METERS			
5	4	4" COMPOUND METERS			
5A	4	6" COMPOUND METERS			

5A2	4	8" COMPOUND METERS			
6	75	1 1/2 INCH TURBINE METERS			
6A	75	2 INCH TURBINE METERS			
6B	1	4 INCH TURBINE METERS FOR CUSTOMER SERVICE			
7A	1	6 INCH TURBINE METERS FOR CUSTOMER SERVICE			
7B	1	8 INCH TURBINE METERS FOR CUSTOMER SERVICE			
8	2	4" INCH TURBINE METERS FOR FIRE SERVICE			
8A	2	6 " x 1 1/2" INCH TURBINE METERS FOR FIRE SERVICE			
8B	2	8 x2" INCH TURBINE METERS FOR FIRE SERVICE			
8C	1	10 INCH TURBINE METERS FOR FIRE SERVICE			

9.	2	4 INCH DETECTOR CHECK VALVE ASSEMBLIES (CLOSED FIRE LINE SERVICES)			
9A	2	6 INCH DETECTOR CHECK VALVE ASSEMBLIES (CLOSED FIRE LINE SERVICES)			
9B	1	8 INCH DETECTOR CHECK VALVE ASSEMBLIES (CLOSED FIRE LINE SERVICES)			
10	2	4 INCH DOUBLE CHECK DETECTOR ASSEMBLIES (FIRE LINE SERVICES)			
10A	2	6 INCH DOUBLE CHECK DETECTOR ASSEMBLIES (FIRE LINE SERVICES)			
10B	2	8 INCH DOUBLE CHECK DETECTOR ASSEMBLIES (FIRE LINE SERVICES)			

PLEASE COMPLETE THE INFORMATION BELOW:

SIGNATURE DATE

PRINTED NAME TITLE

COMPANY

MAILING ADDRESS

PHONE NUMBER FAX NUMBER E-MAIL ADDRESS

UPDATED - SPECIFICATION

ITEM #1, #1A, #2, & 2A.

DESCRIPTION: POSITIVE DISPLACEMENT 5/8" - 2" DISC METERS

The purpose of these specifications is to provide the City of Carrollton, Texas with the highest grade of water meters available. These are to be made of the best material and workmanship. Only meters manufactured within the continental limits of the United States will be acceptable. **“Preference will be given to bidders who have been engaged in the manufacture and marketing of the meters offered, or a substantially similar type electronic meter component, for a minimum of ten (10) years. Bids from manufacturer distributors will not be accepted unless the meters in question are only sold through distributors and not from the manufacturer.”**

Compliance with or variation from the specifications must be noted as to each item on the specification sheet. All variations from the specifications must be noted on the bid form.

Check indicates minimum compliance:

- 1. **Application:** for residential or small commercial applications where water volumes are low, and low flow sensitivity is important.
- 2. **Accuracy Registration Tests:** the **Water Utilities** Division may run Accuracy registration tests on all meters received. The manufacturer shall guarantee that all new meters furnished under this contract will meet the required new meter accuracy standards as established by the American Water Works Association (AWWA) Standard C-700-09 for Cold Water Displacement Type Meters for a period of at least one (1) year from date of receipt.

In addition, Vendor shall unconditionally guarantee each meter performance in accordance with AWWA C700-90 Standard or latest revision thereof, for a period of fifteen (15) years or registration of 1,500,000 gallons.

- 3. **Registers:** The register shall be of the straight reading type and read in U.S. gallons. It shall contain six (6) number wheels and the register face shall contain one hundred (100) equally divided graduations at its periphery, with a sweep-hand. For 5/8" and 1" disc meters, it shall have a registration capacity of one million (1,000,000) gallons, and ten (10) gallons per sweep-hand revolution. For 1 1/2" and 2" disc meters, it shall have a registration capacity of ten million (10,000,000) gallons and one hundred (100) gallons per sweep-hand revolution. The digits shall be black in color with the lowest registering three digits (below the 1,000 gallon registration) to be a contrasting color. It shall also be completely separated from the waterway. The register shall be magnetically driven and a permanently roll sealed type. The term "sealed" shall mean moisture and dust-proof and be mechanically disconnected from measuring components. Register shall be provided with glass lens, molded heat-treated, scratch resistant with sufficient thickness to provide protection for the register face. The manufacture date and corresponding meter size should be readily visible on each register to insure proper sizing if register exchange is needed. All registers of like-size meters shall be interchangeable with each other without loss of accuracy.

All meters shall be furnished with either internal or external tamper-proof protection locking devices for registers. Lead seals and wire will not be allowed.

- 4. **Register Boxes:** Register boxes and covers shall be made of bronze or a suitable synthetic polymer.
- 5. **Cases:** Main cases shall be made of bronze, containing no less than 75% copper. Casing bolts shall be made of stainless steel or brass. Note: All External-Case Closure Fasteners shall comply with AWWA Standards for pressure containment assemblies. Failure to meet copper standard will result in rejection of bid and disqualification on future bids. Bottom plates shall be made of bronze or a suitable synthetic polymer and they shall be constructed in such a way as to offer freeze protection. Direction of water flow shall also be clearly marked.

- ___6. All registers must be adaptable to a register that is capable of encoding in digit format. The meter reading is to allow direct interrogation of the register from a remote location. In addition bidder must be able to provide a CMR type system.
- ___7. Registers shall contain low flow or leak indicators.
- ___8. **Strainers:** All meters shall contain removable polypropylene plastic strainer screens. The strainer shall be located near the inlet maincase port before the measuring chamber and control block assembly. Strainers must comply with Section 4.6 of AWWA Standard C700-09, or latest revision thereof.
- ___9. **Measuring Chambers:** Measuring chambers shall be made of bronze or a suitable synthetic polymer and shall be smoothly and accurately machined. It shall contain a diaphragm made of the same material and be freely inserted. Measuring chambers shall be equipped with a nutating disc that shall be made of a suitable synthetic polymer.
- ___10. **Operating Specifications:** Operating specifications and performance shall meet or exceed applicable American Water Works Association (AWWA) C-700-09 specifications.
- ___11. **Main Case Connections:** Main case connections for meters up to 1" size shall be spuds having external straight threads conforming to ANSI 82.1. Meters shall be shipped with plastic end caps in place on meter threads. Laying lengths for 5/8" meters shall be 7 1/2"; for 1" meters - 10 3/4". For 1 1/2" disc meters the laying length shall be 13"; the connections shall be two (2) Bolt oval/elliptical flanges on both ends; the connection type shall be an external thread. For 2" disc meters the laying length shall be 17"; the spud size shall be 1 1/4"; the type shall be external thread.
- ___12. **Certification:** The meters are to be accepted on a certificate furnished by the manufacturer certifying that the meters supplied meet these specifications. The meters will be tested by the City of Carrollton to determine whether they do or do not meet the specification. Any failure to specify exceptions will be basis for disqualification.
- ___13. **Literature:** The bidders will furnish descriptive brochures, schematics, and parts and price lists. They will also furnish in writing any meter or chamber maintenance programs their company offers. This information will also include cost and availability. If the bidder does not provide meter or chamber maintenance programs, they will provide a listing of companies qualified to perform this service. This listing will include name, address, telephone and fax numbers.
- ___14. **Guarantee:** Meters shall be guaranteed against defects in materials and workmanship for a period of fifteen (15) years or registration of 1,500,000 gallons. Parts to replace these in which a defect may develop within such period will be supplied without charge, piece for piece, upon proper proof of such defect.
The register shall have a warranty period of fifteen (15) years. Any register failure, including fogging and condensating, within two (2) years from the date of shipment, shall necessitate replacement, without cost to the City of Carrollton. The manufacturer shall refund to the City of Carrollton the cost of removing defective registers from service with such refund not to exceed five (5) dollars for each register.
- ___15. **Rejected Meters:** Rejected meters will be replaced or satisfactorily readjusted if they fail to comply with these specifications.
- ___16. **Meter Numbering System:** The City of Carrollton has an inventory tracking system for meters. The successful bidder, at the time meter orders are placed, will be given a series of numbers, beginning with the fiscal year, followed by a sequential series. These numbers are to be imprinted on each meter, and on the register lid or in a clearly visible area.
- ___17. This specification is subject to conditions outlined in Bid Instructions, Special Conditions, and Item 6.
- ___18. Bidders shall furnish a list of ten other municipalities in Texas and/or surrounding states with whom they do business. This list will contain name of a contact person, address and telephone number.
- ___19. **Materials:**

"This product shall be certified as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 61, Drinking Water Systems Components-Health Effects. All meters shall have received verifiable certification of compliance with the National Sanitation Foundation (NSF) Standard 61. Every bidder shall submit with their bid a signed statement clearly stating the present status of their receiving certification of compliance with the NSF 61 Standard for each particular make, model, and size of water meter being bid. a failure to submit this verification may result in the disqualification of that bid and its removal from consideration."

Materials used in meters shall comply with the Safe Drinking Water Act.

ALTERNATE SPECIFICATION FOR 5/8" WATER METERS (AMR)

DESCRIPTION: POSITIVE DISPLACEMENT 5/8" DISC METERS ELECTRONIC COMPONENTS

9. The purpose of these specifications is to provide the City of Carrollton; Texas with the highest grade of water meters electronic components available. These are to be made of the best material and workmanship. Only electronic components manufactured within the continental limits of the United States will be acceptable. **“Preference will be given to bidders who have been engaged in the manufacture and marketing of the meters offered, or a substantially similar type electronic meter component, for a minimum of ten (10) years. Bids from manufacturer distributors will not be accepted unless the meters in question are only sold through distributors and not from the manufacturer.”**

The following items are minimum stated requirements for use of automated meter reading by touchread. Vendors are requested to carefully evaluate requirements and clearly state any exceptions to items listed. System components, which allow the most flexibility in reading multiple meter manufacturers, will be given consideration as a cost component of the bid.

Compliance with or variation from the specifications must be noted as to each item on the specification sheet. All variations from the specifications must be noted on the bid form.

Note: Specifications for the required cold water meters can be found in a separate specification.

Each component priced must include all peripheral needs (screws, wires, tools, instructions, etc.)

Part A: Check indicates compliance: _____

1. Application: for residential or small commercial applications where water volumes are low, and low flow sensitivity is important.
2. The **Water Utilities** Division may run accuracy registration tests on all meters received. The manufacturer shall guarantee that all new meters furnished under this contract will meet the required meter accuracy standards as established by the American Water Works Association (AWWA) Standards for a period of at least one (1) year from date of receipt.
3. **Registers:** shall be of the absolute encoder type and permanently sealed in a vacuum purged or nitrogen gas filled copper or stainless steel can. Systems utilizing generator pulses or low voltage conversions are not acceptable under this standard. Batteries shall not be required. Similar size, type, and registration of registers shall be interchangeable. Registers shall be equipped with low flow indicators and faceplates must be stamped with date of manufacture (month and year) and serial identity number. Registers shall read in U. S. Gallons. These units shall be clearly designated on the face of the register.

The register shall have a full test sweep hand dial divided into gradients of 1.10 of the units of registration. Register test rings shall be available for shop testing. The register shall employ a leak detection indicator on the dial face.

Upon inquiry from a remote location, the absolute encoder register shall disclose the exact position of the four or six most prominent number rollers as well as the electronic identity number of the register without the use of internal power. All power necessary for data transmission shall be supplied from the interrogation device. All registers shall be compatible with various brands of interrogation equipment. The electronic identity number must be programmable with a minimum of ten digits.

All registers shall employ a device to offer a “quick transfer” of the roller bank assembly to prevent ambiguous readings.

All registers shall be easily upgraded to Automatic Meter Reading (AMR) which includes Telephone, Radio, Cable, etc. with the substitution of the remote receptacle with a Meter Interface Unit (MIU).

AMR: Automatic Meter Reading Systems and hand-held interrogation devices shall not be part of this specification.

Data transmission shall be instantaneous and supplied in an ASCII format without conversion or modification. The register must operate reliably down to at least 3.0 volts.

Color-coded wire terminals (red, green and black) shall be provided, however, only the red and black terminals will be utilized for a two-wire connection to the interface pad. The green terminal shall only be utilized to convert to AMR via the use of a Meter Interface Unit. A suitable wire terminal cover shall be provided and is factory potted when ordered for underground pit installations.

All registers must be removable without disassembly of meter or depressurizing the service line. Register must be free of openings to protect the internal electronics of the register.

Lens covers shall be made of mineral glass for underground pit installations. All other register assembly and material requirements stated shall also apply.

Can/Cannot be retrofitted to water meters in place. Please explain response.

The City requires placement of sequentially placed numbers for permanent identification. The manufacturer needs to identify best placement of this information for electronically read meters.

- __4. **Remote Receptacle:** Remote receptacles shall be available in a pit mount style and be accessible for easy installation. No serial identity number storage is permitted at the remote receptacle. There shall be no data storage or power source in the remote receptacle.

Remote receptacles shall utilize ultra violet stabilized materials to prevent degradation when prolonged to constant sunlight.

Pit mounted touch pads shall be supplied with a minimum of twelve (12) feet of three conductor single strand wire which is red, black, and green in color.

Pit mounted touch pads shall be factory potted and offer easy installation without the use of wire connections or splicing. The pit-mounted assembly shall be self-secured without the need of fasteners.

Interrogation shall be achieved by inductive coupling without physical connection of the reading device.

Each component priced must include all peripheral needs (screws, o-rings, cable, tops, covers, grommets, tools, instructions, etc.).

- __5. **Warranties:** All encoded registers shall be free from defects in materials and workmanship for a period of eighteen (18) months from the date of shipment, or twelve (12) months after installation, whichever occurs first. In addition, the registers and pads supplied with the meters are guaranteed to perform accurately from the date of shipment for a period of ten (10) years.

- __6. **Evaluation of Bids:** Published guarantees and exchange/repair programs offered by the bidders will be carefully considered and will be an important factor, along with the prices quoted and experience of bidders, in evaluating bids for an award.

- __7. **Compatibility:** All bidders are hereby required to submit a “site license” with their bid, which specifically indemnifies the buyer and its suppliers of interrogation equipment action for patent infringement. This indemnification shall enable the utility the flexibility to read all meters with any interrogation device they choose, regardless of brand. This is an absolute requirement.

Part B: Check indicates minimum compliance

- __1. **Visual Display Unit/Interrogation Unit for encoder registers:** a meter reader to obtain meter readings and to verify the proper installation and operation of the encoder meter and remote device shall utilize the unit. The unit shall be compatible with pit mounted touch pads and also with the counter.

- __2. The unit shall consist of a sturdy plastic housing and shall contain a microprocessor and display screen. Power shall be provided by a Nickel Metal Hydride battery pack. A battery-charging device shall be provided with each unit.
- __3. The unit shall be capable of disclosing the position of the four or six most prominent digits of the roller bank and the ten digit register identify number, without a physical connection by utilizing inductive coils as a means of communication. When reading the counter, the unit shall display the four to seven digit reading and the counter serial number.
- __4. **The unit shall be provided with a “read” (activation) button and have the ability to retain the reading displayed. The unit shall automatically erase readings after a 60-second interval unless the “read” button is depressed.**
- __5. The unit shall have the ability to recall the last reading obtained by pressing the trigger twice quickly.
- __6. **The unit shall be capable of simple diagnostics, such as indicating open circuits and faulty register electronics.**
- __7. The unit shall be able to transfer meter reading and identity number automatically to various hand-held meter-reading systems by a simple cable connection.
- __8. The unit shall be guaranteed to be free from defects in materials and workmanship for a period of one (1) year from the date of shipment.
- __9. Cable and Battery Charger connection port
- __10. Ability to display error codes and battery charge time
- __11. Ability to detect register malfunction and display appropriate error codes.
- __12. Ability to display a low battery warning
- __13. Ability to recharge fully within 16 hours.

SPECIFICATION

ITEM #3

DESCRIPTION: 3" PORTABLE FIRE HYDRANT METERS

1. The purpose of these specifications is to provide the City of Carrollton, Texas with the highest grade of water meters available. These are to be made of the best material and workmanship. Only meters manufactured within the continental limits of the United States will be acceptable. **“Preference will be given to bidders who have been engaged in the manufacture and marketing of the meters offered, or a substantially similar type electronic meter component, for a minimum of ten (10) years. Bids from manufacturer distributors will not be accepted unless the meters in question are only sold through distributors and not from the manufacturer.”**

Compliance with or variation from the specifications must be noted as to each item on the specification sheet. All variations from the specifications must be noted on the bid form.

Check indicates minimum compliance:

1. **Application:** for measuring high-volume water usage from fire hydrants or other fire protection systems.
2. **Gate Valve:** meter must be equipped with 2" brass gate valve and a standard brass male hose coupling on the outlet side.
3. **Register:** The register shall be of the straight reading type and read in U.S. gallons. It shall contain six (6) number wheels and the register face shall contain one hundred (100) equally divided graduations at its periphery, with a sweep-hand. It shall have a registration capacity of ten million (10,000,000) gallons, and one hundred (100) gallons per sweep-hand revolution. The digits shall be black in color with the lowest registering three digits (below the 1,000 gallon registration) to be a contrasting color. It shall also be completely separated from the waterway. The register shall be magnetically driven and a permanently roll sealed type. The term "sealed" shall mean moisture and dust-proof and be mechanically disconnected from measuring components. The manufacture date and corresponding meter size should be readily visible on each register to insure proper sizing if register exchange is needed. The manufacturer's serial number shall be stamped on the outside of the register box end.
4. **Register Box Sealing:** may be accomplished by means of a tamperproof seal pin that must be destroyed in order to remove the register or some type of tamperproof device/pin.
5. **Case and Cover:**

Alternative 1: Main case shall be made of bronze, containing no less than 75% copper. The size, model, arrows indicating direction of flow, and "AWWA Class II" shall be cast in raised characters on the main case or cover.

Alternative 2: Main case shall be made of cast aluminum and the cover cast bronze. The main case and cover shall be finished with a thermo-plastic coating for corrosion resistance. The size, model, arrows indicating direction of flow, and "AWWA Class II" shall be cast in raised characters on the main case or cover.

Casing bolts shall be made of stainless steel or brass. The name and manufacturer and the meter serial number shall be clearly identifiable and located on the register box cover.
6. All meters must be adaptable to a register that is capable of encoding in digit format. The register must allow direct interrogation from a remote location or be adaptable to other automated meter reading technology as appropriate.
7. Registers shall contain low flow or leak indicators.

- ___8. **Measuring Chambers:** Measuring chambers shall be made of bronze or a suitable synthetic polymer and shall be smoothly and accurately machined. It shall contain an inlet hub, rotor, and strainer, and be held in place by stainless steel fasteners. It shall not be adversely affected by particles of sand.

Measuring chambers shall be mounted in a horizontal position that will allow water to pass straight through the meter casing and measuring chamber housing.

Turbine rotor shall be made of vulcanized hard rubber or suitable synthetic polymer and shall be as near as possible to the specific gravity of water.

Turbine spindles shall be made of stainless steel or other suitable corrosion-resistant material. Phosphor bronze spindles are not acceptable.

Measuring chambers or cages shall be inter-changeable with meters of the same size, type and manufacture.

- ___9. **Operating Range:** Meters must have an operating range for continuous flows of 8 gpm to 350 gpm. Meters must be equipped with a flow restriction plate, which must be an integral part of the design. Restriction plate must limit maximum flow to 400 gpm.

- ___10. **Operating Specifications:** Operating specifications and performance shall meet or exceed applicable American Water Works Association (AWWA) C-701-88, Class II specifications, or latest revision thereof.

- ___11. **Measurement and Connections:** Main case connections shall be 2 1/2" - 7 1/4" national standard brass female thread swivel fire hose pin lug coupling with strainer on inlet side of meter and a brass male hose coupling on the outlet side. (Strainer and orifice as integral part of meter is acceptable).

Gasket to be furnished with inlet firehose coupling.

- ___12. **Certification:** The meters are to be accepted on a certificate furnished by the manufacturer certifying that the meters supplied meet these specifications. The meters will be tested by the City of Carrollton to determine whether they do or do not meet the specification. Any failure to specify exceptions will be basis for disqualification.

13. **Literature:** The bidders will furnish descriptive brochures, schematics, and parts and price lists. They will also furnish in writing any meter or chamber maintenance programs their company offers. This information will also include cost and availability. If the bidder does not provide meter or chamber maintenance programs, they will provide a listing of companies qualified to perform this service. This listing will include name, address, telephone and fax numbers.

- ___14. **Guarantee:** Meters shall be guaranteed against defects in materials and workmanship for a period of fifteen (15) years. Parts to replace these in which a defect may develop within such period will be supplied without charge, piece for piece, upon proper proof of such defect.

The register shall have a warranty period of fifteen (15) years. Any register failure, including fogging and condensating, within two (2) years from the date of shipment, shall necessitate replacement, without cost to the City of Carrollton. The manufacturer shall refund to the City of Carrollton the cost of removing defective registers from service with such refund not to exceed five (5) dollars for each register.

- ___15. **Rejected Meters:** Rejected meters will be replaced or satisfactorily readjusted if they fail to comply with these specifications.

- ___16. **Meter Numbering System:** The City of Carrollton has an inventory tracking system for meters. The successful bidder, at the time meter orders are placed, will be given a series of numbers, beginning with the fiscal year, followed by a sequential series. These numbers are to be imprinted on each meter, either on the register lid or in a clearly visible area.

- ___17. This specification is subject to conditions outlined in Bid Instructions, Special Conditions, and Item 6.
- ___18. Bidders shall furnish a list of ten other municipalities in Texas and/or surrounding states with whom they do business. This list will contain name of a contact person, address, and telephone number.
- ___19. **Materials:** Materials used in meters offered shall comply with the Safe Drinking Water Act of 1986

"This product shall be certified as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 61, Drinking Water Systems Components-Health Effects. All meters shall have received verifiable certification of compliance with the National Sanitation Foundation (NSF) Standard 61. Every bidder shall submit with their bid a signed statement clearly stating the present status of their receiving certification of compliance with the NSF 61 Standard for each particular make, model, and size of water meter being bid. a failure to submit this verification may result in the disqualification of that bid and its removal from consideration."

Materials used in meters shall comply with the Safe Drinking Water Act.

- ___20. Compliance with **Texas Commission on Environmental Quality** rules for backflow prevention necessitate the addition of a backflow device on subject meters. The City of Carrollton complies with this requirement and issues subject meters with the device intact. The device shall be a testable 2" double check valve assembly (DCVA) composed of two independently acting, approved spring loaded check valves, including tightly closing resilient seated shutoff valves located at each end of the assembly and fitted with properly located resilient sealed test cocks. Stamps of approval include: USC, AWWA, UPC, ASSE, and CSA.

SPECIFICATION

ITEM #4, #4C.

DESCRIPTION: FIRE SERVICE TYPE WATER METERS 6", 8", AND 10"

1. The purpose of these specifications is to provide the City of Carrollton, Texas with the highest grade of water meters available. These are to be made of the best material and workmanship. Only meters manufactured within the continental limits of the United States will be acceptable. **“Preference will be given to bidders who have been engaged in the manufacture and marketing of the meters offered, or a substantially similar type electronic meter component, for a minimum of ten (10) years. Bids from manufacturer distributors will not be accepted unless the meters in question are only sold through distributors and not from the manufacturer.”**

Compliance with or variation from the specifications must be noted as to each item on the specification sheet. All variations from the specifications must be noted on the bid form.

Check indicates minimum compliance:

1. **Required Product Approvals:** All meters shall be approved by the National Fire Prevention Association as well as the Underwriters Laboratories.

In addition to the requirements of this specification and any special requirements set forth in the bid requests, all meters shall meet current standard specifications of the American Water Works Association for the type service required.

2. **Product Application:** As a combined fire and domestic service meter where one water line, rather than two, serve both fire and domestic needs or, as a master meter for automatic sprinkler systems and fire services.

3. **Product Requirements:**

A. Main line of the meter shall be either a proportional type or a high velocity turbine type for measuring high flows, with an automatic weighted swing type valve for diverting low flow rates through a positive displacement meter. Reverse flow protection shall be provided for the meter. Note: The City of Carrollton utilizes a bypass meter on these installations. See Item 1.

B. Proportional main line discharge throat shall be epoxy coated, to offer corrosion resistance in the throat.

C. Measuring chamber disc and turbine spindles shall be made of stainless steel or monel as described in Section 2.6 of AWWA Standard C703-96, or latest revision thereof.

D. Measuring cages or chambers shall be made of copper alloy or suitable engineering plastic as described in Section 2.4 of AWWA Standard C703-96, or latest revision.

E. Measuring turbines and discs shall be made of vulcanized rubber or suitable engineering plastic that shall be as near as possible to the specific gravity of water as described in Section 2.5 of AWWA Standard C703-96, or latest revision.

F. Accuracy registration tests will be run by the City of Carrollton on all meters received. The manufacturer shall guarantee that all new meters furnished will meet the required new meter accuracy standards as established by AWWA C-705, latest revision, for a period of at least one (1) year from date of receipt.

G. Casings

1. Main casings shall be either of approved copper alloy or epoxy coated cast iron. Bypass casing shall be of approved copper alloy.

2. A durable strainer shall protect each measuring portion of the meter. Strainers shall have a cover plate for inspection and removal of debris from the screen without disturbing the pipeline.
 3. Synthetic polymers will be accepted for parts described in Section 2.4 of AWWA Standard C703-96, or latest revision.
- H. Connections: All connections (flanges, nuts, bolts, gaskets, etc) must be provided with the meters. These items must meet or exceed AWWA Standard C703-96

__4. Registers, Register Drive, and Register Box

- A. Registers shall be straight reading, read in U. S. gallons, with center sweep test hand, and shall be sealed. (The term "sealed" shall mean a register that is moisture and dust-proof, mechanically disconnected from the measuring components and shall be non-repairable factory exchange type or shop repairable). The date of the manufacture shall be visible on the register face.
- B. On a 4-inch and larger meters it is essential that there be an obvious sharp color contrast between the numeral wheels that register 10,000 gallons per revolution and more and those that register 1,000 gallons per revolution and less.
- C. Magnetically coupled registers are required.
- D. Coordinator registers are acceptable.
- E. Register box is to be made of copper alloy.

__5. Serial Numbering

- A. The manufacturer's serial number shall be stamped on the outside of the register box lid and case.
- B. All numerals shall be a minimum of 1/4" in height.

__6. Operating Specifications: Operating specifications and performance shall meet or exceed applicable American Water Works Association (AWWA) C-703-96 requirements, or latest revision thereof.

__7. Certification: The meters are to be accepted on a certificate furnished by the manufacturer certifying that the meters supplied meet these specifications. The meters may be tested by the City of Carrollton to determine whether they do or do not meet the specification. Any failure to specify exceptions will be basis for disqualification.

The manufacturer shall be required to furnish a certificate showing that each meter has been tested for accuracy of registration and that it complies with accuracy and capacity requirements of AWWA C703-96 or the latest revision thereof. To ensure accuracy, each meter must be accompanied by a factory test tag certifying accuracy at low flows, two crossover points and high flows.

__8. Literature: The bidders will furnish descriptive brochures, schematics, and parts and price lists. They will also furnish in writing any meter or chamber maintenance programs their company offers. This information will also include cost and availability. If the bidder does not provide meter or chamber maintenance programs, they will provide a listing of companies qualified to perform this service. This listing will include name, address, telephone and fax numbers.

__9. Guarantee: Meters shall be guaranteed against defects in materials and workmanship for a period of fifteen (15) years. Parts to replace these in which a defect may develop within such period will be supplied without charge, piece for piece, upon proper proof of such defect.

Registers shall be repaired or replaced, if defective within one million gallons for each one-inch (1") normal diameter of meter, or fifteen (15) years, whichever shall occur first.

- ___10. **Rejected Meters:** Rejected meters will be replaced or satisfactorily readjusted if they fail to comply with these specifications.
- ___11. **Meter Numbering System:** The City of Carrollton has an inventory tracking system for meters. The successful bidder, at the time meter orders are placed, will be given a series of numbers, beginning with the fiscal year, followed by a sequential series. These numbers are to be imprinted on each meter, either on the register lid or in a clearly visible area.
- ___12. This specification is subject to conditions outlined in Bid Instructions, Special Conditions, Item 6.
- ___13. Bidders shall furnish a list of ten other municipalities in Texas and/or surrounding states with whom they do business. This list will contain name of a contact person, address, and telephone number.
- ___14. **Materials:**

"This product shall be certified as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 61, Drinking Water Systems Components-Health Effects. All meters shall have received verifiable certification of compliance with the National Sanitation Foundation (NSF) Standard 61. Every bidder shall submit with their bid a signed statement clearly stating the present status of their receiving certification of compliance with the NSF 61 Standard for each particular make, model, and size of water meter being bid. a failure to submit this verification may result in the disqualification of that bid and its removal from consideration."

Materials used in meters shall comply with the Safe Drinking Water Act.

- ___15. **Special Note:** It is the desire of the City of Carrollton to use "drop in" meters where they are physically located inside vaults. If the meters bid cannot meet this criteria, vendors must list each additional part necessary for a correct product fit. The individual price breakdown of each additional part must be clearly stated.

SPECIFICATION

ITEM #5, #5A

DESCRIPTION: COMPOUND METERS 4", 6", AND 8"

REQUIREMENTS: MINIMUM

1. The purpose of these specifications is to provide the City of Carrollton, Texas with the highest grade of water meters available. These are to be made of the best material and workmanship. Only meters manufactured within the continental limits of the United States will be acceptable. **“Preference will be given to bidders who have been engaged in the manufacture and marketing of the meters offered, or a substantially similar type electronic meter component, for a minimum of ten (10) years. Bids from manufacturer distributors will not be accepted unless the meters in question are only sold through distributors and not from the manufacturer.”**

Compliance with or variation from the specifications must be noted as to each item on the specification sheet. All variations from the specifications must be noted on the bid form.

Check indicates compliance:

- 1. Product Application:** where a high degree of accuracy is required over a wide range of water flow rates. Hotels, motels, institutions, schools, factories, office buildings, apartment houses and commercial properties are potential applications.
- 2. Accuracy Registration Tests:** Accuracy registration tests may be run by the **Water Utilities** Division on all meters received. The manufacturer shall guarantee that all new meters furnished under this contract will meet the required new meter accuracy standards as established by the American Water Works Association (AWWA) Standard C-702-01, or latest revision thereof, for Cold Water Displacement Type Meters for a period of at least one (1) year from date of receipt.
- 3. Product Requirements:**
 - A. Meters shall be of the dual register compound type which totalize the output from two (2) interacting measuring chambers or compound meters which totalize from two separate yet interacting measuring units with separate registers and different serial numbers stamped on the outer main cases and the outside of the register housing lids. One chamber shall be of the turbine type for measuring large flows; the other a displacement chamber of the oscillating piston type of disc type for measuring small flows. An automatic valve mechanism shall direct the flows throughout the chambers so as to have them function within their normal designed limits.
 - B. Size - of the meter shall be determined by the nominal size of the opening of the inlet and outlet flanges of the meter.
 - C. Measuring cages or chambers shall be made of copper alloy or suitable engineering plastic as described in Section 2.4 of AWWA Standard C702-01.
 - D. Measuring turbines and discs shall be made of vulcanized rubber or suitable engineering plastic that shall be as near as possible to the specific gravity of water as described in Section 4.1.5 of AWWA Standard C702-01, or most current revision.
 - E. Casings:
 1. Main casings shall be either of approved copper alloy or epoxy coated cast iron. Bypass casing shall be of approved copper alloy, and in no instance shall repaired casings be acceptable.
 2. The main case shall be so constructed as to contain both the turbine and displacement measuring chambers as separate units. Both measuring chambers must be accessible by

removal of a single upper shall assembly. Access to the measuring chamber must be obtainable without disturbing the main case as set in the pipeline. All sizes to have flanged ends.

3. Each measuring portion of the meter shall be protected by a durable strainer. The straining area shall be equal to at least double the size of the diameter of the opening of the meter. Strainers shall have a cover plate for inspection and removal of debris from the screen without disturbing the pipeline.
 4. Synthetic polymers will be accepted for parts described in Section 4.1 of AWWA Standard C702-01.
 5. The main cases shall be fitted with a drain plug. A test plug of adequate size must be accessible from the top so as to allow testing in pit settings and confined areas.
- F. Connections: all connections (flanges, nuts, bolts, gaskets, etc) must be provided with the meters. All gaskets shall be full-face with pre-stamped bolt holes. All nuts and bolts shall be constructed of stainless steel. These items must meet or exceed AWWA Standard C702-01.
- G. Displacement Measuring Chamber: shall be a self-contained unit including a strainer, which can be firmly seated and removed as a unit. No part of this chamber shall be case as part of the main case. The measuring chamber shall be of the oscillating piston type or nutating disc type. Chamber for measuring low flow shall throttle down at crossover and high flow rates to prevent premature wear.
- H. Automatic Valve: shall be of the weighted, swing type or spring-loaded type. The valve and linkage shall be Water Works Bronze; all shafts shall be #316 stainless steel. The valve shall be so positioned in the meter that water passing through it will follow a straight path in passing from inlet to outlet.
- I. Registration: shall be accurately recorded through the normal test flow limits at not less than 98.5% nor more than 103% of actual thruput. At crossover, that point when measurement transfers from one chamber to the other, accuracy must exceed 95%. Accuracy at minimum test flow shall be at least 95% at rate of flow specified in table below:

<u>Size</u>	<u>Normal Test Flow Limits/GPM</u>	<u>Minimum Test Flow/GPM</u>
4"	6 - 500	3/4
6"	10-1000	1
8"	16-1600	2

- J. Pressure Test: Meters shall be guaranteed to operate successfully at a working pressure of 150 PSI, without leakage or damage to any part.

4. Registers, Register Drive, and Register Box

- A. The meters shall contain one billing register which totalizes the registration from both the turbine and displacement chambers or separate registers for turbine or displacement chambers. Registers shall be straight reading, read in U. S. gallons, with center sweep test hand, and shall be sealed. (The term "sealed" shall mean a register that is moisture and dust-proof, mechanically disconnected from the measuring components and shall be non-repairable factory exchange type or shop repairable). The date of the manufacture shall be visible on the register face.

A second non-billing register shall totalize the registration of the displacement chamber only on single register compound meters. It shall be of the straight reading type with a size (6) wheel odometer and test dial. The register can be used for proper meter sizing and meter accuracy testing.

- B. It is essential that 2-inch and 3-inch meters have an obvious sharp color contrast between the numeral wheels that register 1,000 gallons per revolution and more and those that register 100 gallons per revolution and less. On a 4-inch and larger meters it is essential that there be an obvious sharp color contrast between the numeral wheels that register 10,000 gallons per revolution and more and those that register 1,000 gallons per revolution and less.
- C. Magnetically coupled registers are required.
- D. Coordinator registers are acceptable.
- E. Register box is to be made of bronze or suitable synthetic polymer.
- F. The size, type and direction of flow through the meter shall be case in raised characters on the main case.
- G. Register box shall be sealed to the meter in such a manner that unauthorized removal is apparent.

__5. Serial Numbering

- A. The manufacturer's serial number shall be stamped on the outside of the register box lid and case.
- B. All numerals shall be a minimum of 1/4" in height.

__6. Operating Specifications: Operating specifications and performance shall meet or exceed applicable American Water Works Association (AWWA) C-702-01 requirements, or latest revision thereof.

__7. Certification: The meters are to be accepted on a certificate furnished by the manufacturer certifying that the meters supplied meet these specifications. The meters will be tested by the City of Carrollton to determine whether they do or do not meet the specification. Any failure to specify exceptions will be basis for disqualification.

The manufacturer shall be required to furnish a certificate showing that each meter has been tested for accuracy of registration and that it complies with accuracy and capacity requirements of AWWA C702-01 or the latest revision thereof.

Meter models and designs shall have been continuously manufactured in the United States for a minimum of ten (10) years.

__8. Literature: The bidders will furnish descriptive brochures, schematics, and parts and price lists. They will also furnish in writing any meter or chamber maintenance programs their company offers. This information will also include cost and availability. If the bidder does not provide meter or chamber maintenance programs, they will provide a listing of companies qualified to perform this service. This listing will include name, address, telephone and fax numbers.

__9. Guarantee: Meters shall be guaranteed against defects in materials and workmanship for a period of fifteen (15) years. Parts to replace these in which a defect may develop within such period will be supplied without charge, piece for piece, upon proper proof of such defect.

The register shall have a warranty period of fifteen (15) years. Any register failure, including fogging and condensating, within two (2) years from the date of shipment, shall necessitate replacement, without cost to the City of Carrollton.

__10. Rejected Meters: Rejected meters will be replaced or satisfactorily readjusted if they fail to comply with these specifications.

__11. Meter Numbering System: The City of Carrollton has an inventory tracking system for meters. The successful bidder, at the time meter orders are placed, will be given a series of numbers, beginning with the fiscal year, followed by a sequential series. These numbers are to be imprinted on each meter, either on the register lid or in a clearly visible area.

- __12. This specification is subject to conditions outlined in Bid Instructions, Special Conditions, Item 6.
- __13. Bidders shall furnish a list of ten other municipalities in Texas and/or surrounding states with whom they do business. This list will contain name of a contact person, address, and telephone number.

__14. **Materials:**

"This product shall be certified as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 61, Drinking Water Systems Components-Health Effects. All meters shall have received verifiable certification of compliance with the National Sanitation Foundation (NSF) Standard 61. Every bidder shall submit with their bid a signed statement clearly stating the present status of their receiving certification of compliance with the NSF 61 Standard for each particular make, model, and size of water meter being bid. a failure to submit this verification may result in the disqualification of that bid and its removal from consideration."

Materials used in meters shall comply with the Safe Drinking Water Act.

- __15. **Installation:** Must comply with General Design Standards of the City of Carrollton in effect at the time of installation. Please note that these standards are periodically reviewed and changes are made as necessary.
- __16. **Special Note:** It is the desire of the City of Carrollton to use "drop in meters" where they are physically located inside vaults. If the meters bid cannot meet this criteria, vendors must list each additional part necessary for a correct product fit. The individual price breakdown of each additional part must be clearly stated.

SPECIFICATION

ITEM #6, #6A, #7, #7A, #7B

DESCRIPTION: TURBINE METERS FOR CUSTOMER SERVICE 1 1/2", 2", 4", 6", AND 8"

REQUIREMENTS: MINIMUM

1. The purpose of these specifications is to provide the City of Carrollton, Texas with the highest grade of water meters available. These are to be made of the best material and workmanship. Only meters manufactured within the continental limits of the United States will be acceptable. **“Preference will be given to bidders who have been engaged in the manufacture and marketing of the meters offered, or a substantially similar type electronic meter component, for a minimum of ten (10) years. Bids from manufacturer distributors will not be accepted unless the meters in question are only sold through distributors and not from the manufacturer.”**

Compliance with or variation from the specifications must be noted as to each item on the specification sheet. All variations from the specifications must be noted on the bid form.

Check indicates compliance: √

__1. Product Application: 1 1/2" & 2" may be used for residential or small commercial installations such as irrigation systems, golf courses, plant process lines, car wash facilities, or master metering needs.

4" - 8" may be used for commercial, residential and specialized industrial applications.

__2. Accuracy Registration Tests: Accuracy registration tests may be run by the **Water Utilities** Division on all meters received. The manufacturer shall guarantee that all new meters furnished under this contract will meet the required new meter accuracy standards as established by the American Water Works Association (AWWA) Standard C-701-07, Class II, or latest revision thereof, for Cold Water Meters - Turbine Type, For Customer Service, for a period of at least one (1) year from date of receipt.

__3. Product Requirements:

- A. Meters shall be designed for easy removal of all interior parts without disturbing the connections to the pipeline.
- B. Size - of the meter shall be determined by the nominal size of the opening of the inlet and outlet flanges of the meter.
- C. The turbine chamber shall be mounted in a horizontal position so that water must essentially travel in a straight path from the meter inlet to the meter outlet during high flow operation.
- D. Measuring cages or chambers shall be made of copper alloy or suitable engineering plastic as described in Section 4.1 of AWWA Standard C701-07, or latest revision.
- E. Measuring turbines and discs shall be made of vulcanized rubber or suitable engineering plastic that shall be as near as possible to the specific gravity of water as described in Section 4.1 of AWWA Standard C701-07, or latest revision.
- F. Main assembly cases:
 1. Main casings shall be made of copper alloy. Casing bolts shall be made of stainless steel or bronze. Cases shall be designed for easy removal of interior parts without disturbing connections to the pipeline. Bypass casing shall be of approved copper alloy. In no instance shall repaired casings be acceptable.
 2. All sizes to have flanged ends. All external bolts or screws shall be stainless steel.
 3. Each measuring portion of the meter shall be protected by a durable strainer. Stainless steel connection bolts and gaskets are also to be provided. The straining area shall be equal to at

least double the size of the diameter of the opening of the meter. Strainers shall be bronze with stainless steel inserts. Cast iron strainers for meters 8" and larger with bronze or stainless steel inserts will be acceptable. Strainers shall have a cover plate for inspection and removal of debris from the screen without disturbing the pipeline. All meters shall contain strainer screens. Strainers must comply with Section 4.1 of AWWA Standard C701-07, or latest revision.

4. Synthetic polymers will be accepted for parts described in Section 4.1 of AWWA Standard C701-07, or latest revision.
 5. The main cases shall be fitted with a drain plug. A test plug of adequate size must be accessible from the top so as to allow testing in pit settings and confined areas.
- G. Connections: all connections (flanges, nuts, bolts, gaskets, etc) must be provided with the meters. All gaskets shall be full-face with pre-stamped bolt holes. All nuts and bolts shall be constructed of stainless steel. These items must meet or exceed AWWA Standard C701-07, or latest revision.
- H. Measuring Chamber: Turbine spindles shall be made of stainless steel or other suitable corrosion resistant material. Measuring chambers or cages shall be self-contained and easily detached and removed from the main case installation. Measuring chambers or cages shall be interchangeable with meters of the same size, type and manufacture.
- I. Automatic Valve: shall be of the weighted, swing type or spring-loaded type. The valve and linkage shall be Water Works Bronze; all shafts shall be #316 stainless steel. The valve shall be so positioned in the meter that water passing through it will follow a straight path in passing from inlet to outlet.
- J. Registration: shall be accurately recorded through the normal test flow limits at not less than 98.5% nor more than 103% of actual thruput.
- K. Pressure Test: Meters shall be guaranteed to operate successfully at a working pressure of 150 psi, without leakage or damage to any part.
- L. All registers must be adaptable to a remote meter reading system.
- M. Registers shall contain low flow or leak indicators.
- N. **Measuring Chambers:** Measuring chambers shall be made of bronze or a suitable synthetic polymer and shall be smoothly and accurately machined. It shall contain an inlet hub, rotor, and strainer, and be held in place by stainless steel fasteners. It shall not be adversely affected by particles of sand.
- O. **Operating Specifications:** Operating specifications and performance shall meet or exceed applicable American Water Works Association (AWWA) C-701-07 specifications, or latest revisions.

 4. **Registers, Register Drive and Register Box**

- A. Registers shall be straight reading, read in U. S. gallons, with center sweep test hand, and shall be sealed. (The term "sealed" shall mean a register that is moisture and dust-proof, mechanically disconnected from the measuring components and shall be non-repairable factory exchange type). The register shall be a standard assembly requiring no additional components to make the seal permanent. The gasket must be under no less than fifty (50) pounds pressure at the time of manufacture. Sealing must be accompanied by a metal rolling process by which the metal of the register can is rolled over the outer edge of the register lens to perfect a permanent seal. The date of the manufacture shall be visible on the register face. Test rings for registers shall be furnished at no additional cost.

- B. It is essential that these meters have an obvious sharp color contrast between the numeral wheels that register 1,000 gallons per revolution and more and those that register 100 gallons per revolution and less. On 4-inch and larger meters it is essential that there be an obvious sharp color contrast between the numeral wheels that register 10,000 gallons per revolution and more and those that register 1,000 gallons per revolution and less.
- C. Magnetically coupled registers are required.
- D. Register box is to be made of copper alloy.
- E. The size, type and direction of flow through the meter shall be cast in raised characters on the main case.
- F. Register box shall be sealed to the meter in such a manner that unauthorized removal is apparent.

__5. Serial Numbering

- A. The manufacturer's serial number shall be stamped on the outside of the register box lid and case.
- B. All numerals shall be a minimum of 1/4" in height.

__6. Operating Specifications: Operating specifications and performance shall meet or exceed applicable American Water Works Association (AWWA) C-701-07 requirements, or latest revision thereof.

__7. Certification: The meters are to be accepted on a certificate furnished by the manufacturer certifying that the meters supplied meet these specifications. The meters will be tested by the City of Carrollton to determine whether they do or do not meet the specification. Any failure to specify exceptions will be basis for disqualification.

The manufacturer shall be required to furnish a certificate showing that each meter has been tested for accuracy of registration and that it complies with accuracy and capacity requirements of AWWA C701-07 or the latest revision thereof. To ensure accuracy, each meter must be accompanied by a factory test tag certifying accuracy at low flows, two crossover points and high flows.

Meter models and designs shall have been continuously manufactured in the United States for a minimum of ten (10) years.

__8. Literature: The bidders will furnish descriptive brochures, schematics, and parts and price lists. They will also furnish in writing any meter or chamber maintenance programs their company offers. This information will also include cost and availability. If the bidder does not provide meter or chamber maintenance programs, they will provide a listing of companies qualified to perform this service. This listing will include name, address, telephone and fax numbers.

__9. Guarantee: Meters shall be guaranteed against defects in materials and workmanship for a period of fifteen (15) years. Parts to replace these in which a defect may develop within such period will be supplied without charge, piece for piece, upon proper proof of such defect.

The register shall have a warranty period of fifteen (15) years. Any register failure, including fogging and condensating, within two (2) years from the date of shipment, shall necessitate replacement, without cost to the City of Carrollton.

__10. Rejected Meters: Rejected meters will be replaced or satisfactorily readjusted if they fail to comply with these specifications.

__11. Meter Numbering System: The City of Carrollton has an inventory tracking system for meters. The successful bidder, at the time meter orders are placed, will be given a series of numbers, beginning with the fiscal year, followed by a sequential series. These numbers are to be imprinted on each meter, either on the register lid or in a clearly visible area.

- __12. This specification is subject to conditions outlined in Bid Instructions, Special Conditions, Item 6.
- __13. Bidders shall furnish a list of ten other municipalities in Texas and/or surrounding states with whom they do business. This list will contain name of a contact person, address, and telephone number.
- __14. **Materials:** Materials used in meters offered shall comply with the Safe Drinking Water Act of 1986.

"This product shall be certified as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 61, Drinking Water Systems Components-Health Effects. All meters shall have received verifiable certification of compliance with the National Sanitation Foundation (NSF) Standard 61. Every bidder shall submit with their bid a signed statement clearly stating the present status of their receiving certification of compliance with the NSF 61 Standard for each particular make, model, and size of water meter being bid. a failure to submit this verification may result in the disqualification of that bid and its removal from consideration."

Materials used in meters shall comply with the Safe Drinking Water Act.

- __15. **Installation:** Must comply with General Design Standards of the City of Carrollton in effect at the time. Please note that these standards are periodically reviewed and changes are made as necessary.
- __16. **Special Tools:** In the event that special tools are required to perform maintenance on the meter, the bidder will furnish a sufficient supply at no extra charge.
- __17. **Special Note:** It is the desire of the City of Carrollton to use "drop in meters" where they are physically located inside vaults. If the meters bid cannot meet this criteria, vendors must list each additional part necessary for a correct product fit. The individual price breakdown of each additional part must be clearly stated.
- __18. **Main Case Connections:** For 1 1/2" turbine meters the laying length shall be 13"; the connections shall be two (2) Bolt oval/elliptical flanges on both ends; For 2" turbine meters the laying length shall be 17"; the spud size shall be 1 1/4".

SPECIFICATIONS

ITEM #8, #8A, #8B, & #8C.

DESCRIPTION: TURBINE METERS FOR FIRE SERVICE 4", 6", 8, AND 10"

REQUIREMENTS: MINIMUM

1. The purpose of these specifications is to provide the City of Carrollton, Texas with the highest grade of water meters available. These are to be made of the best material and workmanship. Only meters manufactured within the continental limits of the United States will be acceptable. **“Preference will be given to bidders who have been engaged in the manufacture and marketing of the meters offered, or a substantially similar type electronic meter component, for a minimum of ten (10) years. Bids from manufacturer distributors will not be accepted unless the meters in question are only sold through distributors and not from the manufacturer.”**

Compliance with or variation from the specifications must be noted as to each item on the specification sheet. All variations from the specifications must be noted on the bid form.

Check indicates compliance:

1. **Product Application:** where a high degree of accuracy is required over a wide range of water flow rates. Hotels, motels, institutions, schools, factories, office buildings, apartment houses and commercial properties are potential applications.
2. **Required Product Approvals:** In addition to the requirements of this specification and any special requirements set forth in the bid request, all products offered shall meet the AWWA Standard for Cold Water Meters - Turbine Type for Customer Service C701-12 Class II. All meters furnished under this specification shall be UL approved for fire service.
3. **Supplementary Specifications:** The standard used in preparation of this specification is AWWA Standard C701-12 and C703-86 (Strainers). All meters shall, in addition to supplementary requirements, meet all the requirements outlined in AWWA Standard C701-88, Class II and C703-86 (Strainers).
4. **Accuracy Registration Tests:** Accuracy registration tests may be run by the Utility Customer Service Division on all meters received. The manufacturer shall guarantee that all new meters furnished under this contract will meet the required new meter accuracy standards as established by the American Water Works Association (AWWA) Standard C-701, or latest revision for a period of at least one (1) year from date of receipt.
5. **Product Requirements:**
 - A. Turbine spindles shall be made of stainless steel or other suitable corrosion resistant material.
 - B. Size of the meter shall be determined by the nominal size of the opening of the inlet and outlet flanges of the meter.
 - C. The turbine chamber shall be mounted in a horizontal position so that water must essentially travel in a straight path from the meter inlet to the meter outlet during high flow operation.
 - D. Measuring cages or chambers shall be made of copper alloy or suitable engineering plastic as described in Section 2.4 of AWWA Standard C702-86.
 - E. Measuring turbines and discs shall be made of vulcanized rubber or suitable engineering plastic that shall be as near as possible to the specific gravity of water as described in Section 2.5 of AWWA Standard C703-86.
 - F. Measuring chambers or cages shall be self-contained and easily detached and removed from the main case without disturbing main case installation.

- G. Measuring chambers or cages shall be inter-changeable with meters or the same size, type and manufacture.
- H. Casings
 - 1. Main casings shall be either of approved copper alloy or epoxy coated cast iron.
 - 2. Access to the measuring chamber must be obtainable without disturbing the main case as set in the pipeline. All sizes to have flanged ends.
 - 3. Each measuring portion of the meter shall be protected by a durable strainer. The straining area shall be equal to at least 4 times the size of the diameter of the opening of the meter. Strainers shall have a cover plate for inspection and removal of debris from the screen without disturbing the pipeline. Meters furnished under this specification shall be furnished with strainers, stainless steel connection bolts, and gaskets. Strainers shall be approved by the National Fire Protection Association (NFPA) or be listed with the Underwriters Laboratories (UL) in their fire protection equipment list. This approval requires the use of main line strainer, either a Y type or basket type, having the same NFPA or UL approval and a minimum straining area of four times the pipe cross section area of the turbine meter.
 - 4. Synthetic polymers will be accepted for parts described in Section 2.4 of AWWA Standard C702-86, or latest revision.
 - 5. The main cases shall be fitted with a drain plug. A test plug of adequate size must be accessible from the top so as to allow testing in pit settings and confined areas.
- I. Connections: all connections (flanges, nuts, bolts, gaskets, etc) must be provided with the meters. All gaskets shall be full-face with pre-stamped bolt holes. All nuts and bolts shall be constructed of stainless steel. These items must meet or exceed AWWA Standard C702-86.
- J. The register shall conform to the following capacity chart:

Minimum Registration Minimum Capacity of Register

<u>Meter Size</u>	<u>In Gallons</u>	<u>In Millions of Gallons</u>
4"	1000	100
6"	1000	1000
8"	1000	1000
10"	1000	1000

- K. Pressure Test: Meters shall be guaranteed to operate successfully at a working pressure of 150 PSI, without leakage or damage to any part.

__6. Registers, Register Drive, and Register Box

- A. Registers shall be straight reading, read in U. S. gallons, with center sweep test hand, and shall be sealed. (The term "sealed" shall mean a register that is moisture and dust-proof, mechanically disconnected from the measuring components and shall be non-repairable factory exchange type or shop repairable). The date of the manufacture shall be visible on the register face.
- B. It is essential that 4-inch and larger meters have an obvious sharp color contrast between the numeral wheels that register 1,000 gallons per revolution or more and those that register 100 gallons per revolution or less. On a 4-inch and larger meters it is essential that there be an obvious sharp color contrast between the numeral wheels that register 10,000 gallons per revolution and more and those that register 1,000 gallons per revolution or less.
- C. Magnetically coupled registers are required.
- D. Register box is to be made of copper alloy.

- E. The size, type and direction of flow through the meter shall be cast in raised characters on the main case.
- F. Register box shall be sealed to the meter in such a manner that unauthorized removal is apparent.
- G. Test rings for registers shall be furnished at no additional cost.

___7. **Serial Numbering**

- A. The manufacturer's serial number shall be stamped on the outside of the register box lid and case.
- B. All numerals shall be a minimum of 1/4" in height.

___8. **Operating Specifications:** Operating specifications and performance shall meet or exceed applicable American Water Works Association (AWWA) C-702-86 requirements, or latest revision thereof.

___9. **Certification:** The meters are to be accepted on a certificate furnished by the manufacturer certifying that the meters supplied meet these specifications. The meters will be tested by the City of Carrollton to determine whether they do or do not meet the specification. Any failure to specify exceptions will be basis for disqualification.

The manufacturer shall be required to furnish a certificate showing that each meter has been tested for accuracy of registration and that it complies with accuracy and capacity requirements of AWWA C702-86 or the latest revision thereof. To ensure accuracy, each meter must be accompanied by a factory test tag certifying accuracy at low flows, two crossover points and high flows.

Meter models and designs shall have been continuously manufactured in the United States for a minimum of ten (10) years.

___10. **Literature:** The bidders will furnish descriptive brochures, schematics, and parts and price lists. They will also furnish in writing any meter or chamber maintenance programs their company offers. This information will also include cost and availability. If the bidder does not provide meter or chamber maintenance programs, they will provide a listing of companies qualified to perform this service. This listing will include name, address, telephone and fax numbers.

___11. **Guarantee:** Meters shall be guaranteed against defects in materials and workmanship for a period of fifteen (15) years. Parts to replace these in which a defect may develop within such period will be supplied without charge, piece for piece, upon proper proof of such defect.

The register shall have a warranty period of fifteen (15) years. Any register failure, including fogging and condensating, within two (2) years from the date of shipment, shall necessitate replacement, without cost to the City of Carrollton.

___12. **Rejected Meters:** Rejected meters will be replaced or satisfactorily readjusted if they fail to comply with these specifications.

___13. **Meter Numbering System:** The City of Carrollton has an inventory tracking system for meters. The successful bidder, at the time meter orders are placed, will be given a series of numbers, beginning with the fiscal year, followed by a sequential series. These numbers are to be imprinted on each meter, either on the register lid or in a clearly visible area.

___14. This specification is subject to conditions outlined in Bid Instructions, Special Conditions, Item 6.

___15. Bidders shall furnish a list of ten other municipalities in Texas and/or surrounding states with whom they do business. This list will contain name of a contact person, address, and telephone number.

___16. **Materials:**

"This product shall be certified as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 61, Drinking Water Systems Components-Health Effects. All meters shall have received verifiable certification of compliance with the National Sanitation Foundation (NSF) Standard 61. Every bidder shall submit with their bid a signed statement

clearly stating the present status of their receiving certification of compliance with the NSF 61 Standard for each particular make, model, and size of water meter being bid. a failure to submit this verification may result in the disqualification of that bid and its removal from consideration."

Materials used in meters shall comply with the Safe Drinking Water Act.

- ___17. **Installation:** Must comply with General Design Standards of the City of Carrollton in effect at the time. Please note that these standards are periodically reviewed and changes are made as necessary.
- ___18. **Special Tools:** In the event that special tools are required to perform maintenance on the meters, the bidder will furnish a sufficient supply at no extra charge.

SPECIFICATION

ITEM #9, #9A, & #9B.

DESCRIPTION: DETECTOR CHECK VALVE ASSEMBLIES

(CLOSED FIRE LINE SERVICES) 4", 6", 8"

REQUIREMENTS: MINIMUM

1. The purpose of these specifications is to provide the City of Carrollton, Texas with the highest grade of detector check valve assemblies available. These assemblies must be equipped with a bypass meter. These are to be made of the best material and workmanship. Only valves and meters manufactured within the continental limits of the United States will be acceptable. **“Preference will be given to bidders who have been engaged in the manufacture and marketing of the meters offered, or a substantially similar type electronic meter component, for a minimum of ten (10) years. Bids from manufacturer distributors will not be accepted unless the meters in question are only sold through distributors and not from the manufacturer.”**

Compliance with or variation from the specifications must be noted as to each item on the specification sheet. All variations from the specifications must be noted on the bid form.

Check indicates compliance: √

1. **Required Product Approvals:** All assemblies shall be approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

In addition to the requirements of this specification and any special requirements set forth in the bid requests, all components shall meet current standard specifications of the American Water Works Association for the type service required, and as a minimum, meet the requirements of AWWA Standard C510-97, or latest revision.

2. **Product Description:** The closed fire service assembly shall consist of a detector check valve, plus a positive displacement bypass meter.

3. **Application:** For installation in commercial fire lines, or any water supply system, to detect leakage or unauthorized use.

4. **Definitions:**

A. Closed fire line service - a system with automatic sprinklers only, regularly inspected and supervised by an insurance agency.

B. Metering - Monitored with a detector check device.

5. **Product Requirements:**

A. Consists of a main valve and bypass meter, with an automatic weighted swing type valve for diverting low flow rates. Reverse flow protection shall be provided for the meter.

B. The clapper seat shall be rubber to bronze.

C. Weights (excluding bypass meters) shall range from a minimum of 160 lb. for 4", 300 lb. for 6", to 400 lb. for an 8".

D. Casings

1. Main casings shall be either of approved copper alloy or epoxy coated cast iron. Bypass casing shall be of approved copper alloy.

2. Synthetic polymers will be accepted for parts described in Section 2.4 of AWWA Standard C703-86, or latest revision.

3. The size, model, manufacturer's serial number, company name and direction of flow shall be cast, stamped or provided on an etched metal plate mechanically attached on the outer case of the valve.
 4. External fasteners (casing bolts, studs, nuts, screws, and washers) shall be made of copper alloy containing not less than fifty-seven (57%) copper, stainless steel, or of steel treated to resist corrosion by a process to be approved by the City of Carrollton and shall be designed for easy removal after long service.
- E. Connections: All valve connections (control piping, connections to components, etc.) shall be threaded in accordance with ANSI/ASME B 1.20.1 or flanged in accordance with ANSI/ASME B 16.1, ANSI/ASME B 16.24.
 - F. The detector check valve shall cut off all flow through it until minimum differential is met. It shall effectively prevent backflow, and shall not bind or stick in service.
 - G. The check valve shall be of a weighted swing type that closes by gravity or be an internally spring loaded type device. The weight or load of the valve and any supplemental weight or load imposed on it shall offer sufficient resistance to incoming water to direct all small rates of flow through the by-pass meter (installed by Utility Customer Service Division) and shall open under a difference of pressure between 1.5 psi to 3.0 psi. When the amount of water being used through the by-pass meter results in a differential of 1.5 psi to 3.0 psi the check valve shall open and when fully open shall provide clear passage through the valve.
 - H. The valve weights shall be of bronze or a bronze shell loaded with an appropriate material. The valve and supplemental weight pins or spindles shall be of bronze or other suitable non-ferrous material, and all valve and supplemental weight pins or springs shall be of bronze or other suitable non-ferrous material, and all valve and supplemental weight hinge bearings shall be bushed with bronze or hard rubber. Spring-loaded valves shall use stainless steel springs. All internal working parts of the device shall be of stainless steel. (Engineering Plastic Bushings acceptable on spring loaded valves).
 - I. The valve clapper shall be faced with semi-hard rubber or elastomeric discs and shall be held in place with a stainless or bronze clamping disc.
 - J. Valve seats shall be of bronze, shall have a satisfactory width of face and shall be firmly held in place.
 - K. The valve shall have end flanges which thickness conforms to the American Standard cast iron pipe flange, Class 125.
 - L. The inlet and outlet of the detector check valve shall be paralleled and have a common axis.
 - M. The valve shall have a maximum working pressure of 175 psi.
 - N. An air bleeder device shall be provided at the top of the upper main body.
 - O. The valve shall be equipped with a pair of tapped bosses on each side of the valve to permit the installation of a by-pass water meter to record water usage.
- ___6. **Dissimilar Metals:** The valve assembly must adhere to ANSI/AWWA Standard C510-97, Section 2.1.
 - ___7. **Bypass Meter: Registers, Register Drive, and Register Box:** See Section I.
 - ___8. **Operating Specifications:** Operating specifications and performance shall meet or exceed applicable American Water Works Association (AWWA) C-703-86, requirements, or latest revision thereof as well as ANSI/AWWA C-510-97, or latest revision.

- ___9. **Certification:** The valves/meters are to be accepted on a certificate furnished by the manufacturer certifying that the valves/meters supplied meet these specifications. The meters may be tested by the City of Carrollton to determine whether they do or do not meet the specification. Any failure to specify exceptions will be basis for disqualification. The manufacturer shall be required to furnish a certificate showing that each by-pass meter has been tested for accuracy of registration.

Meter/valve models and designs shall have been continuously manufactured in the United States for a minimum of ten (10) years.

- ___10. **Literature:** The bidders will furnish descriptive brochures, schematics, and parts and price lists. They will also furnish in writing any meter, chamber, or valve maintenance programs their company offers. This information will also include cost and availability. If the bidder does not provide meter, chamber, or valve maintenance programs, they will provide a listing of companies qualified to perform this service. This listing will include name, address, telephone and fax numbers.

- ___11. **Rejected Valves/Meters:** Rejected valves/meters will be replaced or satisfactorily readjusted if they fail to comply with these specifications.

- ___12. **Meter Numbering System (for by-pass meter):** The City of Carrollton has an inventory tracking system for meters. The successful bidder, at the time meter orders are placed, will be given a series of numbers, beginning with the fiscal year, followed by a sequential series. These numbers are to be imprinted on each meter, either on the register lid or in a clearly visible area.

- ___13. This specification is subject to conditions outlined in Bid Instructions, Special Conditions, Item 6.

- ___14. Bidders shall furnish a list of ten other municipalities in Texas and/or surrounding states with whom they do business. This list will contain name of a contact person, address, and telephone number.

- ___15. **Materials:**

"This product shall be certified as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 61, Drinking Water Systems Components-Health Effects. All meters shall have received verifiable certification of compliance with the National Sanitation Foundation (NSF) Standard 61. Every bidder shall submit with their bid a signed statement clearly stating the present status of their receiving certification of compliance with the NSF 61 Standard for each particular make, model, and size of water meter being bid. a failure to submit this verification may result in the disqualification of that bid and its removal from consideration."

Materials used in meters shall comply with the Safe Drinking Water Act.

- ___16. **Installation:** Must comply with General Design Standards of the City of Carrollton in effect at the time. Please note that these standards are periodically reviewed and changes are made as necessary.

- ___17. **Valve Repair:** If special licensing or technical expertise is required for valve repair, and/or product must be sent to a factory for repair, bidders must provide detailed description of responsibilities and detailed costs for service.

SPECIFICATION

ITEM #10, #10A & #10B.

DESCRIPTION: DOUBLE CHECK DETECTOR ASSEMBLIES (FIRE LINE SERVICES) 4", 6", 8"

REQUIREMENTS: MINIMUM

1. The purpose of these specifications is to provide the City of Carrollton, Texas with the highest grade of detector check valve assemblies available. These are to be made of the best material and workmanship. Only meters manufactured within the continental limits of the United States will be acceptable. **“Preference will be given to bidders who have been engaged in the manufacture and marketing of the meters offered, or a substantially similar type electronic meter component, for a minimum of ten (10) years. Bids from manufacturer distributors will not be accepted unless the meters in question are only sold through distributors and not from the manufacturer.”**

Compliance with or variation from the specifications must be noted as to each item on the specification sheet. All variations from the specifications must be noted on the bid form.

Check indicates compliance:

1. **Required Product Approvals:** All assemblies shall be approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

In addition to the requirements of this specification and any special requirements set forth in the bid requests, all components shall meet current standard specifications of the American Water Works Association for the type service required, and as a minimum, meet the requirements of AWWA Standard C510, or latest revision. Components must also be FM approved mainline and UL approved.

2. **Product Description:** The closed fire service assembly shall consist of two internally loaded, independently operating check valves, located between two tightly closing resilient-seated shutoff valves (OS&Y), with four properly placed resilient-seated test cocks, plus a positive displacement bypass meter. A valve automatically controls flow between the mainline meter and the bypass meter indicate the total consumption throughout the system.

3. **Application:** For installation in commercial fire lines, or any water supply system, to detect leakage or unauthorized use.

4. **Definitions:**

- A. Full-ported test cock: A full-ported test cock shall have an opening at least equal in area to the area of the specified size of the test cock.
- B. Independently acting check valve: An independent check valve shall share no common parts except for body housing. There can be no contact between any moving components of either check valve through its normal operation. The failure of either check valve in any mode can in no way affect the operation of the other check valve.

5. **Product Requirements:**

- A. Consists of two independent spring-loaded poppet-type check valve assemblies mounded in a common body. Two gate valves and four test cocks for field-testing. Valve assemblies should be easily removed for in-line servicing. The bypass consists of an approved double check valve assembly, shutoff valves, testcocks, and a meter with low flow accuracy.
- B. Proportional main line discharge throat shall be epoxy coated, to offer corrosion resistance in the throat.
- C. The clapper seat shall be rubber to bronze.

- D. Weights with OS/Y valves (excluding bypass meters) shall range from a minimum of 450 lb. for 4", 800 lb. for 6", to 1600 lb. for an 8".
- E. Test plugs must be non-ferrous, e.g., brass or plastic.
- F. Testing shall be performed at the time of installation and is recommended annually thereafter.
- G. Casings
 - 1. Main casings shall be either of approved copper alloy or epoxy coated cast iron. Bypass casing shall be of approved copper alloy.
 - 2. Each measuring portion of the meter shall be protected by a durable strainer. The straining area shall be equal to four times the size of the diameter of the opening of the meter. Strainers shall have a cover plate for inspection and removal of debris from the screen without disturbing the pipeline.
 - 3. Synthetic polymers will be accepted for parts described in Section 2.4 of AWWA Standard C703-86, or latest revision.
- H. Connections: All meter connections (flanges, nuts, bolts, gaskets, etc) must be provided with the meters. These items must meet or exceed AWWA Standard C703-86, or latest revision. All valve connections (test cocks, control piping connections to components, etc. shall be threaded in accordance with ANSI/ASME B 1.20.1 or flanged in accordance with ANSI/ASME B 16.1, ANSI/ASME B 16.24

___6. **Dissimilar Metals:** The valve assembly must adhere to ANSI/AWWA Standard C510-97, Section 2.1, or latest revision.

___7. **Bypass Meter: Registers, Register Drive, and Register Box**

- A. Registers shall be straight reading, read in U. S. gallons, with center sweep test hand, and shall be sealed. (The term "sealed" shall mean a register that is moisture and dust-proof, mechanically disconnected from the measuring components and shall be non-repairable factory exchange type or shop repairable). The date of the manufacture shall be visible on the register face.
- B. Registers shall be of the straight reading type and read in U.S. gallons. It shall contain six (6) number wheels and the register face shall contain one hundred (100) equally divided graduations at its periphery, with a sweep-hand. It shall have a registration capacity of one million (1,000,000) gallons, and ten (10) gallons per sweep-hand revolution. The digits shall be black in color with the lowest registering three digits (below the 1,000 gallon registration) to be a contrasting color. It shall also be completely separated from the waterway. The register shall be magnetically driven and a permanently rolled sealed type. The term "sealed" shall mean moisture and dust-proof and be mechanically disconnected from measuring components. The manufacture date and corresponding meter size should be readily visible on each register to insure proper sizing if register exchange is needed.
- C. Register boxes and covers shall be made of bronze or a suitable synthetic polymer.

___8. **Serial Numbering**

- A. The manufacturer's serial number shall be stamped on the outside of the register box lid and case.
- B. All numerals shall be a minimum of 1/4" in height.

___9. **Operating Specifications:** Operating specifications and performance shall meet or exceed applicable American Water Works Association (AWWA) C-703-86 requirements, or latest revision thereof as well as ANSI/AWWA C-510-97, or latest revision.

- ___10. **Certification:** The meters are to be accepted on a certificate furnished by the manufacturer certifying that the meters supplied meet these specifications. The meters will be tested by the City of Carrollton to determine whether they do or do not meet the specification. Any failure to specify exceptions will be basis for disqualification.

The manufacturer shall be required to furnish a certificate showing that each meter has been tested for accuracy of registration and that it complies with accuracy and capacity requirements of AWWA C510-97 or the latest revision thereof.

Meter/valve models and designs shall have been continuously manufactured in the United States for a minimum of ten (10) years.

- ___11. **Literature:** The bidders will furnish descriptive brochures, schematics, and parts and price lists. They will also furnish in writing any meter, chamber, or valve maintenance programs their company offers. This information will also include cost and availability. If the bidder does not provide meter, chamber, or valve maintenance programs, they will provide a listing of companies qualified to perform this service. This listing will include name, address, telephone and fax numbers.

- ___12. **Testers:** Bidders must furnish a listing of companies providing certified testers of backflow prevention devices in the metroplex area.

- ___13. **Rejected Valves/Meters:** Rejected valves/meters will be replaced or satisfactorily readjusted if they fail to comply with these specifications.

- ___14. **Meter Numbering System (for by-pass meter):** The City of Carrollton has an inventory tracking system for meters. The successful bidder, at the time meter orders are placed, will be given a series of numbers, beginning with the fiscal year, followed by a sequential series. These numbers are to be imprinted on each meter, either on the register lid or in a clearly visible area.

- ___15. This specification is subject to conditions outlined in Bid Instructions, Special Conditions, Item 6.

- ___16. Bidders shall furnish a list of ten other municipalities in Texas and/or surrounding states with whom they do business. This list will contain name of a contact person, address, and telephone number.

- ___17. **Materials:**

"This product shall be certified as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF Standard 61, Drinking Water Systems Components-Health Effects. All meters shall have received verifiable certification of compliance with the National Sanitation Foundation (NSF) Standard 61. Every bidder shall submit with their bid a signed statement clearly stating the present status of their receiving certification of compliance with the NSF 61 Standard for each particular make, model, and size of water meter being bid. a failure to submit this verification may result in the disqualification of that bid and its removal from consideration."

Materials used in meters shall comply with the Safe Drinking Water Act.

- ___18. **Installation:** Must comply with General Design Standards of the City of Carrollton in effect the time. Please note that these standards are periodically reviewed and changes are made as necessary.

- ___19. **Backflow Prevention Assembly Repair:** If special licensing or technical expertise is required for assembly repair, and/or product must be sent to a factory for repair, bidders must provide detailed description of responsibilities and detailed costs for service.

- ___20. **Special Note:** It is the desire of the City of Carrollton to use "drop in meters" where they are physically located inside vaults. If the meters bid cannot meet this criteria, vendors must list each additional part

necessary for a correct product fit. The individual price breakdown of each additional part must be clearly stated.