BID DOCUMENTS

WATERLINE
PIPE MATERIALS
SOUTHERN WATERLINE
PHASE 3
FEDERAL ROAD

PREPARED FOR:

TOWN OF BROOKFIELD

April 1, 2013

PREPARED BY:

CCA, LLC

40 OLD NEW MILFORD ROAD
BROOKFIELD, CONNECTICUT

Southern Waterline-Phase 3
Federal Road
Brookfield, Connecticut

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Southern Waterline-Phase 3
Federal Road
Brookfield, Connecticut

PROJECT DIRECTORY

WATER AUTHORITY

TOWN OF BROOKFIELD
100 Pocono Road
Brookfield, CT 06804
Phone: (203) 948-5273
Attn: Marty Handshy, Town of Brookfield Water Consultant

AQUARION WATER COMPANY
600 Lindley Street
Bridgeport, CT 06606
Phone: (203) 362-3033
Attn: Mike Picone or Steve Glowa

CIVIL ENGINEER/LAND SURVEYOR:

CCA, LLC
40 Old New Milford Road
Brookfield, CT 06450
Phone: (203) 775-6207
Fax: (203) 775-3628
Attn: Steven Sullivan, P.E.

INVITATION TO BID

TOWN OF BROOKFIELD
WATERLINE PIPE MATERIALS
SOUTHERN WATERLINE
PHASE 3-FEDERAL ROAD

Sealed Bids for the supply of waterline pipe materials will be received by William Davidson, First Selectman at the office of the First Selectman, Town of Brookfield (hereinafter referred to as OWNER), 100 Pocono Road, Brookfield, Connecticut, 06804, until **11 a.m. on April 30, 2013**, and at that time and place bids will be publicly opened and read aloud. Bids received after this time will not be accepted. **NO EXCEPTIONS.**

The project is the construction of approximately 1,243 linear feet of 16 inch water line in Federal Road.

Bid Documents may be obtained over the internet at the Town's website: www.brookfieldct.gov. Adobe Acrobat reader is required to view this document. If you do not have this software you may down load at no cost from Adobe at http://www.adobe.com. Businesses without internet access may obtain a copy of the bid by contacting the Office of the First Selectman, Town Hall, 100 Pocono Road, Brookfield, CT. 06804, (203) 775-7300. Any questions concerning the bid documents should be directed in writing to Mr. Steven C. Sullivan, Project Manager, CCA, LLC, 40 Old New Milford Road, Brookfield, CT. 06804, stevensullivan@ccaengineering.com. Bidders must provide Mr. Sullivan their email addresses or fax numbers as soon as possible in order to receive additional information.

Each Bid shall be submitted in accordance with the Instructions to Bidders.

Bidders may not withdraw their Bids for a period of ninety days, excluding Saturdays, Sundays, and legal holidays after the actual date of the opening of the Bids.

Complete instructions for filing Bids are included in the Instructions to Bidders.

Bid will be awarded to the lowest, responsive and responsible/qualified bidder for the 16 inch waterline as determined by the OWNER. However, the OWNER reserves the right to waive any informality in or to reject any or all Bids, to waive technicalities, and to award the contract as will best serve the sole interest of the OWNER.

The Town of Brookfield is an Affirmative Action/Equal Opportunity Employer.

William Davidson, First Selectman
Town of Brookfield

Town of Brookfield, CT

Sealed Bid Request

BID TITLE: Water Line Pipe Materials-Southern Waterline Phase 3 – Federal Road

DATE BID OPENING: Tuesday, April 30, 2013 TIME: 11:00 AM

LOCATION: Office of the First Selectman, Town of Brookfield, 100 Pocono Road, Brookfield, CT 06804

Bid Bond or Certified Check required with bid: Not Applicable

Performance Bond required if awarded bid: Applicable

The Town of Brookfield reserves the right to accept or reject any or all bids or any portion thereof, to waive technicalities, and to award the contract as deemed to best serve the public interest.

Omit State and Federal Taxes.

All Prices must be FOB Destination (Brookfield, CT) unless otherwise specified.

Dated in Brookfield: First Selectman_____

Pursuant to and in accordance with the Invitation to Bid and Instructions to Bidders, the undersigned agrees to furnish the water line pipe materials listed at the prices stated below.

Complete accompanying proposal page

Company: _____ Phone:_____

Address:_____ Fax:_____

_____ E-mail:_____

Submitted By (signature):_____ Payment Terms:_____

Signed By (print/type):_____

Title:_____

Southern Waterline-Phase 3
Federal Road
Brookfield, Connecticut

MATERIALS BID FORM

Bid Item No.	Bid Item	Estimated Quantity	Units	Unit Price (Figures)	Unit Price (Words)	Extension (Figure)
1	16" Class 52 Push on joints Ductile Iron Pipe	1220	LF			
2	6" Class 52 Push on joints Ductile Iron Pipe	80	LF			
3	6" Mechanical Joint C153 45° Bends	5	EA			
4	16" Mechanical Joint C153 45° Bends	40	EA			
5	6" Mechanical Joint C153 22-1/2° Bends	5	EA			
6	16" Mechanical Joint C153 22-1/2° Bends	5	EA			
7	6" Mechanical Joint C153 11-1/4° Bends	5	EA			
8	16" Mechanical Joint C153 11-1/4° Bends	5	EA			
9	16"x 6" Mechanical Joint C153 Hydrant Tee	3	EA			
10	16" Mechanical Joint Butterfly Valve-Open Right	2	EA			
11	6" Mechanical Joint Resilient Wedge Gate Valve-Open Right	3	EA			
12	5-1/4" Valve Opening Kennedy K81D Fire Hydrant-Hydrant Valves shall open to the left	3	EA			
13	36" Slip Valve Box Bottom Section	5	EA			
14	26" Slip Valve Box Top Section	5	EA			
15	5-1/4" DropValve Box Lid-Water	5	EA			
16	16" Megalug Series 1100 for MJ DIP	121	EA			
17	6" Megalug Series 1100 for MJ DIP	36	EA			
18	16" Megalug Series 1700 for Push on Bells DIP	15	EA			
19	6" Megalug Series 1700 for Push on Bells DIP	5	EA			
20	16" Mechanical Joint C153 Bolt Gasket Pack	121	EA			
21	6" Mechanical Joint C153 Bolt Gasket Pack	36	EA			
22	16" x 16" Mechanical Joint C153 Long Sleeve	1	EA			
23	16" Mechanical Joint C153 Solid Plug	1	EA			

Southern Waterline-Phase 3
Federal Road
Brookfield, Connecticut

MATERIALS BID FORM

24	2" Air Vent Assembly	3	EA			
25	2" Blow-off Assembly	1	EA			
26	16" x 2" Tap Tee	4	EA			
27	1000 L.F. Underground warning tape-Blue Water	2	EA			
28	16" MJ Nitrile Gaskets	18	EA			
29	16" Tyton Nitrile Gaskets	40	EA			
30	6" MJ Nitrile Gaskets	5	EA			
31	6" Tyton Nitrile Gaskets	5	EA			
32	Blow-off/Air Vent box with cover	4	EA			

GRAND TOTAL BID PRICE _____ $_____
(Words) (Figures)

LS= Lump Sum LF=Lineal Feet SY=Square Yard CY=Cubic Yards EA=Each

A. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities

B. Prices not changed by change of quantities. An increase or decrease in the quantities listed, in the Proposal, for any item shall not be regarded as sufficient grounds for an increase or decrease in the price of that item.

C. All pipe shall include gaskets and wedges.

D. The Town will award based upon "TOTAL" price.

E. All items delivered FOB Brookfield, CT as indicated on purchase order(s).

NON-COLLUSION AFFIDAVIT OF BIDDER

State of _____)
SS.
County of _____)

_____ ,being first duly sworn,
disposes and says that:

1. He is (owner, partner, officer, representative, or agent) of, _____,
   the Bidder that has submitted the attached Bid.
2. He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
3. Such Bid is genuine and is not collusive or sham bid;
4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in, interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid prices or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the _____ (Owner) or any person interested in the proposed contract.
5. The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant; and
6. That no officer, employee or person whose salary is payable in whole or in part from the Owner's operating budget is directly or indirectly interested in this Bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.

(Signed) _____
Name of Bidder

_____
Title

Subscribed and sworn to before me this _____ day of _____ , 2013.

_____
Notary Public

My commission expires _____ , 2013.

INSTRUCTIONS TO BIDDERS

Sealed bids will be received at the Office of the First Selectman, 100 Pocono Road, Brookfield, CT 06804 until the time and date specified on the cover sheet. Bids received later than the time specified will not be accepted. Amendments to or withdrawal of any section of the submitted bid received later than the time & date set for the bid opening will not be considered. Bid proposals must remain in effect for a minimum of 90 days unless otherwise noted elsewhere in the bid specifications.

BID DOCUMENTS: are available upon receipt of this invitation (if not attached) over the internet at the Town's website: www.brookfieldct.gov. Adobe Acrobat reader is required to view this document. If you do not have this software you may down load at no cost from Adobe at http://www.adobe.com. Businesses without internet access may obtain a copy of the bid by contacting the Office of the First Selectman, Town Hall, 100 Pocono Road, Brookfield, CT 06804, (203) 775-7300.

BID BONDS: if applicable, shall be in the amount of 5% of the total bid made out in favor of the Town of Brookfield and issued by a Surety company acceptable to the Town of Brookfield, and must accompany each bid. A certified check in the same amount may be submitted in lieu of the bid bond. Bids submitted without Certified Check or Bid Bond will not be accepted. The Town of Brookfield will not be held liable for the accrual of interest on any check held by the Town in conjunction with this bid. All checks or bid bonds will be refunded to the unsuccessful bidders after award of the bid. The deposit check or Bid Bond of the successful bidder will be held in escrow until such time as the Town determines that the bidder has or will meet their obligations as stated by the bid. If the bidder fails or refuses within a reasonable time after due notice that the contract has been awarded, to execute the same, an amount representing a loss to the Town by reason of such failure shall be retained and paid into the Town treasury.

REPLIES: whether bid or no bid, must have the Bid Title clearly identified on the outside of the envelope. Bidders not marking the envelopes with the Bid Title and date/time of opening on the envelope will have no recourse against the Town of Brookfield or its employees. Such bidders run the risk of the bid being opened prior to the scheduled Bid Opening time. Once opened such bids are public record. Any alleged oral agreement made by a bidder or contractor with any agency or employee of the Town of Brookfield will be disregarded.

FREIGHT: Prices quoted shall be net delivery F.O.B. Brookfield, CT. All bid prices must include prepaid delivery, assembly, and/or installation (ready for operation and/or use) of all equipment and/or materials to the individual locations(s) as designated by the Town of Brookfield. All bid prices are to be submitted on the sheets provided for this bid. Quantities and pricing are to be listed in accordance with these sheets.

QUESTIONS: Request for interpretation of any portion of the bid may be made by email to the civil engineer at stevensullivan@ccaengineering.com. All replies will be given by

email and a copy of any such inquiry and advice will be made available to each prospective bidder in the form of an addendum. Bidder should check the Town's website for addendums/updates 48 hours prior to the bid opening.

NON-COLLUSION STATEMENTS: In order for bids to be considered, a non-collusive statement must be submitted with the bid. A sample non-collusive bid statement is attached. Bidders may elect to submit their own notarized non-collusive statement.

CONDITIONAL, QUALIFIED OR NON-RESPONSIVE BIDS/PROPOSALS: All bids/proposals shall be submitted in the form and manner as indicated by the bid documents and bid forms. Any proposal which is not submitted in the form and manner indicated by the bid documents or which contains information, statements, conditions, or qualifications which place conditions or qualifications on the proposal submittal for purposes of making an award, or which alter any proposal terms, conditions, specifications, or forms, which has not been previously approved by written addendum from the Town of Brookfield, or which does not meet legal requirements, shall be declared as a qualified, conditional, or nonresponsive proposal and shall be rejected without further consideration. Any proposal response that does not fully respond to and comply with all detailed specifications or requests for information, including execution of proposal forms, may be declared "non-responsive" and recommended for rejection. The Town of Brookfield shall not be responsible for any errors or omissions by the Offeror.

CONTRACT: A response to an Invitation to Bid (ITB) is an offer to contract with the Town of Brookfield based upon the terms, conditions and specifications contained in the Town's ITB. Bids do not become contract unless and until executed by the Town.

TAXES: Omit all State and Federal taxes from the bid. The Town of Brookfield is exempt from the payment of taxes imposed by Federal government and/or the State of Connecticut.

OWNERSHIP OF DOCUMENTS: All documents, including drawings, plans, specifications, videotapes, or other documents or maps prepared by a contractor pursuant to any agreement arising from this bid shall become the property of the Town of Brookfield upon completion of the project or any termination of the project prior to the completion of the project.

LEGALITY: All bid offers for commodities, work, materials, or equipment hereunder shall comply in every respect with the laws, specifications and requirements of the State of Connecticut and the Federal government. Contractor will comply with the provisions of the Connecticut Fair Employment Practices Law.

LANGUAGE DISPUTES: Any disputes over the interpretation and/or meaning of any individual terms, conditions, and/or language within this Request for Bid/Proposal document shall be resolved by and at the sole discretion of the Town of Brookfield in a manner that is in the best interest of, and best advantage to, the Town of Brookfield, provided any such interpretation shall be reasonable.

RESPONSIBILITY: The Contractor shall save the Town of Brookfield, its agents or employees, harmless from liability of any kind for all claims of labor payments and materials furnished for this work, and for use of any copyrighted or un-copyrighted composition, secret process patented or unpatented invention, article or application furnished or used in the performance of the contract of which the Contractor is not the patentee, assignee, or licensee. The successful bidder agrees to indemnify and hold harmless the Town of Brookfield, its agents and employees from any and all liability arising out of the successful bidders' operations, functions and/or supplied items.

The successful bidder, vendor, and/or contractor must protect all property of the Town of Brookfield (i.e. all floors, furniture, grass, land, etc.) from injury or other damage. Any damage so caused must be repaired by contractor/vendor at his/her own expense. At the completion of work, the vendor and/or contractor must remove from the premises all surplus materials and all debris created by same. The premises must be left in a broom-clean and finished condition acceptable to the owner or its agents. Successful bidder will furnish adequate protection from damage for all work and to repair damage of any kind, for which he or his workers are responsible, to the premises or equipment to his own work or to the work of other contractors.

DEFAULT: It shall be understood that a bidder supplying equipment and/or supplies will be considered to be in default if/when they have not delivered the item(s) within the time constraints listed in this document or subsequent purchase orders and/or contract. Bidders providing a service and/or construction will be considered to be in default if/when they have failed to meet the completion date set forth in this document or its subsequent contract and/ or purchase orders and/ or they have ceased work on the project for a period of fifteen (15) working days, cumulative or consecutive.

TRADE NAME REFERENCES: Any and all references to trade names, types, styles, model numbers, stock numbers or catalogs are intended to be descriptive only and not restrictive. The intention is to indicate to bidders the type and quality of the articles and or materials that will be satisfactory. When reviewing the information, it is the responsibility of the prospective bidder to inform the Town of Brookfield of any discrepancy that is found (i.e. number listed does not fit item description). Bids received on other makes or models with reference to other catalogs will be considered. The bidder is to clearly state in his/her bid exactly what he/she intends to furnish and to furnish with his/her bid a cut or illustration or other descriptive matter that will clearly indicate and give specification as to the product he/she proposes to furnish. Where a bid is offered on an item other than the trade standard used in the specification the item should be identified on the bid form by entering the MAKE, TRADE NAME AND MODEL NUMBER. It is understood that any substitute and/or alternate that might be offered are guaranteed by the bidder to be of equal or better quality than is referenced in the bid. The item(s) must be equivalent as to function, basic design, type and quality of material, method of construction and any required dimensions. It shall be further understood that during original as well as subsequent shipments spot checks will be performed to insure that the items received are in fact the items offered in the bid. When received, should

items/materials prove to be different from what was bid in any way, the bidder agrees to the return of the items and agrees to supply correct items (per bid specifications) at the bidders expense. In the event this return action is required, it is understood the bidder may be subject to removal from the Town's approved bidder's list. Bidders are cautioned that surplus, seconds, factory rejects, floor samples, close outs or distressed items are not acceptable and shipments of substitutions, defective or shop-worn equipment will be returned for a full refund at the vendor's expense.

QUANTITY: The quantities and/or materials listed in the specifications/bid sheets may be increased or decreased by the Town of Brookfield or its designated representative based on actual need at the time the purchase orders are placed.

QUALITY: The Town of Brookfield reserves the right to reject any proposal in whole or in part offering equipment *and/or* materials *and/or* services that in its or its agent's opinion does not meet the quality standards desired. Such decision is final and not subject to further recourse by the bidder.

SAMPLES: forwarded by the bidder will be returned to the bidder at his request and expense. Requests for return of samples must be submitted in writing at the time the sample is given to the Town of Brookfield or its representative. Samples not returned to the bidder will be disposed of at the discretion of the Town of Brookfield or its designated representative. Large pieces of equipment submitted for evaluation and inspection are to be picked up by the bidder within 30 days of the bid opening date. The Town of Brookfield or its designated agent will dispose of items not picked up within 30 days.

AWARD: It is the intent to award this bid in its entirety to one bidder, however, the Town reserves the right to award the bid line item by line item if it is deemed in its best interest to do so. In addition, bidders are advised that should budgetary constraints dictate, part, *and/or* all the items in this bid may be rejected. This decision shall be considered final and not subject to recourse by the bidder.

In determining the lowest or highest responsible bidder, the Town reserves the right to consider, in addition to price, the compatibility, quality, cost of maintenance and availability of parts, experience *and/or* past performance of the bidder, sufficiency of the financial resources of the bidder as relates to the offerings as well as the ability of the bidder to provide future maintenance and service.

Documents previously submitted to the Town of Brookfield will not be considered as satisfying submission requirements for this bid.

No bidder can claim any contract rights by virtue of bidding alone. Awarding of the contract means actual written notice by letter and a properly executed purchase order to the bidder or bidders to whom the bid has been awarded.

BONDS (if applicable):

Performance Bond: The Contractor, when awarded the Bid, must submit within 10 days of the bid award, and before beginning the work or signing a contract, a Performance Bond amounting to one hundred percent (100%) of the total amount of the bid. Said performance bond must be in favor of the Town of Brookfield and executed by a surety company authorized to do business in the State of Connecticut. The Town of Brookfield reserves the right to retain the Bid Bond or Certified Check on bids below $25,000.00 as a Performance Bond. On bids of $25,000.00 or more the Performance Bond may be furnished in the following manner: Performance Bond, Surety Bond, Certified Check, Bank Check, Savings Account in both the Town & Vendor's name or Letter of Credit.

Maintenance Bond: The contractor, upon signing a contract and before beginning the work, must submit to the Town of Brookfield a Maintenance Bond to guarantee that if defects in either labor or materials become evident within one year after completion and acceptance of work will be fixed at no cost to the Town of Brookfield. The maintenance bond may be included as a portion of the Performance Bond or as a separate bond. If it is issued as a separate bond said maintenance bond must be in favor of the Town of Brookfield and issued by a surety company licensed and authorized to do business in the State of Connecticut.

Labor and Material Bonds: Per Section 49-41 of the CT General Statutes, on Public Works project where the estimate is in excess of $50,000.00, a labor (payment) and material bond must be furnished to the Town. Said bonds must be filed with the Town of Brookfield prior to the commencement of work.

Consent for Release of Final Payment: AIA Document G707 & G70B, or equivalent, must be signed and returned by the Surety Company before final payment will be released to the contractor.

INSURANCE:

Certificate of Insurance: All insurers must have an AM Best rating of A-V11 or better and admitted to do business in the State of Connecticut. All insurance policies must include a Waiver of Subrogation whereby the insured waives its right to subrogate against the Town, its subsidiaries, employees, volunteers, directors and officers. Proof of proper insurance coverage, Workers Compensation Insurance, Liability and Property damage, and Vehicle Insurance shall be filed with the Town of Brookfield within 10 days after the award of the bid. The Certificate of Insurance must name the Town of Brookfield, 100 Pocono Road, Brookfield, CT 06804, its subsidiaries, employees, volunteers, directors & officers as the "additional insured" and filed with the Town prior to commencement of work. Renewal Certificates of Insurance must be mailed to the Town of Brookfield 10 days prior to the expiration of the required coverage

Workman's Compensation Insurance: The Contractor shall take out and maintain during the life of the contract adequate Workman's compensation Insurance for all the employees employed on said work. In case any class of employees or subcontractors is

engaged in hazardous work under the contract at the site of the work is not protected under the Workman's Compensation statute, the contractor shall provide Workman's Compensation Insurance for the protection of employees not otherwise protected.

Liability Insurance: The Contractor shall take out and maintain for the life of the contract, adequate public liability insurance insuring against liability to persons not employed by him in an amount of not less than $1,000,000.00 for injuries, wrongful death to anyone person and subject to the limit for each person in an amount of not less than $1,000,000.00 on account of one accident and property damage insurance in an amount of not less than $1,000,000.00.

Vehicle Insurance: The Contractor shall take out and maintain for the life of the contract, adequate automotive/truck or other vehicle insurance with minimum coverage of $1,000,000.00 each for both liability and under insured and uninsured motorist as well as any other coverage required by the State of Connecticut or requested by an official of the Town of Brookfield as relates to the contract.

Additional Security: The Town of Brookfield reserves the right to require successful bidders to enter into and such security arrangements as are deemed necessary to protect the Town of Brookfield, its property and goods.

PERMITS: The successful bidder agrees to obtain all work/building permits as might be required. The cost of obtaining such permits is the responsibility of the bidder. The Town of Brookfield reserves the right to waive local permit fees. In addition, it shall be understood that where property lines are to be considered, bidders are to verify said lines and measurements with proper Town Officials prior to commencement of work. It is to be understood that any/all specifications and/or plans or drawings contained in or developed as a result of the bid process are and shall be presented subject to the approval of the Town of Brookfield planning, zoning and building officials and that awards made prior to said approval are subject to cancellation.

PREVAILING WAGE: When the State of Connecticut Prevailing Wage Rate is applicable to the bid, the successful bidder must submit a Certified Payroll Record prior to any request and/or invoice for payment.

SAFETY:

Machine and/or Equipment Hazard Assessment and Safety Training: Upon delivery of machines and/or equipment, suppliers are required to provide to the end-user employees, at no additional charge, a training session, which will emphasize hazard awareness and assessment and the safe use of such machinery/equipment.

Occupational Safety and Health Act of 1970: Seller shall warrant that the machinery, equipment or other materials covered hereby shall upon delivery to the Town of Brookfield, be in compliance with the standards required by said Act and any updates as pertain to or reference said Act as well as the standards required by comparable State and

local laws, if any, for such machinery, equipment or other materials in effect at the time of delivery.

Machines and/or Equipment Lockout/Tag out: In an effort to comply with OSHA's final rule on the control of hazardous energy sources, vendors must warrant that any and all machines and/or equipment as is covered under this bid will be supplied and/or installed equipped with 10ckouUtag out devices as prescribed by OSHA.

Toxic Substance Control Act (PL94469): Seller warrants that each and every chemical substance constituting or contained in the products sold or otherwise transferred to the Town of Brookfield under this bid and subsequent purchase orders is not on the list of prohibited chemical substances compiled and published by the Administrator of the Environmental Protection Agency pursuant to Act PL94469 and are otherwise in compliance with said Act.

Hazardous Materials: Any materials required by this bid and subsequent purchase orders that are hazardous under federal, state, or local statute, ordinance, regulation, or agency order will be packaged, labeled, marked and shipped by the seller to comply with all federal, state and local regulations then in effect including but limited to the provisions of the Hazardous Materials Transportation Act and Regulations promulgated there under and will further comply with any special requirements and any policies and procedures of the Town of Brookfield relating to the purchase of hazardous materials as might be noted on subsequent purchase orders or otherwise communicated to seller in writing.

Material Safety Data Sheets: Shall be provided by the Seller upon delivery to the Town of Brookfield of any goods having constituents listed in the following references -OSHA 1910, ACHIG Current Threshold Values, DOT HazMat Table 49, IARC Carcinogen List, National Toxicology Program Carcinogen List, and/or Radioactive Materials. These Material Safety Data Sheets must be consistent with and include information required by the OSHA Hazard Communication Standard published as 29 CFR 1910.1200, as the same may be amended or supplemented from time to time.

Asbestos: Bidders are advised that asbestos-containing material may be located in the boiler rooms, pipe tunnels, storage areas and various portions of Town buildings. Before proceeding on any contractual work on Town buildings or their interiors, it is mandatory that bidders familiarize themselves with the asbestos-containing material and that said material be considered as a health hazard and all precautionary measurers according to the Ahera Rules & Regulations be observed. II is the bidder's responsibility to notify all employees and/or subcontractors of this notification.

EEO: The successful bidder shall provide any/all additionally required, affirmative action statements, fair employment plans and non-discrimination programs and statement as might be required by the Town of Brookfield. In connection with the execution of this bid, subsequent purchase orders and/or contracts, the seller shall not discriminate against any employee or applicant for employment because of age, race, religion, color, sex or national origin. Bidders must comply with all rules & regulations of the Department of

Labor with regard to Equal Employment Opportunities as pertains to municipalities.

TERMINATION OF CONTRACT: Any contract entered into by the Town and the successful bidder shall provide that the Town may terminate the contract upon thirty (30) days notice to the bidder.

The Town of Brookfield reserves the right to award or reject any or all bids, or any portion thereof, to waive technicalities, and to award the bid and/or contracts to one or more bidders submitting essentially identical proposals and, that in the Town's judgment, will best serve the public interest.

The terms and conditions of these "Instructions to Bidders" are made a part this bid.

ITEMS TO BE SUBMITTED AS PART OF THE SEALED BID:

- Sealed Bid Request Sheet
- Materials Bid Form Sheets
- Non-Collusion Affidavit of Bidder

WATER DISTRIBUTION SYSTEM

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Provide all plant, materials, supplies, power, machinery, equipment, tools, superintendence, labor, overhead, profit, insurance, bonds, permits, shop drawings, design services (where required), and other services and accessories required to furnish and install the work of this Section, complete and in place.

B. The work of this Section includes:

1. Selective clearing and thinning of trees, brush, shrubbery, etc. Comply with ConnDOT Form 816, Article 9.52.01.

2. Construction staking of all water mains and appurtenances in this Section. Comply with ConnDOT Form 816, Article 9.80.01. The Contractor is responsible for retaining a Connecticut licensed land surveyor for construction staking and as-built measurements.

3. Test Pits, riprap slope, trench excavation and backfill, excluding rock-in-trench excavation, but including removal and disposal of existing water mains and valves, miscellaneous pipes and other obstructions, existing pavement, curbs, and walks, etc. Comply with ConnDOT Form 816, Article 2.05.01.

4. If in the sole opinion of the Engineer, the material removed during trench excavation is not suitable for backfilling, then compacted gravel fill shall be installed refer to section 02-240. All unsuitable material shall be removed from the site and disposed of by the Contractor.

5. Design, installation, maintenance, operation, and protection of all pumping, bailing, draining, sheeting, shoring, and cofferdams necessary to successfully construct the work.

6. The removal, handling, protection, and resetting of hedges, small trees, shrubbery, signs, posts, guide rails, mail boxes, and the like.

7. The bracing of utility poles in close proximity to the excavation.

8. Furnish and install water main pipe bedding. Use native sandy material if approved by Engineer. If unsuitable use ConnDOT Form 816, Article M.03.01 - Item 1 (COARSE AGGREGATE).

9. Furnish and install new water mains, gate valves, restrained joints, tees (excluding hydrant tees), bends, reducers, end caps, thrust blocks, cutting and capping of existing mains, insulation, magnetic indicating tape, and all other related fittings and work.

10. Furnish and Install steel pipe casing for the trench-less installation of the project

waterline under an existing concrete box culvert to the line and grade requirements called for on the plans and specifications using pipe jacking & auger boring internal excavation methods only.

11. Flush and disinfect new water mains and appurtenances, to be done by Aquarion Water Company.

12. Provide combined pressure and leakage tests on the new water main and appurtenances.

1.02 RELATED DOCUMENTS

A. The publications listed below form a part of this specification to the extent referenced. These publications are referred to in the text by the basic designation only.

B.

Basic Designation	Document
ANSI/AWWA	ANSI/AWWA Standards, latest edition, including all revisions and addenda.
ConnDOT Form 816	State of Connecticut Department of Transportation - Standard Specifications for Roads, Bridges, and Incidental Construction, Form 816, 2004, including all latest revisions and addenda.
NSF-61	National Sanitary Foundation - Standard 61

1.03 SUBMITTALS

A. Shop Drawings:

Prepare and submit shop drawings for the following items:

1. Prepare and submit shop drawings for trench and jacking pit dewatering system components. Outlining the methods and procedures that the Contractor will employ to successfully dewater trenches and dispose of the dewatering wastewater, minimize pumping requirements and impacts on wetlands & watercourses.

2. Prepare and submit shop drawings for the steel plate designed by a professional engineer registered in the State of Connecticut to handle the Federal Road traffic loading.

B. Product Data:

1. Procure and Submit product data for the following items:

a. Ductile iron pipe

b. Mechanical joint fittings, including but not limited to tees, bends, reducers, solid sleeves, end caps, and other related fittings.

c. Nitrile gaskets for push-on joints or mechanical joints.

d. Gate valves/Butterfly Valves

e. Mechanical thrust restraint for push-on and mechanical joints

f. Rigid board insulation

g. Steel Casing for jack & bore operation, casing spacers & low strength flowable fill.

C. Samples:

1. Procure and submit samples for the following items:

a. Gradation test from a certified material testing laboratory for water main bedding material.

D. Design Drawings:

1. Prepare and submit the following design drawings. All design drawings shall be signed and sealed by a professional engineer registered in the State of Connecticut:

2. Excavation Plan - The excavation plan shall outline the methods and procedures that the Contractor will employ to successfully stabilize excavations, as required to construct the work.

3. Trench Dewatering Plan - The trench and jacking pit dewatering plan shall outline the methods and procedures that the Contractor will employ to successfully dewater trenches and dispose of the dewatering wastewater, minimize pumping requirements and impacts on wetlands & watercourses.

4. Steel Plate Design - Prepare and submit shop drawings for the steel plate to handle the Federal Road traffic loading.

E. Test Data

1. Prepare and submit the following test data:

a. Potable water test results for each segment of water main tested

b. Pressure and leakage test results for each segment of water main tested

c. Permit Copies

d. Submit copies of all contractor-procured permits, including:

e. Permit for disposal of chlorinated test water

1.04 PROJECT CONDITIONS

A. Coordinate the trench dewatering plan with the requirements outlined in the project's Erosion and Sediment Control Measures and in any conditions set forth in the project's land-use permits.

1.05 SEQUENCING

A. Coordinate sequencing of flushing, disinfection, and pressure and leakage testing with the Engineer.

B. Pipe jacking & bore operation shall be done at night between 9 pm and 5 am.

1.06 QUALITY ASSURANCE – PIPE JACKING AND BORE METHOD

A. Contractor or subcontractor shall have been regularly engaged in trenchless construction similar to the methods required for this project for a minimum of 10 years.

B. Provide documentation of not less than 5 successful trenchless crossings using steel pipe that is of equivalent scope and complexity as required for this project.

C. Notify utility companies and comply with the requirements for support and protection of existing structures and services in the area prior to commencement of the project.

PART 2 - PRODUCTS

2.01 TRENCH EXCAVATION, PIPE JACKING PITS & TEST PITS

A. Furnish appropriate equipment and products (as approved by the Engineer) for treatment and disposal of trench dewatering wastewater.

B. Furnish materials and products required for safe and effective bracing and shoring of the trench excavation, pipe jacking pits and test pits.

2.02 WATER MAIN BEDDING

A. Use native sandy material if approved by Engineer. If unsuitable, comply with ConnDOT Form 816, Article M.03.01 - Item 1 (COARSE AGGREGATE).

2.03 DUCTILE IRON PIPE

A. Pipe for water mains shall be ductile iron, meeting all requirements of ANSI/AWWA CI51/A21.51.

1. Acceptable Manufacturers include:

a. U. S. Pipe Company

b. Griffin Pipe Company

c. Atlantic States CI Pipe Company

d. Clow Pipe Company

e. McWane Pipe Company

f. American CI Pipe Company

2. Pipe thickness shall meet all requirements of AWWA CI50/A21.50 - Class 52.

3. All piping shall be cement-lined (double-thickness) with seal coat inside and out in accordance with AWWA CI04/A21.4.

4. All pipe joints (unless otherwise specified on the plans or these specifications), shall be push-on joints. The push-on joint shall be the "Tyton" joint pipe, as manufactured by U.S. Pipe or equivalent.

5. Nitrile rubber gasket joints shall conform to AWWA C111/A21.11.

B. Use Dresser Style 38 or equivalent couplings for joining plain ends of cast iron or ductile iron pipes in non thrust- restraint zones.

2.04 DUCTILE IRON FITTINGS

A. Fittings for water mains shall be the ductile iron compact mechanical joint fittings, meeting all requirements of AWWA C153/A21.53.

B. Fittings shall have pressure rating at least 350 PSI, or an equivalent pressure rating to that of the pipe, whichever is greater.

C. All fittings shall be cement lined (double thickness), with seal coat inside and out, in accordance with AWWA CI04/A21.4

2.05 GATE VALVES (SMALLER THAN 12-INCH DIAMETER)

A. Use resilient seated, iron body, bronze mounted resilient wedge, "O-ring" seal, with mechanical joint ends and non-rising inside screw for underground valves, conforming to the requirements of AWWA C509.

1. Valves smaller than 12 inches shall be designed for a working pressure of 200 pounds per square inch.

2. Valves shall have a clear waterway equal to the full nominal diameter of the valve.

3. Valves shall open to the RIGHT (clockwise).

4. Provide stationary rods for all valves.

5. Acceptable manufacturers include:

a. Mueller A2362

b. Kennedy 8571 DI

c. US A-USPO-23

BUTTERFLY VALVES (12-INCH DIAMETER AND LARGER)

B. Use resilient seated, iron body, bronze mounted resilient wedge, "O-ring" seal, with mechanical joint ends and non-rising inside screw for underground valves, conforming to the requirements of AWWA C504.

1. Valves 12 inches and larger shall be designed for a working pressure of 200 pounds per square inch.

2. Valves shall have a clear waterway equal to the full nominal diameter of the valve.

3. Valves shall open to the RIGHT (clockwise).

4. Provide stationary rods for all valves.

5. Acceptable manufacturers include:

a. Mueller B3211

b. Pratt Groundhog

2.06 THRUST RESTRAINT

A. Primary Thrust Restraint - Ductile Iron Pipelines: Megalugs will be the primary and only form of thrust restraint. Concrete thrust blocks will only be used as ordered by the Engineer.

1. For restraint of mechanical joints at all ductile iron fittings and gate valves, use Megalug Series 1100 mechanical joint restraint by Ebaa Iron Co. or equivalent product. Mechanical joint restraint shall be capable of withstanding a sustained pressure of 150 PSI and intermittent pressure 300 PSI within the water mains.

2. For restraint of push-on joints within thrust-restraint zones, use Megalug Series 1700 joint restraint by Ebaa Iron Co., or equivalent products. Push-on joint restraint shall be capable of withstanding a sustained pressure of 150 PSI and intermittent pressure of 300 PSI within the water mains.

B. Concrete Thrust Restraint (All Pipelines> 2-inch Diameter)

1. Use pre-cast concrete thrust blocks of the size and shape indicated on the Contract Drawings to provide redundant thrust restraint at horizontal or vertical bends and tees. Precast concrete blocks shall comply with ConnDOT Form 816, Article M.08.02 - Item 2 "Concrete Building Brick for Catch Basins, Manholes, or Drop Inlets".

2. The Contractor, at his or her own discretion, may construct cast-in-place concrete thrust blocks in lieu of pre-cast blocks. In such cases, the Engineer must pre-approve the size, shape, and location of proposed redundant thrust blocks. Concrete for cast-in-place thrust blocks shall comply with ConnDOT Form 816, Article 6.01.02. Use Class F concrete.

2.07 PIPE JOINT PROTECTION

A. Use "Mueller Series 200 Bell Joint Repair Clamps" or equivalent, where indicated on the Contract Drawings or where directed by the Engineer, to protect pipe joints in close proximity to sanitary sewer manholes.

2.08 COPPER WATER PIPE AND COUPLINGS

A. Copper Water Mains: Use soft, annealed, seamless copper tubing, conforming to ASTM B88, Type K.

B. Couplings: Use appropriate, compression couplings conforming to ANSI Standard B16.26 to join lengths of new pipe and to join new pipe to existing, small-diameter water mains.

2.09 RIGID FOAM INSULATION

A. Use rigid foam insulation of the sizes and types indicated on the Contract Drawings or as directed by the Engineer to protect water mains from potential freezing conditions. Rigid foam insulation shall possess the following characteristics:

1. Rigid closed-cell, expanded polystyrene board.

2. 1.5-inch thick extruded board

3. Comply with FS-HH-I-524, Type II, Class B.

4. Compressive strength: 30 psi.

5. Water adsorption: 1.0 perm per inch maximum.

6. Thermal conductivity: (K-value at 75°F) - 0.2.

B. All insulation, jacketing, and related materials to be utilized in conjunction with this project shall conform to the Contract Drawings and Specifications and must be submitted to the Engineer for approval prior to use

2.10 UNDERGROUND WARNING TAPE

A. Underground warning tape shall be durable magnetic indicating tape, designed to withstand underground exposure, blue in color, and printed with an appropriate warning message.

2.11 DISINFECTION AND FLUSHING

A. Provide all tools, power, materials, and chemicals necessary to disinfect, test, flush, and de-chlorinate the water main and appurtenances, in conformance with AWWA Standards C600 and C651.

2.12 PRESSURE TESTING

Provide all tools, materials, test plugs, caps, pumps, pipe connections, water meter, pressure gauges, and other equipment required to perform pressure and leakage testing in conformance with AWWA Standard C600.

2.13 2-INCH BLOW-OFF ASSEMBLY / 2-INCH AIR VENT ASSEMBLY

A. Provide Wedge.

2.14 PIPE JACKING STEEL CASING, CASING SPACES, LOW STRENGTH FLOWABLE FILL

A. Steel Casing shall be 36" diameter and new with a certificate having a minimum yield strength of 35,000 psi conforming to the requirements of ASTM A139, Grade B. The minimum wall thickness of the steel casing pipe shall be 0.625 and sufficient to resist without buckling or crushing the anticipated vertical and horizontal loads applied during the installation process.

B. Casing Spacers shall be Ranger II Non-metallic manufactured by Pipeline Seal and Insulator, Inc. or equal.

C. Low Strength Flowable Fill shall be capable of being pumped to fill the annular space of the casing pipe.

PART 3 - EXECUTION

3.01 TRENCH EXCAVATION & TEST PITS

A. This item does not include rock-in-trench excavation.

B. Comply with ConnDOT Form 816, Article 2.05.03.

C. Clear and thin trees, brush, and shrubbery, as necessary to construct the work. Comply with ConnDOT Form 816, Article 9.52.03.

D. Stake out all construction items. Comply with ConnDOT Form 816, Article 9.80.03.

E. Remove and dispose of existing water mains and valves, miscellaneous pipes, other obstructions, and existing pavement, curbs, and walks, as necessary, to construct the work.

F. Design, install, maintain, operate and protect all pumping, bailing, draining, sheeting, shoring, and cofferdam facilities necessary to construct the work.

G. Remove, handle, protect, and reset hedges, small trees, shrubbery, signs, posts, guide rails, mail boxes, and other site improvements, as necessary to construct the work.

H. Brace utility poles in close proximity to the excavation, as necessary, to construct the work.

I. Wherever the water crosses existing buried utilities whose exact locations are unknown, test pits shall be excavated as shown on the plans or as directed by the Engineer, in advance of the water installation. Their depth and size shall be such as may be directed by the Engineer and the Contractor shall provide an as-built sketch to the Engineer. Test pits may be dug by the Contractor without being directed to do so along the lines of the trench in advance of the regular excavation for the purpose of satisfying himself as to the location of underground obstructions or conditions, but excavation and backfill of test pits will not be paid for unless authorized by the Engineer. In pavement, test pits shall be temporarily paved as specified under Section 02501 Temporary Trench Patch and protected from traffic as specified under Sections 02150 and 02157.

3.02 WATER MAIN BEDDING

A. Comply with ConnDOT Form 816, Article 6.51.03. Use Type II installation procedures.

1. Delete the dimensions referred to in Article 6.51.03 and replace with the dimensions shown on the Contract Drawings.

2. Delete references to "culverts' and replace with references to "water main pipe".

3.03 DUCTILE IRON PIPE

A. Comply with A WW A Standard C600.

B. Flush and disinfect all ductile iron pipes constructed under this Contract in accordance with requirements outlined elsewhere in this specification.

C. Conduct pressure and leakage tests on all ductile iron pipes constructed under this Contract in accordance with requirements outlined elsewhere in this specification.

D. Cut, cap, and restrain existing water mains where indicated on the Contract Drawings.

3.04 DUCTILE IRON FITTINGS

A. Comply with AWWA Standard C600

B. Restrain mechanical joints at all fittings as described elsewhere in this specification.

3.05 GATE VALVES (SMALLER THAN 12 INCHES), BUTTERFLY VALVES (12 INCHES AND LARGER)

A. Comply with AWWA Standards C600, C500-Appendix A, and C509 Appendix A.

B. Restraint mechanical joints at valves as described elsewhere in this specification

3.06 THRUST RESTRAINT

A. Primary Thrust Restraint - Ductile Iron Pipelines:

1. Install mechanical joint restraint on all ductile iron fittings and gate valves in strict compliance with manufacturer's instructions.

2. Install restraint harnesses on push-on joints within thrust-restraint zones In strict compliance with manufacturer's instructions.

B. Concrete Thrust Restraint (All Pipelines> 2-inch Diameter)

1. Use pre-cast concrete thrust blocks of the size and shape indicated on the Contract Drawings to provide redundant thrust restraint at horizontal or vertical bends and tees.

2. Place all thrust blocks firmly between the fitting and trench wall, in an alignment that coincides with the direction of thrust.

3. The Contractor, at his or her own discretion, may construct cast-in-place concrete

thrust blocks in lieu of pre-cast blocks. In such cases, the Engineer must pre-approve the size, shape, and location of proposed redundant thrust blocks. Concrete for cast- in-place thrust blocks shall comply with ConnDOT Form 816, Article 6.01.02. Use Class F concrete.

3.07 PIPE JOINT PROTECTION

A. Furnish and install bell joint repair clamps where indicated on the Contract Drawings or directed by the Engineer.

B. Install bell joint repair clamps in strict compliance with manufacturer's instructions.

3.08 COPPER WATER PIPE AND COUPLINGS

A. Comply with A WWA Standard C600.

B. Flush and disinfect all copper water pipes constructed under this Contract in accordance with requirements outlined elsewhere in this specification.

C. Conduct pressure and leakage tests on all copper water pipes constructed under this Contract in accordance with requirements outlined elsewhere in this specification.

3.09 RIGID FOAM INSULATION

A. Furnish and install rigid foam insulation in the locations and orientations depicted on the Contract Drawings, and in other locations as directed by the Engineer.

B. Contact the Engineer immediately for insulation instructions if field conditions warrant sub standard cover.

3.10 UNDERGROUND WARNING TAPE

A. Furnish and install continuous underground warning tape at the depth indicated in the Contract Drawings. Center the warning tape above new water mains. Departure from true centerline of water main shall not exceed six inches.

3.11 DISINFECTION AND FLUSHING

A. Disinfect all new water mains and appurtenances completed under this Contract. Comply with AWWA Standard C600 and C651.

B. Thoroughly flush all pipelines prior to the disinfection process.

C. Install a double check-valve between the test-water source and the new water distribution system. Provide other safety measures as may be required.

D. Following the disinfection process, thoroughly flush all pipelines before sampling for tests.

E. Following the flushing process, retrieve and convey test samples to a CT -certified water testing laboratory. Test for total coliform (TC) and heterotrophic plate count (HPC). To pass, test results must reveal TC = 0 and HPC = O.

F. Following the flushing process, retrieve and convey additional test samples to a CT-certified water testing laboratory. Test for physical parameters (color, turbidity, pH and odor) and VOCs (use EPA Method 802lB). To pass, test results must meet DPH "Public Drinking Water Quality Standard".

G. If, the Owner and/or Engineer determine that the disinfection process failed, repeat the entire disinfection process to the satisfaction of the Owner, at no cost to the Owner, and without extension of time for completion of the work.

H. Dispose of all chlorinated test water in accordance with local, state, and federal regulations (which may require de-chlorination). Obtain all required discharge permits prior to start of the disinfection process.

3.13 PRESSURE AND LEAKAGE TESTING

A. Conduct pressure and leakage testing on all new water mains and appurtenances completed under this contract. Comply with A WW A Standard C600.

B. If hydrants or blow-off's are not available for releasing air, excavate at high points, tap the main, and install a plug for air release. Install plug and backfill the excavation following successful completion of the test.

C. If the section shall fail to pass the pressure and leakage test, locate, uncover, retest and repair or replace the defective pipe, fitting or joint, all at no cost to the Owner and without extension of time for completion of the work. Make additional tests and repairs until the section passes the specified tests.

D. The Owner will provide at no charge to the Contractor, the necessary water for this initial pressure and leakage tests. If this initial test fails, the Owner will charge the Contractor for all subsequent required water.

3.14 PIPE JACKING STEEL CASING, CASING SPACES, LOW STRENGTH FLOWABLE FILL, PIPE JACKING OBSTRUCTION REMOVAL

A. Excavate for the entry and receiving pits as shown on the drawings unless a written request is submitted prior to installation and agreed to by the engineer. Sheet piling or standard trench boxes may be used for the entry and receiving pits.

B. Steel Casing pipe shall be square cut and joint ends beveled for field welding. All pipes must be welded and may not be a form of interlocking pipe. Casing shall be installed at the

location called for on the drawings.

C. Installation of 16" ductile iron waterline and spaces with joint restraints.

D. Filling of casing pipe annulus with the low strength flowable fill.

E. The contractor or subcontractor shall be responsible for the safety of the jack and bore operations and all persons engaged in the process.

F. Location of the work site shall conform to all appropriate traffic measures set forward by the Connecticut Department of Transportation

G. Water jetting is not permitted unless internal obstructions are encountered after a boring method is attempted.

H. An obstruction that prohibits the forward progress of the auger shall be evaluated by the engineer or engineer's inspector to determine the type of material and the best course of action for removal.

PART 4 - MEASUREMENT AND PAYMENT

4.01 DUCTILE IRON PIPE

A. Measurement: The various products and services described in Parts I, 2, and 3 of this specification, as they relate to the installation of ductile iron water mains, will not be measured individually for payment. However, the cost of all these items (including thrust restraint, where required) shall be included in the contract unit prices for "Ductile Iron Pipe"(of various sizes). This item will be measured by the actual number of linear feet of "Ductile Iron Pipe" (of various sizes) completed by the Contractor and accepted by the Owner. The Owner will measure all new "Ductile Iron Pipes" to the nearest foot. Measurements shall extend from the centerline of the beginning intersecting pipeline, through (and including) all fittings and valves, to the centerline of the terminal intersecting water main or to the terminus of dead-end branches.

B. Payment: This item shall be paid for at the contract unit price per linear foot of "Ductile Iron Water Main" (of various sizes). The Owner will compensate the Contractor at 75% of the contract unit price upon the completion of pipeline construction (including all bedding, thrust restraint, and backfill). The Owner will compensate the remaining 25% of the contract unit price upon satisfactory completion of the disinfection and pressure and leakage testing processes. The Engineer shall retain the sole authority in determining whether test results comply with the intent of the Contract Documents.

4.02 DUCTILE IRON FITTINGS:

A. Measurement: The various products and services described in Parts 1, 2, and 3 of this

specification, as they relate to the installation of ductile iron water tees, bends, reducers, solid sleeves, end-caps, and other fittings will not be measured individually for payment. However, the cost of all these items shall be included in the contract unit price for each tee, bend, reducer, end cap, or other fitting. These items will be measured by the actual number of "Tees", "Bends", "Reducers", "Solid Sleeve", "End Caps", and other fittings (of various sizes and including thrust restraint) completed by the Contractor and accepted by the Owner.

B. Payment: This item shall be paid for at the contract unit price for each "Tee", "Bend", "Reducer", "Solid Sleeve", "End Cap", or other fitting (of various sizes). The contract unit price shall include all required thrust restraint.

4.03 GATE VALVES/BUTTERFLY VALVES

A. Measurement: The various products and services described in Parts 1, 2, and 3 of this specification, as they relate to the installation of gate valves or butterfly valves will not be measured individually for payment. However, the cost of all these items shall be included in the contract unit price for each gate valve or butterfly valve. These items will be measured by the actual number of valves (of various sizes and including thrust restraint) installed by the Contractor and accepted by the Owner.

B. Payment: This item shall be paid for at the contract unit price for each valve (of various sizes). The contract unit price shall include required mechanical joint thrust restraint at each valve.

4.04 PIPE JOINT PROTECTION

A. Measurement: Bell joint repair clamps will be measured for payment by the actual number of clamps (of various sizes) installed by the Contractor and accepted by the Owner.

B. Pavement: Bell joint repair clamps will be paid for at the Contract Unit Price for each bell joint repair clamp (of various sizes).

4.05 COPPER WATER PIPE AND COUPLINGS

A. Measurement: The various products and services described in Parts 1, 2, and 3 of this specification will not be measured individually for payment. However, the cost of all these items (including couplings) shall be included in the contract unit price for "Copper Water Main". This item will be measured by the actual number of linear feet of "Copper Water Main and Fittings" (of various sizes) completed by the Contractor and accepted by the Owner. The Owner will measure all new "Copper Water Mains" to the nearest foot. Measurements shall extend from the centerline of the beginning intersecting pipeline, through (and including) all couplings and valves, to the centerline of the terminal intersecting water main or to the terminus of dead-end branches.

B. Payment: This item shall be paid for at the contract unit price per linear foot of "Ductile Iron Water Main" (of various sizes). The Owner will compensate the Contractor at 75% of the

contract unit price upon the completion of pipeline construction (including all bedding, thrust restraint, and backfill). The Owner will compensate the remaining 25% of the contract unit price upon satisfactory completion of the disinfection and pressure and leakage testing processes. The Engineer shall retain the sole authority in determining whether test results comply with the intent of the Contract Documents.

4.06 RIGID FOAM INSULATION

A. Measurement: The various products and services described in Parts I, 2, and 3 of this specification, as they relate to the installation of rigid foam insulation will not be measured individually for payment. However, the cost of all these items shall be included in the contract unit price for each linear foot of water main, hydrant branch, or service line insulated (in the manner depicted in the Contract Drawings) by the Contractor and accepted by the Owner.

B. Payment: This item shall be paid for at the contract unit price.

4.07 TEST PITS

A. Measurement: The various products and services described in Parts 1, 2, and 3 of this specification, as they relate to test pits will not be measured individually for payment. However, the cost of all these items shall be included in the contract unit price for each Test Pit, Flagmen and Temporary Trench Patch. These items will be measured by the actual number of Test Pits conducted by the Contractor, hours for Flagmen and square yards of Temporary Trench Patch and accepted by the Owner.

B. Payment: This item shall be paid for at the contract unit price for each Test Pit, hours for Flagmen and square yards of Temporary Trench Patch.

4.08 PIPE JACKING & AUGER BORING INCLUDING THE 40 LINEAL FEET OF WATER MAIN

A. Measurement: The various products and services described in Parts 1, 2, and 3 of this specification, as they relate to pipe jacking and auger boring will not be measured individually for payment. However, the cost of all these items shall be included in the contract unit price for the pipe jacking and auger boring. These items will be measured by the lump sum and accepted by the Owner.

B. Payment: This item shall be paid for at the lump sum contract unit price.

4.09 PIPE JACKING OBSTRUCTION REMOVAL

A. Measurement: The various products and services described in Parts 1, 2, and 3 of this specification, as they relate to pipe jacking obstruction removal will not be measured individually for payment. However, the cost of all these items shall be included in the contract unit price for the pipe jacking obstruction removal. These items will be measured

by the hour and accepted by the Owner.

B. Payment: This item shall be paid for at the hourly contract unit price.

4.09 REFERENCE TABLE

Pay Item	**Pay Unit**
Ductile Iron Pipe-12" Dia.	LF
Tee-12" x 12"	EA
Bend-12" x 11.25°	EA
Bend-12" x 22.5°	EA
Bend-12" x 45°	EA
End Plug-12" Dia.	EA
Butterfly Valve-12" Dia.	EA
Manual Air Relief Valve – 2"	EA
Blow-off Assembly – 2"	EA
Pipe Bedding Material	CY
Test Pits	EA
Pipe Jacking (Includes 40 l.f. of 16" Water Main)	LS
Pipe Jacking Obstruction Removal	HR

END OF SECTION

HYDRANT ASSEMBLIES

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The scope of work under this item shall include the following items:

B. Selective clearing and thinning of trees, brush, shrubbery, etc. Comply with ConnDOT Form 816, Article 9.52.01.

C. Construction staking of all construction work in this Contract. Comply with ConnDOT Form 816, Article 9.80.01.

D. Trench excavation and backfill, excluding rock-in-trench excavation, but including removal of existing water mains and valves, miscellaneous pipes and other obstructions, existing pavement, curbs, and walks, etc. Comply with ConnDOT Form 816, Article 2.05.01.

E. Design, installation, maintenance, operation, and protection of all pumping, bailing, draining, sheeting, shoring, and coffer damming facilities necessary to successfully construct the work.

F. The removal, handling, protection, and resetting of hedges, small trees, shrubbery, signs, posts, guide rails, mail boxes, and the like.

G. The bracing of utility poles in close proximity to the excavation.

H. Furnish and install water main pipe bedding. Use native sandy material if approved by Engineer. If unsuitable use ConnDOT Form 816, Article M.03.01 - Item 1 (COARSE AGGREGATE).

I. Furnish and install new fire hydrants tees 12" X 6" OR Alternate A (16" x 6"), gate valves, restrained joints, appurtenant piping, magnetic indicating tape, and all other related fittings and work.

J. Provide combined pressure and leakage tests on the new hydrant assemblies. J. Disinfect the new hydrant assemblies.

1.02 RELATED DOCUMENTS

A. ANSI / AWWA Standards, latest edition, including all revisions and addenda.

B. ConnDOT Form 816.

1.03 SUBMITTALS

A. Design and submit a trench dewatering plan, outlining the methods and procedures that the Contractor will employ to successfully dewater trenches and dispose of the dewatering

wastewater. Prepare and submit shop drawings for trench dewatering system components.

B. Provide gradation test from a certified material-testing laboratory for bedding material.

C. Provide gradation test from a certified material-testing laboratory for drainage aggregate.

D. Provide manufacturer's standard drawings and/or catalog cuts for new piping, gate valves, mechanically-restrained joints, tees, and other related fittings.

1.04 PROJECT / SITE CONDITIONS

A. Coordinate the trench dewatering plan with the requirements outlined in the project's Erosion and Sediment Control Measure and in any conditions set forth in the project' s land-use permits.

1.05 SEQUENCING

A. Coordinate sequencing of work with the Inspector.

B. Coordinate final station, offset, and orientation for each hydrant with the Owner and/or local fire department.

PART 2 - PRODUCTS

2.01 HYDRANT ASSEMBLY

A. Trench Excavation

1. Furnish appropriate equipment and products (as approved by the Engineer) for treatment and disposal of trench dewatering wastewater.

2. Furnish materials and products required for safe and effective bracing and shoring of the trench excavation.

B. Pipe Bedding Material: Use native sandy material if approved by Engineer. If unsuitable, Comply with ConnDOT Form 816, Article M.03.01 - Item 1 – COARSE AGGREGATE

C. Ductile Iron Pipe

1. Pipe for water mains shall be ductile iron, meeting all requirements of ANSI/AWWA C151/A21.51. Acceptable Manufacturers include:

a. U. S. Pipe Company

b. Griffin Pipe Company

c. Atlantic States CI Pipe Company

d. Clow Pipe Company

e. McWane Pipe Company

f. American CI Pipe Company

2. Pipe thickness shall meet all requirements of AWWA CI50/A21.50- Class 52.

3. All piping shall be double-thickness cement-lined with seal coat inside and out in accordance with AWWA CI04/A21.4.

4. All piping in the vicinity of petroleum contaminated soil shall be encased in polyethylene plastic, as per AWWA CI05/A21.5.

5. Rubber gasket joints shall conform to AWWA C111/ A21.11.

6. Use mechanical joints with approved retainer-gland thrust restraint, employing a single rubber gasket, to effect a watertight seal

7. Couplings used in connecting two plain ends of cast or ductile iron pipe shall be of ductile iron with eight (8) bolts and nuts complying with AWWA C111 Couplings shall be Dresser Style 38 or equivalent.

8. Mechanical joint restraints shall be installed at all mechanical joint connections and shall be equal to "MEGALUGS" by EBAA Iron.

9. Underground warning tape shall be durable magnetic indicating tape, designed to withstand underground exposure, blue in color, and printed with an appropriate warning message.

D. Fittings

1. Fittings for hydrant assemblies shall be the ductile iron compact fittings, meeting all requirements of AWWA C153/A21.53. Fittings shall have pressure rating at least 350 psi., equivalent to that of the pipe. All fittings shall be double thickness, cement lined with seal coat inside and out, in accordance with AWWA CI04/A21.4.

E. Gate Valves

1. Use resilient seated, iron body, bronze-mounted resilient wedge, "O-ring" seal, with mechanical joint ends and non-rising inside screw for underground valves, conforming to the requirements of AWWA C509. Valves shall be designed for a working pressure of 200 pounds per square inch. Valves shall have a clear waterway equal to the full nominal diameter of the valve. Valves shall open right. Acceptable manufacturers

include:

a. Mueller A2362

b. Kennedy 8571 DI

c. US A-USPO-23

F. Fire Hydrants

1. Comply with A WW A Standard C502.

2. Rated working pressure shall be 200 lbs.

3. Fittings shall be mechanical joints with retaining glands.

4. Acceptable manufacturer and model: Kennedy K81D.

5. Town of Brookfield hydrant specifications:

   a. Use 5.25-inchmain-valve opening

   b. Hydrant valves shall open to the left.

   c. Use a six-inch mechanical joint shoe with retaining gland and rubber gasket.

   d. Provide five feet of cover (minimum).

   e. Use traffic-sectioned model

   f. Provide a National Standard, five-sided 1.5" operating nut.

   g. Provide two 2.5-inch nozzles, National Standard fire-hose threads, including caps with chains.

   h. Provide one 4.5-inch steamer connection, National Standard fire-hose threads, including cap with chain

   i. Color: Red. Use 2 brush coats of paint designed for hydrant coating.

   j. Use an anchoring tee for hydrant branch.

   k. Provide one gate valve for each hydrant. Locate valve on the hydrant branch.

   l. Provide a hydrant drain, as shown on the Contract Drawings.

   m. Provide one field repair kit for each hydrant

G. Drainage Aggregate

1. Comply with ConnDOT Form 816, Article M.01. Use No.6 stone.

H. Concrete for Thrust Blocks

1. Comply with ConnDOT Form 816, Article 6.01.02. Use Class F concrete.

I. Pressure and Leakage Testing

1. Provide all tools, materials, test plugs, caps, pumps, pipe connections, water meter, pressure gauges, and other equipment required to perform pressure and leakage testing in conformance with AWWA Standard C600.

J. Disinfection

1. Provide all tools, power, materials, and chemicals necessary to disinfect the new water main and appurtenances, in conformance with AWWA Standards C600 and C651.

PART 3 - EXECUTION

3.01 HYDRANT ASSEMBLY

A. Trench Excavation

1. This item does not include rock-in-trench excavation.

2. Comply with ConnDOT Form 816, Article 2.05.03.

3. Clear and thin trees, brush, and shrubbery, as necessary to construct the work. Comply with ConnDOT Form 816, Article 9.52.03.

4. Stake out new hydrants. Comply with ConnDOT Form 816, Article 9.80.03.

5. Remove existing water mains and valves, miscellaneous pipes, other obstructions, and existing pavement, curbs, and walks, as necessary, to construct the work.

6. Design, install, maintain, operate and protect all pumping, bailing, draining, sheeting, shoring, and coffer damming facilities necessary to construct the work.

7. Remove, handle, protect, and reset hedges, small trees, shrubbery, signs, posts, guide rails, mail boxes, and other site improvements, as necessary to construct the work.

8. Brace utility poles in close proximity to the excavation, as necessary, to construct the work.

B. Pipe Bedding: Comply with ConnDOT Form 816, Article 6.51.03. Use Type II Installation. Delete the dimensions referred to in Paragraph 6.51. 03 and replace with the dimensions shown on the Contract Drawings. Delete references to "culverts' and replace with references to "water main pipe".

C. Ductile Iron Pipe and Fittings:

1. Comply with AWWA Standard C600.

2. Install restrained joints at all tees, bends, reducers, end caps, and hydrant tees as specified herein or as shown on the Contract Drawings. Install restrained joints in strict compliance with the manufacturer's instructions.

3. Construct cast-in-place concrete thrust blocks where indicated on the Contract Drawings. Comply with ConnDOT Form 816, Article 6.01.03.

4. Insulate, if necessary, as required on the Contract Drawings.

5. Pressure and leakage testing:

   a. Comply with AWWA Standard C600

   b. Test pipes prior to placement of concrete encasements and backfilling operations.

   c. If hydrants or blow-offs are not available for releasing air, excavate at high points, tap the main, and install a plug for air release. Install plug and backfill the excavation following successful completion of the test.

   d. If the section shall fail to pass and/or the leakage test, locate, uncover, retest and repair or replace the defective pipe, fitting or joint, all at no cost to the Owner and without extension of time for completion of the work. Make additional tests and repairs until the section passes the specified tests.

   e. The Owner will provide at no charge to the Contractor, the necessary water for this initial pressure and leakage tests. If this initial test fails, the Owner will charge the Contractor for all subsequent required water.

6. Disinfection:

   a. Comply with AWWA Standard C600 and C651.

   b. Install a double check-valve between the test-water source and the new water distribution system. Provide other safety measures as may be required.

   c. Disinfect all new water mains and appurtenances installed under this Contract.

d. If, the Owner and/or Engineer determine that the disinfection process failed, repeat the entire disinfection process to the satisfaction of the Owner, at no cost to the Owner and without extension of time for completion of the work.

e. Dispose of all chlorinated test water in accordance with local, state, and federal regulations (which may require de-chlorination). Obtain all required discharge permits prior to start of the disinfection process.

D. Gate Valves: Comply with AWWA Standards C600, C500-Appendix A, and C509 Appendix A.

E. Hydrants:

1. Comply with AWWA Standard C600 and AWWA Manual M17.

2. Install stone drainage pockets, concrete collars, supports, and thrust restraints as shown in the Contract Drawings.

3. Coordinate the station, offset, and orientation of each hydrant with the Owner.

PART 4 - METHOD OF MEASUREMENT

4.01 HYDRANT ASSEMBLY

A. The various products and services described in Parts I, 2, and 3 of this specification will not be measured individually for payment. However, the cost of all these items shall be included in the contract unit price for "Hydrant Assembly". This item will be measured by the actual number of "Hydrant Assemblies" completed by the Contractor and accepted by the Owner.

PART 5 - BASIS OF PAYMENT

5.01 HYDRANT ASSEMBLY

A. This item shall be paid for at the contract unit price for each "Hydrant Assembly" completed by the Contractor and accepted by the Owner.

Pay Item	Pay Unit
Hydrant Assembly	EA

END OF SECTION

ALL MATERIAL MUST BE MANUFACTURED IN THE USA OR CANADA PER ARRA OF 2009

UPDATED BY THE AQUARION WATER COMPANY - JANAURY 1, 2010

DUCTILE IRON PIPE CL52 PUSHON TAR COATED DOUBLE CEMENT LINED (with gaskets, lube & bronze wedges)
Approved Manufacturers:
Atlantic States CI Pipe Company
American CI Pipe Company - ACIPCO
Griffin Pipe Company
U.S. Pipe Company
Clow Pipe Company
McWane Pipe Company

GATE VALVES MJ AWWA C-509 FULL BODY DUCTILE IRON (less accessories)
Approved Manufacturers:
Mueller A2362
US A-USPO-23
Kennedy 8571 DI

BUTTERFLY VALVES MJ B150 AWWA C504 EXPOXY INSIDE & OUT (less accessories)
Approved Manufacturers:
Mueller B3211
Pratt Groundhog

VALVE BOXES 2PC SLIP TYPE WITH TOP FLANGE
Approved Manufacturers:
Tyler 6855
Bibby V675

MJ C-153 or C-110 DUCTILE IRON FITTINGS (less accessories)
Approved Manufacturers:
Tyler C-153/C-110
ACIPCO C-153/C-110

SERVICE BOX #1 ERIE WITH ROD
Approved Manufacturers:
Mueller Erie H10314
Ford Erie EA1
McDonald Erie 5601

MJ RESTRAINT:
Approved Manufacturers:
EBAA Iron Series 1100 Megalug

PUSH-ON RESTRAINT:
Manufacturer: EBAA Iron Series 1700

PUSH-ON FIELD LOK GASKETS:
Approved Manufacturers:
U.S. Field Lok
McWane Field Lok

MJ ACCESSORY SETS (less glands)
Approved Manufacturers:
Tyler
ACIPCO
EBAA

TAPPING SLEEVE SS PE
Approved Manufacturers:
Powerseal 3490MJ
Smith Blair 665MJ
Mueller H304MJ

TAPPING SLEEVES EXPOXY COATED FLANGED:
Approved Manufacturers:
Powerseal 3460
Smith Blair 622

TAPPING VALVES AWWA C-509 DUCTILE IRON FULL BODY (less accessories)
Approved Manufacturers:
Mueller T2362
Kennedy 8950 DI

REPAIR CLAMPS:
Approved Manufacturers:
Smith Blair 226/238
Ford F1 (CC4)
Mueller 500/504
Powerseal 3121/3412AS

REPAIR COUPLINGS:
Approved Manufacturers:
Smith Blair 441 Omni
Ford FC2A
Powerseal 3501

SERVICE SADDLES:
Approved Manufacturers:
Smith Blair 313
Ford F202
Mueller DR2A
Powerseal 3413

FIRE HYDRANTS ULFM - CONNECTICUT
Approved Manufacturer for Connecticut:
Kennedy K81D 5-1/4 VO

HYDRANT EXTENSIONS & KITS:
Approved Manufacturer for Connecticut:
Kennedy K8150 - K8149
OEM only

FIRE HYDRANTS ULFM - MASSACHUSETTS & NEW HAMPSHIRE
Approved Manufactuer for Massachusetts & New Hampshire
Mueller A423 Super Centurion 5-1/4 VO

HYDRANT EXTENSIONS & KITS:
Approved Manufactuer:
Mueller A320 - A321
OEM only

SERVICE BRASS:
Approved Manufacturers:
Mueller 110 Compression
Ford Quick Joint Compression

PUSH-ON RESTRAINED TAP PLUGS C-110:
Approved Manufacturers:
Tyler
ACIPCO

BLOWOFF ASSEMBLY & AIR VENT:
Approved Manufactuers:
Wedge
Aquarion Water

METER PITS:
Approved Manufactuers:
Ford
Mueller

BELL JOINT LEAK CLAMPS:
Approved Manufacturers:
Smith Blair 274
Ford FBC
Powerseal 3232

TRANSISION COUPLINGS - LARGE DIAMETER
Approved Manufacturers:
Smith Blair 441-411-413
Ford FC2A
Powerseal 3501