



PROVIDENCE WATER SUPPLY BOARD

WATER MAIN REHABILITATION PROGRAM Replacement/Rehabilitation of Water Mains and Appurtenances within the Providence Water Supply Board's Distribution System

CONTRACT 1-20 (PW Project No. 20201) – BLACKSTONE & CONTRACT 2-20 (PW Project No. 20202) – AUBURN & CONTRACT 3-20 (PW Project No. 20203) – CHARLES

ADDENDUM NO. 2

The following changes, revisions and/or supplemental information, as applicable, are hereby issued as Addendum No. 2 in connection with the Contract Documents (Specifications) issued for the above-referenced projects.

1. Questions regarding the Contract Specifications are to be directed in writing to both Mr. Roger Biron and Mr. Norman Ripstein, by email at rogerb@provwater.com and normanr@provwater.com. All inquiries must be submitted in writing and transmitted via e-mail.
 - a. For **Contracts 1-20, Blackstone and 2-20, Auburn**, the deadline for inquiries and questions from the Contractors is **Wednesday, December 18, 2019**, and Addenda will be issued no later than **Monday, December 23, 2019**. The December 23rd Addenda will contain the Prebid Conference Meeting Minutes.
 - b. For **Contract 3-20, Charles**, the deadline for inquiries and questions from the Contractors is **Monday, January 13, 2020**, and Addenda will be issued no later than **Friday, January 17, 2020**.
2. Please note, the following documents are attached for record and inclusion in the Contract Documents:
 - a. Prebid Conference Agenda (WMR 1-20, 2-20, & 3-20)
 - i. PWSB 1-20 WMR Program Overview Map – Blackstone Area - One (1) Color GIS Plan
 - ii. PWSB 2-20 WMR Program Overview Map – Auburn Area - One (1) Color GIS Plan
 - iii. PWSB 3-20 WMR Program Overview Map – Charles Area - One (1) Color GIS Plan
 - b. Prebid Conference Attendees list, 12-11-2019
 - c. RIIB - 2020 Loan Disbursement Schedule
3. Replace in its entirety “Cover-Sheet-(Contract-1-20)” with the attached replacement section, as noted with ADDENDUM NO. 2.
4. Replace in its entirety “Cover-Sheet-(Contract-2-20)” with the attached replacement section, as noted with ADDENDUM NO. 2.
5. Replace in its entirety “Cover-Sheet-(Contract-3-20)” with the attached replacement section, as



PROVIDENCE WATER SUPPLY BOARD

WATER MAIN REHABILITATION PROGRAM Replacement/Rehabilitation of Water Mains and Appurtenances within the Providence Water Supply Board's Distribution System

noted with ADDENDUM NO. 2.

6. Replace page 00100-2 in "00100---Invitation to Bid (Contract-3-20)" with the attached replacement Section, as noted with ADDENDUM NO. 2.
7. Replace pages 00410-16 and 00410-26 in "Section 00410---Bid-Form (Cleaning & Lining) (Contract 1-20)" with the attached replacement section, as noted with ADDENDUM NO. 2.
8. Replace pages 00410-16 and 00410-26 in "Section 00410---Bid-Form (Cleaning & Lining) (Contract 2-20)" with the attached replacement section, as noted with ADDENDUM NO. 2.
9. Replace pages 00410-8, 00410-9, 00410-10, 00410-16, 00410-19, and 00410-26 in "Section 00410---Bid-Form (CI Replacement) (Contract 3-20)" with the attached replacement section, as noted with ADDENDUM NO. 2.
10. Replace pages 01150-13 and 01150-32 in "Section 01150---Measurement & Payment" with the attached replacement section, as noted with ADDENDUM NO. 2.
11. Replace pages in its entirety "Section 05000---Utility Piping" with the attached replacement section, as noted with ADDENDUM NO. 2.
12. Replace in its entirety "Appendix-A---Contract 1-20 Drawings" with the attached replacement section, as noted with ADDENDUM NO. 2.
13. Replace in its entirety "Appendix-A---Contract 2-20 Drawings" with the attached replacement section, as noted with ADDENDUM NO. 2.
14. Replace in its entirety "Appendix-A---Contract 3-20 Drawings" with the attached replacement section, as noted with ADDENDUM NO. 2.
15. Replace in its entirety "Appendix-F---EPA Regulations - Debarment and Suspension" with the attached replacement section, as noted with ADDENDUM NO. 2.

Should you have any questions, please do not hesitate to contact either Norm Ripstein at 401-521-6300 ext. 7212 or Roger Biron at ext. 7285.

Respectfully,

PROVIDENCE WATER SUPPLY BOARD



PROVIDENCE WATER SUPPLY BOARD

WATER MAIN REHABILITATION PROGRAM Replacement/Rehabilitation of Water Mains and Appurtenances within the Providence Water Supply Board's Distribution System

Attachments:

1. Prebid Conference Agenda (WMR 1-20, 2-20, & 3-20) ADDENDUM NO. 2
2. Prebid Conference Attendees list, 12-11-2019 ADDENDUM NO. 2
3. RIIB - 2020 Loan Disbursement Schedule ADDENDUM NO. 2
4. Cover-Sheet-(Contract-1-20) ADDENDUM NO. 2
5. Cover-Sheet-(Contract-2-20) ADDENDUM NO. 2
6. Cover-Sheet-(Contract-3-20) ADDENDUM NO. 2
7. Page 2, 00100---Invitation to Bid (Contract-3-20) - ADDENDUM NO. 2
8. Pages 16 and 26, 00410---Bid-Form (Cleaning & Lining) (Contract 1-20) - ADDENDUM NO. 2
9. Pages 16 and 26, 00410---Bid-Form (Cleaning & Lining) (Contract 2-20) - ADDENDUM NO. 2
10. Pages 8, 9, 10, 16, 19, and 26, 00410---Bid-Form (CI Replacement) (Contract 3-20) - ADDENDUM NO. 2
11. Pages 13 and 32, 01150---Measurement & Payment ADDENDUM NO. 2.
12. 05000---Utility Piping - ADDENDUM NO. 2
13. Appendix-A---Contract 1-20 Drawings ADDENDUM NO. 2
14. Appendix-A---Contract 2-20 Drawings ADDENDUM NO. 2
15. Appendix-A---Contract 3-20 Drawings ADDENDUM NO. 2
16. Appendix-F---EPA Regulations - Debarment and Suspension ADDENDUM NO. 2



PROVIDENCE WATER SUPPLY BOARD
2020 CONTRACTS
FOR
REPAIRS, REPLACEMENT, AND REHABILITATION
OF WATER MAINS AND APPURTENANCES
WITHIN THE PROVIDENCE WATER SUPPLY BOARD'S DISTRIBUTION SYSTEM

PRE-BID CONFERENCE MEETING AGENDA

Date: December 11, 2019 Time: 9:30 AM
Location: Providence Water Central Operations Facility
125 Dupont Drive, Providence, RI

A. General Note:

It is expressly understood by all attendees that if there are any inadvertent conflicts in this Pre-Bid Conference with the project Drawings and Specifications, that the Drawings and Specifications and any issued Addenda shall govern.

B. Opening Remarks:

1. This is the Pre-Bid Conference for Providence Water's 2020 Contract's:
 - a. **CONTRACT 1-20** REPLACEMENT / REHABILITATION OF WATER MAINS AND APPURTENANCES WITHIN THE PROVIDENCE WATER SUPPLY BOARD'S DISTRIBUTION SYSTEM
 - (PW Project No. 20201)
 - **Blackstone Area**, Providence, RI
 - Rehabilitation method – **Cleaning and Lining**
 - b. **CONTRACT 2-20** REPLACEMENT / REHABILITATION OF WATER MAINS AND APPURTENANCES WITHIN THE PROVIDENCE WATER SUPPLY BOARD'S DISTRIBUTION SYSTEM
 - (PW Project No. 20202)
 - **Auburn Area**, Cranston, RI
 - Rehabilitation method – **Cleaning and Lining**
 - c. **CONTRACT 3-20** REPLACEMENT / REHABILITATION OF WATER MAINS AND APPURTENANCES WITHIN THE PROVIDENCE WATER SUPPLY BOARD'S DISTRIBUTION SYSTEM
 - (PW Project No. 20203)



- **Charles Area**, Providence, RI
 - Rehabilitation method – **Water Main Replacement**
2. Bidders are advised that the **contract documents are not available online** and must be obtained at City Hall, as follows:
- Patricia Jordan
Purchasing Dept. Room 408
Providence City Hall
25 Dorrance St
Providence, RI 02903
pjordan@providenceri.gov
401-680-5264
3. Bids will be received by the Department of the City Clerk, City Hall, Providence, Rhode Island, until 2:00 P.M., on **Monday, January 6, 2020 (Contract 2-20), Tuesday, January 21, 2020 (Contract 1-20), and Monday, February 3, 2020 (Contract 3-20)**. At 2:15 PM, the Bids will be publicly opened and read aloud in the City Council Chambers on the Third Floor of City Hall.
4. Project Schedule: Reference is made to Section 00100, Invitation to Bid, of the Contract Specifications, regarding the intent to award separate one (1) year contracts for **CONTRACT 1-20** and **CONTRACT 2-20**; and to award a two (2) year contract for **CONTRACT 3-20**.
- Bidders are not restricted from bidding on multiple contracts and may bid on all of the 2020 contracts if they so choose.
 - All water main and service related work, including **full depth temporary asphalt restoration of street excavations and permanent restoration of street excavations at intersections, sidewalks and grassy areas**, shall be completed during the 2020 construction season. All excavations opened within a construction season must have restoration completed before the winter closeout of that construction season, and/or as directed by Providence Water.
 - **Per Providence Water policy and per the contract specifications, all temporary by-pass must be removed prior to the winter closeout date of November 15th.**
5. **CONTRACT 1-20, CONTRACT 2-20, and CONTRACT 3-20** will be funded through the RIDOH Drinking Water State Revolving Loan Fund.

Therefore, the following requirements apply:



- **10.20% DBE (MBE/WBE) Goal**
 - **Prevailing Wages Rates: Davis Bacon Act**
 - **American Iron and Steel Provisions**
6. The projects are subject to **MBE/WBE participation** by the City of Providence Minority Compliance Office. The City of Providence requires **20%** of the construction cost to be utilized for MBE/WBE companies (10% for each). The State of Rhode Island requires 10.2% DBE utilization. **The City of Providence 20% utilization rate shall govern.** All required MBE/WBE forms, which shall serve as the intended MBE/WBE Minority Compliance Plan for this contract, shall be completed and submitted with the Contractor's Bid ("Spec Section 00470 - Bidder Info. (MBE WBE Participation)"). Providence Water recommends that Contractors periodically contact the MBE/WBE Office and maintain records documenting their efforts to obtain and retain MBE/WBE Subcontractors for select work under these contracts.
 7. It is the responsibility of all potential bidders to make sure they have received all **Addenda** prior to bidding.
 8. Questions regarding the Contract Specifications are to be directed in writing to both Mr. Roger Biron and Mr. Norman Ripstein, by email at rogerb@provwater.com and normanr@provwater.com. **Addenda** will be issued to include the proceedings of this Pre-Bid Conference, all questions received by specified deadlines, and will address any changes or clarifications made during the bidding period. All inquiries must be submitted in writing and transmitted via e-mail. The deadline for inquiries and questions from the Contractors is **Wednesday, December 18, 2019**, and Addenda will be issued no later than **Monday, December 23, 2019**.
 9. The Attendees List and Minutes/Meeting Report for this Pre-Bid Conference will be sent via e-mail to all meeting attendees, and vendors who have taken out the contract documents from Providence City Hall, and will be issued in an addendum.
 10. Water Main Project Descriptions - General Scope of Work:
 - Reference the attached GIS color contract specific area maps.
 - The water main rehabilitation contract area for **CONTRACT 1-20** is located within the Blackstone Area of Providence, RI with approximately 16,000 LF of main rehabilitation.



- The water main rehabilitation contract area for **CONTRACT 2-20** is located within the Auburn Area of Cranston, RI with approximately 17,000 LF of main rehabilitation.
- The water main rehabilitation contract area for **CONTRACT 3-20** is located within the Charles Area of Providence, RI with approximately 30,000 LF of main rehabilitation.

C. 2020 Contracts Overview:

1. General Construction Notes:

- Zinc Coated DI: All ductile iron pipe and fittings must be zinc coated and conform to the requirements of the American Iron and Steel Act.
- Poly-encasement of the main will not be required in these contracts.
- The intent of all contracts is to fully rehabilitate the water mains within the contract work areas. For the cleaning and lining contracts, sections of mains that cannot be cleaned and lined must be replaced with ductile iron.
- Full depth street paving and permanent restoration of street excavations at intersections (including repair of traffic loops and restoration of pavement markings), sidewalks and grassy areas, will be completed by the Contractor of each respective contract area within the same construction season. Permanent street paving will subsequently be completed in a separate restoration contract the following construction season.
- The Contractor shall respond to all emergency calls immediately and commence emergency repair work at the job site within **one (1) hour** of being notified by the OWNER.
- All valve installations and coupling connections at work limit terminations shall be restrained to the new piping for future work in adjacent areas.
- Water mains, water services, and hydrant runouts that are disconnected from the system and **abandoned in place** shall be capped at ALL openings.
- A water facility shall be considered mismarked if its actual location is found to be greater than three feet from the DIGSAFE marked field location.
- By-pass material components (including but not limited to temporary service hoses, couplings, adapters, valves, garden hose wyes, hose ends, and all other fittings and appurtenances) shall be manufactured in accordance with AWWA Standard C800 and shall be "Lead-Free" as defined for lead-free brass alloys in accordance with the ANSI/NSF-60 and ANSI/NSF-61 standards for components in contact with potable water. These products shall have the letters "NL" or "LF" cast into the main body for proper identification.
- The successful bidder must phase his bypass plan for the work area. The

entire project shall not be bypassed in one continuous system. Bypass plans are subject to review and approval by OWNER.

- 6-inch bypass piping shall be utilized where two (2) or more hydrants are located within the bypass system, unless a 4-inch bypass system has multiple feeder (supply) hydrants, or direct system connections. The Contractor shall always utilize 6-inch bypass piping for bypass systems that serve facilities with existing 6-inch fire services.
- There is no delineation between Primary and Secondary roads in the Bid Tab. Contractors should carry the appropriate costs required to work on a congested Primary Road with multiple utilities and heavy traffic. **No additional compensation will be disbursed.**

2. Municipality / DPW Notes and Requirements:

- Work may not begin before 7:00 am. If off-hours work is required, the contractor must seek permission in advance from DPW.
- All excavations must be sawcut; tearing of pavement is not allowed.
- Should a sidewalk panel be disturbed or damaged (broken, chipped, sawcut, removed, etc.) during the course of construction, the entire sidewalk panel shall be replaced as defined in the specifications. Partial sidewalk replacement or “knockouts” are not permitted. Saving the existing sidewalk panel to place back into the panel opening shall also not be permitted. Contractor shall replace entire sidewalk panel(s) within the limits of disturbance. Limits of sidewalk replacement shall be at the existing control joints of damaged and/or disturbed panels. Sidewalks shall be replaced in full accordance with all standards, requirements, details, licenses, and permits of the municipality in which the sidewalk is located.
- Providence DPW issues road opening permits per block.
- Providence DPW will issue permits in phases to avoid construction conflicts amongst utilities.
- Providence DPW: Anytime the contractor is partially or fully closing the public sidewalk or public road they need to submit a street closing permit for review and approval. DPW requires 2 business days notice on these permits.
- Providence DPW - Charles: For the major roads Branch, Silver Spring, and Charles, DPW anticipates requiring work be done off peak (9AM to 4PM) but this will be dependent on what part of the right of way is being occupied/closed.
- Providence DPW: A traffic control plan is required to accompany the street closing permit. The exception is if you are closing the entire street on local streets. The local streets will be those streets other than the major streets Branch, Silver Spring, and Charles.
- Bicycle and Pedestrian traffic must be maintained along streets in Blackstone. Bypass must be placed on the back of side walk to allow the access and egress of pedestrians.

- Temporary Paving must be completed by the end of each work day. Plates may be allowed overnight but must be pinned and bermed. Contact Nate Urso (Providence DPW) or Ken Mason (Cranston DPW) before plating.
- No stockpiling of material in the public right of way.
- Equipment may not remain on roads overnight. Residents pay a premium to park along the roads. Contractors must have a storage yard offsite.
- **NO PORTAJOHNS are allowed** in the public Right-Of-Way, they must be stored offsite (Contractor may tow facilities and store off site during non-working hours).
- Lane or sidewalk closures must be coordinated with DPW traffic. Contractors must submit a traffic plan and update DPW daily on the day's work activities.
- Providence DPW issues "No Parking" signs for a fee. Contractors must use DPW's signage and may not create their own signs. Contact Nate Urso at 401-680-7518 for appropriate forms and fees.
- Drainage basins/inlets must be protected with silt/sedimentation barrier, and not blocked by temporary bypass. Contractor will be responsible to clean drainage infrastructure if non-compliant.
- The following streets have been identified by Cranston and Providence DPW to have concrete base: Pontiac Ave, Cranston; Charles St, Branch Ave, Smithfield Ave, and Silver Spring St, Providence.
- Contractor shall maintain all temporary patches in a good state. The Contractor shall repair any temporary patch at the direction of DPW. Failure to comply will result in permit revocation.
- Concrete truck washout shall not occur into, adjacent, or upstream of the drainage system.
- Contractor shall not park equipment on the sidewalks.
- **COMPACT** in 6 inch lifts. Patches shall not deviate more than .25" above or below adjacent road grade.
- Any sawcuts that haven't been excavated or patched shall be crack sealed prior to winter shutdown.

C. Construction Coordination, Phasing, & Scheduling

1. Customer Contact Information

- Through the course of construction, the Contractor may obtain contact information from property owners, residents, and/or tenants in order to facilitate construction operations (particularly in relation to bypass piping and temporary service connections). Contractor shall tabulate this information in a spreadsheet, formatted with the following headings: name, owner/resident/tenant, address, phone number, and email (if available). A



digital copy of this spreadsheet shall be furnished to the OWNER by the completion of construction or at other such intervals as requested by the OWNER, so that OWNER can update contact databases with newly acquired information.

2. **National Grid Construction - Coordination**

- National Grid personnel will be monitoring the projects for potential encroachments and will work closely with the successful bidder to ensure compliance with their requirements. The successful bidder is required to inform the National Grid field representative of any issues encountered or foreseen within their trench excavations. Contact Chris Ferranti at 401-465-9064 or email Chris.Ferranti@nationalgrid.com for more information.
- National Grid may have abandoned gas mains (within the projects limits) that have been leased as conduits for telecommunications (fiber optics).
- National Grid will coordinate the removal of unoccupied abandoned mains that encroach upon our existing water mains at their cost.

3. **RIDOT – Coordination**

- The Contractor shall submit traffic control plans and seek permits from RIDOT for all state-maintained roads.
- Per PW coordination correspondence with RIDOT, there are no State-maintained roads within the 2020 contracts' limits.
- For a complete listing of State-maintained roads please contact RIDOT or visit their website at:
www.dot.ri.gov/about/maproom/State_Maintained_Roads.php
- It is the successful bidder's responsibility to coordinate with RIDOT to identify state-maintained roads within their project limits. The preceding list should not be construed as complete nor binding in any fashion.

4. **Traffic Control / Police Details**

- Contractors shall schedule the details with the respective police departments. **Police details shall be paid by the Contractor and reimbursed by PW per pay period without markup.** For reimbursement purposes, the Contractors shall submit invoices copies from the respective cities and towns with copies of daily detail vouchers for verification.
- Should a police detail be unavailable, Contractors may use flagmen. Flagmen will be compensated by Providence Water per pay application. PW will reimburse subcontractor flagging invoices as a pass through without markup. If the successful bidder chooses to use his own forces for flagging, they will be compensated based upon certified payroll wages, without markup.
- Contractors shall consult with the local police departments for pertinent traffic control needs. The excessive use of flagging services to artificially inflate minority participation to meet contractual requirements is

prohibited.

- For purposes of bonding and award, lump sum allowances for police and flagging are included in the bid form. The invoices for these costs will be paid in monthly payment requisitions, against these allowances, as a pass-through with no markup.
- Separate compensation shall not be disbursed for the costs associated with bonding, administration, and coordination of both police details and flagging services.

D. Private-Side LSR Installations

1. The OWNER will mail all property owners (with both lead & copper public side services) within the scope of work, a construction notification letter. Time permitting, the letter shall be sent at least 45 days prior to the public side lead service replacement work. The "45 Day Notification Letter" shall advise the property owner of the upcoming scheduled work activities, notify the property owner that a lead service potentially exists at their location, and ask the property owner if he/she is interested in a Not-To-Exceed estimate for the work, allowing the either the water main Contractor or an independent contractor to replace their private side lead service at the property owner's expense.
2. Providence Water has included Part 3 of the Bid Schedule for **CONTRACT 1-20**, **CONTRACT 2-20**, and **CONTRACT 3-20**, as a mechanism for successful bidders to complete private side lead service replacements within the contract limits of **CONTRACTS 1-20, 2-20, & 3-20**.
3. Private side lead service replacement contracts within the contract limits of **CONTRACTS 1-20, 2-20, & 3-20** may potentially be completed by Contractors that are not the Prime Contractor for **CONTRACTS 1-20, 2-20, & 3-20**; if so, the successful private side lead service Contractor must coordinate private side replacement work with the Prime Contractor for **CONTRACTS 1-20, 2-20, & 3-20**.
4. If contracted by a property owner the "Private Side" contractors performing private side lead service line replacements within the 2020 water main contract limits must coordinate their work with the prime contractors within each respective contract area. The private side contractor is responsible for the permanent restoration of the disturbed areas in the right-of-way (grassed area and sidewalk), only if their work occurs after the prime contractors of these contracts have completed permanent restoration for each respective contract area. Otherwise, restoration will be accomplished in accordance with the contract specifications by the prime contractor. The private side contractor is responsible for the permanent restoration of the disturbed areas in the right-of-way (grassed area and sidewalk), if said area is not or will not be disturbed by the prime contractor.



E. Customer & Resident Pre-Construction Notifications

1. 14-Day Letter Notification - "Construction Notification Advisory" (By Providence Water)
2. 72-hour door-hanger Notifications - "Important Notice" (Distributed by Contractor - Furnished by Providence Water)
3. 24-hour door-hanger Notifications - "Shutdown Notices" (Distributed by Contractor - Furnished by Providence Water)
4. Home/Building Service Shut-off: No earlier than 8:30 AM

F. Street and Sidewalk Restoration

1. Full Depth Temporary Asphalt Street Pavement & Permanent Sidewalk, Driveway and Intersection Pavement Restoration
 - In lieu of the 2" temporary restoration, all contracts shall require full depth hotmix asphalt.
 - WMR Contracts shall install full depth hotmix asphalt to match the existing street pavement thickness (minimum of four (4") inches).
 - To account for settlement, the Contractor at his discretion (and at no additional expense to the OWNER) may install a two (2") inch temporary pavement and then remove it to apply full depth pavement after a settlement period.
 - Temporary pavement markings shall be furnished at disturbed locations, as an interim measure until permanent markings can be installed in a separate paving contract. The Contractor shall maintain these excavations, at no additional cost, throughout the winter season. OWNER does not allow cold patch for temporary trench restoration over winter.
 - Permanent Street Pavement Restoration will be completed in a Separate Contract by a separate contractor.
 - WMR Contractors are responsible for the concrete base restoration (if required). Should the successful bidder choose to place 2" asphalt rather than plate before pouring concrete, he shall do so at his convenience and shall not be compensated.
 - WMR Contractors are responsible for permanent restoration of street intersections, sidewalks, driveways, and grassy areas. Intersections, sidewalks, and driveways shall be temporarily restored with 2" asphalt. After 60 days, intersections, sidewalks, and driveways will be permanently restored in kind.



2. Full Depth Temporary Asphalt Street Pavement Maintenance and Warranty:
Street Intersections, Sidewalks, and Driveways
 - The WMR Contractor shall be responsible for any failures due to settlement or failures associated with his water main rehabilitation work, for a period of one (1) year from the date of installation.
 - The WMR Contractor shall warranty failures associated with street intersections, sidewalks, and driveways for a five (5) year period.

G. Special Bidding & Contractual Notes

1. Criminal Background Check (BCI) shall be required for all Contractor employees. PW shall provide badges for all contract employees designated to enter into homes and buildings.
2. Polypropylene Couplings (HARCO) shall be used for all lead to copper connections at the curb stop. If the distance from curb stop to foundation is less than 10', lead free brass couplings shall be used.

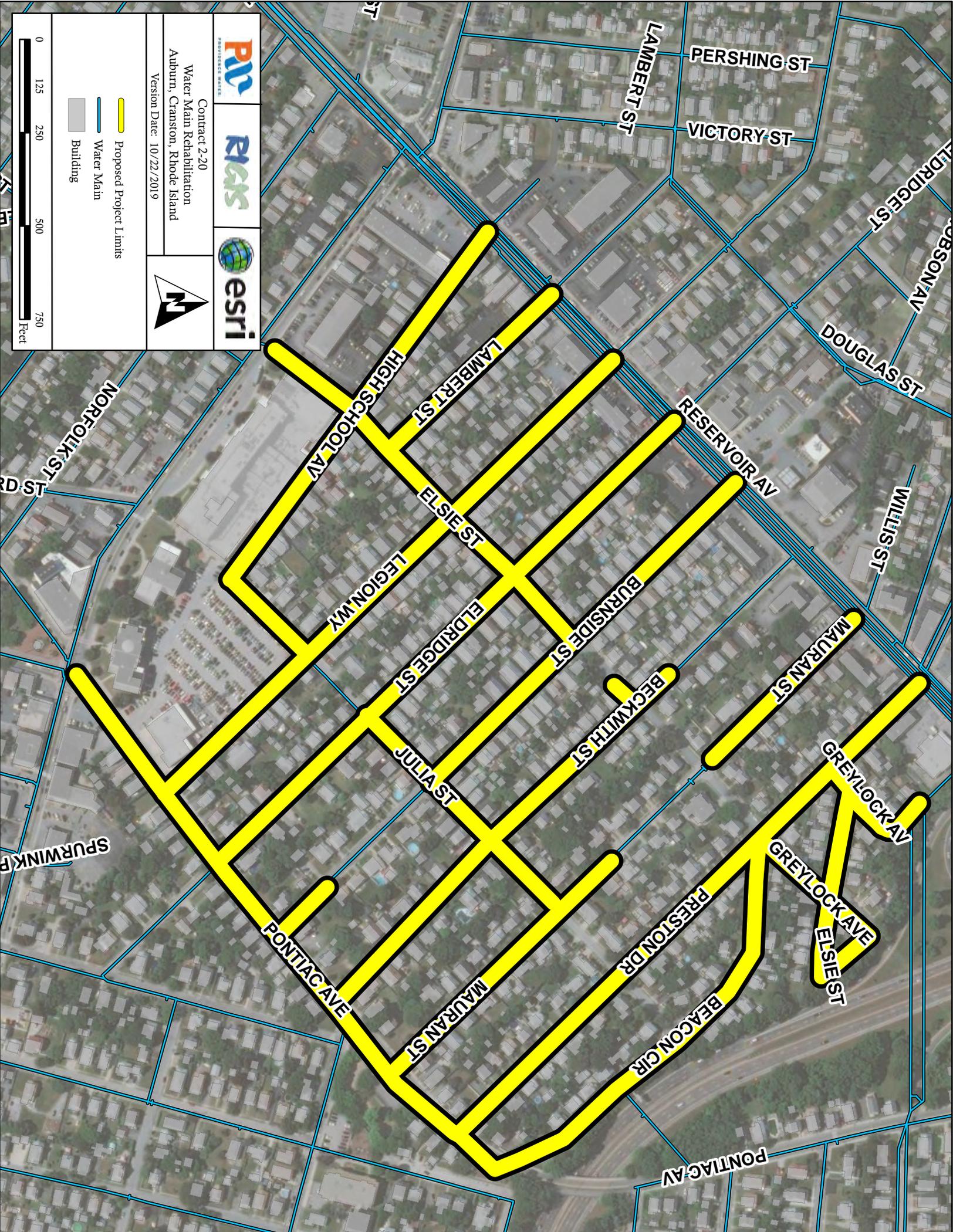
Attachments:

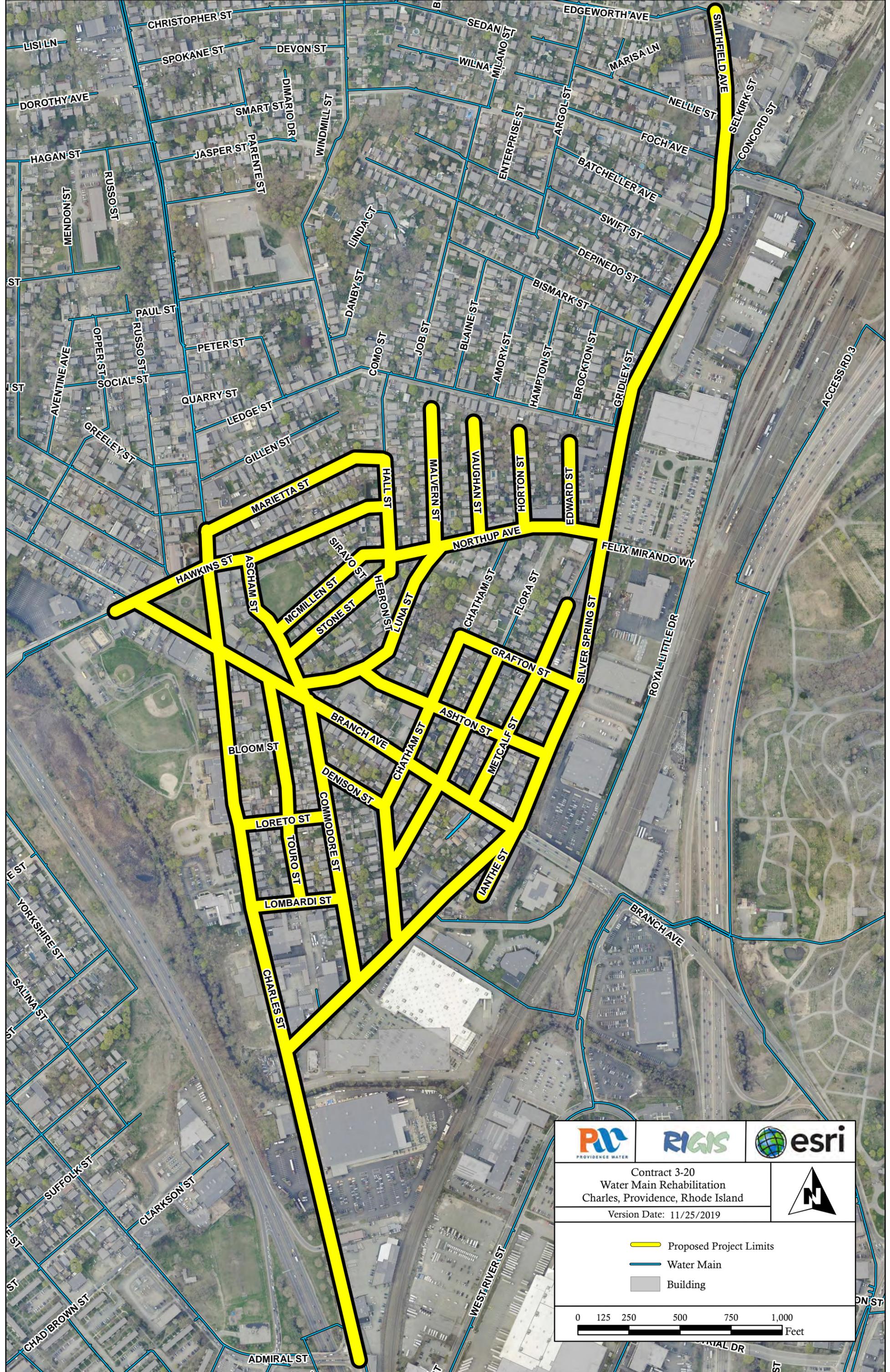
- PWSB 1-20 Overview Map – Blackstone - One (1) Color GIS Plan
- PWSB 2-20 Overview Map – Auburn Area - One (1) Color GIS Plan
- PWSB 3-20 Overview Map – Charles Area - One (1) Color GIS Plan

  	Contract 2-20 Water Main Rehabilitation Auburn, Cranston, Rhode Island
	Version Date: 10/22/2019

 Proposed Project Limits
 Water Main
 Building


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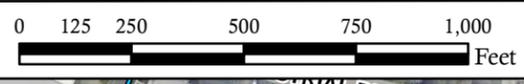




Contract 3-20
 Water Main Rehabilitation
 Charles, Providence, Rhode Island
 Version Date: 11/25/2019



- ▬ Proposed Project Limits
- ▬ Water Main
- Building





ATTENDEES LIST
Page 1 of 4

Date: Wednesday, December 11, 2019 at 9:30 a.m.

Facilitator: Providence Water

Location: Providence Water Central Operations Facility, 125 Dupont Drive, Providence, RI

Re: Pre-Bid Conference
Blackstone Area (P) - Water Main Rehabilitation
Auburn Area (C) - Water Main Rehabilitation
Charles Area (P) - Water Main Rehabilitation

CONTRACT 1-20 (PW Project No. 20201)
 CONTRACT 2-20 (PW Project No. 20202)
 CONTRACT 3-20 (PW Project No. 20203)

Name	Company/Organization	Mailing Address	e-Mail Address	Phone No.
Norm Ripstein	Providence Water	125 Dupont Dr Providence, RI 02907	normanr@provwater.com	(401) 521-6300 Ext 7212
ARTHUR SCOTTON	DIGREGORIO	32 B-SUBS PARK DR SMITHFIELD RI 02917	ASCOTHON@DIGREGORIOCORP.COM	401-602-3436
Nick Piampione	Digregorio	23 Business Park Dr Smithfield RI 02917	nick@digregoriocorp.com	401-640-6121
Chris Hardy	Maintaining America	354 Eisenhower Pkwy Suite #1200 Livingston, NJ 07031	chardy@maintaining.com	716-345-2628
ANDREW PION	Providence Water		APION@PROVWATER.COM	401 308 1805
CHRIS FERIANTI	NATIONAL GRID	477 DEXTER ST PROV. RI 02907	chris.feriant@ngrid.com	401 465 9064



ATTENDEES LIST
(continued) Page 2 of 4

Re: Pre-Construction Conference

Blackstone Area (P) - Water Main Rehabilitation

Auburn Area (C) - Water Main Rehabilitation

Charles Area (P) - Water Main Rehabilitation

CONTRACT 1-20 (PW Project No. 20201)

CONTRACT 2-20 (PW Project No. 20202)

CONTRACT 3-20 (PW Project No. 20203)

Name	Company/Organization	Mailing Address	e-Mail Address	Phone No.
Steve Spadoni	Dewcon	PO 4139 BASKING RIDGE NJ 07920	SSPADONI@PIPELINE TECH LLC.COM	774-216-1854
PAUL PETRUKOWSKI	MICHELJ CORP.	99 CAUENGER RD. WATER TOWN CT 06394	PPETRUKO@MICHELJ.US	860-274-5468
Stephen Bizek	BISZKO	20 Development st Fall River, MA 02721	SBISZKO@BISZKO.COM	508-679-0518
FRANK WATSON	DAMBRA	50 WUSTAR DR. BASKING RIDGE NJ 07920	SPWATSON2015@OUTLOOK.COM	401-639-1271
John A Spadoni	Dewcon inc	PO BOX 4899 BASKING RIDGE NJ 07920	SSPADONI@PIPELINE TECH LLC.COM	808-889-8347
ARMANDO Ricci	Ricci Drain	19 LILY ST. PERI RI 02909	Alicia D Ricci@RAIN.COM	401-639-9964
Roger Brown	R W		rbrown@pewwater.com	x 7285



ATTENDEES LIST
(continued) Page 3 of 4

Re: Pre-Construction Conference

Blackstone Area (P) - Water Main Rehabilitation
Auburn Area (C) - Water Main Rehabilitation
Charles Area (P) - Water Main Rehabilitation

CONTRACT 1-20 (PW Project No. 20201)
CONTRACT 2-20 (PW Project No. 20202)
CONTRACT 3-20 (PW Project No. 20203)

Name	Company/Organization	Mailing Address	e-Mail Address	Phone No.
Paul Hedam	ESP/REDA	38 Albion Rd Wickon, RI 02868	Paul.hedam@ ejprescott.com	338-8499
Pete Fogarty	Boyle + Fogarty	2 Industrial Dr South, Unit 1 Smithfield, RI 02917	Pete@BoyleandFogarty.com	474-5306
Angelo Bruno	Boyle + Fogarty	"	Angelo@boyleandfogarty.com	401-633-4562
Chris Walsh	W. Walsh Co	32 Watson St Attleboro, MA 02703	Chris.walsh@wvalsh.com	508-226-4300
PAUL D'EUCCIE	D'EUCCIE CONSTRUCTION	2800 PLAINFIELD ROAD CHARLESTON, R.I. 02921	PAUL@D'EUCCIECONSTRUCTION.COM	401-942-8090
Math Gallant	Providence Water	125 Dupont Dr. Providence, RI	mathewg@providencewater.com	401-521-6300
KATHY MELO	PROVIDENCE WATER	" "	kmello@providencewater.com	401-521-6300
Kristin Mezek	PW	" "	kristinm@providencewater.com	ext 7218

Kim Downes PW
Chuck Bagdikian PW
Kim D @ providencewater.com
Chuck B @ providencewater.com
7219

If Available, Please Leave Business Card



ATTENDEES LIST
(continued) Page 4 of 4

Re: Pre-Construction Conference
Blackstone Area (P) - Water Main Rehabilitation
Auburn Area (C) - Water Main Rehabilitation
Charles Area (P) - Water Main Rehabilitation

CONTRACT 1-20 (PW Project No. 20201)
 CONTRACT 2-20 (PW Project No. 20202)
 CONTRACT 3-20 (PW Project No. 20203)

Name	Company/Organization	Mailing Address	e-Mail Address	Phone No.
JAY HALL	PKL/AECOM	JAY.HALL@AECOM.COM JAY HQ PROVIDENCE.COM	PKL@AECOM.COM	978 549 6745
DAN CALABRO	ROSCITI	PO Box 19120 RHOANOKETON, VA 24094	D.CALABRO@ROSCITI.COM	(401) 641-7304
Bill Perry	ROSCITI	11	B.Perry@ROSCITI.COM	(401) 265-4889
Katheryn Topp	PWSB	KatherynT@providence.com		X7282
Suzanne Leary	PWSB	Suzanne@providence.com		X7274
Mitchell Clerico	R.P. Iannuccillo & Sons Construction	Mitch@rpianuccillo.com →		401 351-8877

Loan Disbursement Schedule for 2020

Month	Clean Water Programs	All Other Programs
January	3 rd * 17 th and 31 st	10 th and 24 th *
February	14 th and 28 th	7 th and 21 st
March	13 th , and 27 th	6 th and 20 th
April	10 th and 24 th	3 rd and 17 th
May	8 th and 22 nd	1 st , 15 th and 29 th *
June	5 th and 19 th	12 th and 26 th
July	3 rd , 17 th and 31 st	10 th * and 24 th
August	14 th * and 28 th	7 th and 21 th
September	11 th * and 25 th	4 th and 18 th
October	9 th and 23 rd	2 nd , 16 th * and 30 th
November	6 th * and 20 th	13 th * and 27 th *
December	4 th and 18 th	11 th and 25 th *
January 2021	January 1 st * (due 12/23/20)	Will be on 2021 Schedule

*Holiday-impacted weeks

Notes:

- “Clean Water Programs” include both our Clean Water SRF program as well as the Clean Water and Stormwater Infrastructure Fund. “All Other Programs” include Drinking Water SRF, Municipal Road and Bridge, and Efficient Buildings Fund.
- Payment will be released on the Monday following the disbursement date – adjusted when Monday is Bank-honored holiday.
- Requisitions are due to the Bank by noon the week before the scheduled disbursement date. *For example, for the “All Other Programs” disbursement on January 10, 2020, disbursement requests are due to the Bank by noon January 3, 2020.*
- *For Holiday-impacted weeks, disbursements are due Wednesday before the scheduled disbursement date or the day before if Wednesday also happens to be a holiday. For Example, for the “Clean Water” disbursement on January 3, 2020 disbursement request are due to the Bank by noon December 24, 2019.*
- Borrowers can drawdown once per month per loan series.

Thank you for doing business with Rhode Island Infrastructure Bank.

**Specifications
for
Replacement / Rehabilitation
of
Water Mains and Appurtenances
within the Providence Water Supply Board's
Distribution System
(PW Project No. 20201)**

THE HON. JORGE O. ELORZA
Mayor

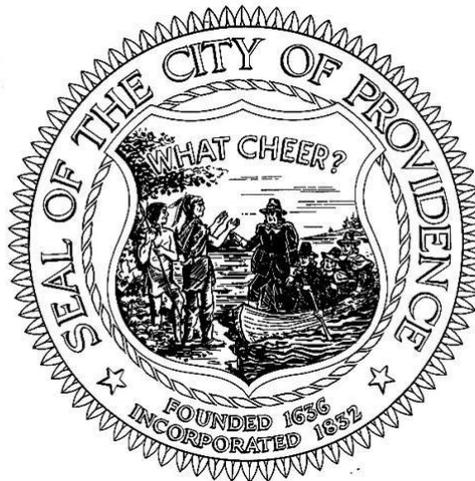
XAYKHAM KHAMSYVORAVONG
Chairperson

MICHAEL J. CORREIA
Council President Pro Tempore

SARA SILVERIA
Ex-Officio

KERRI LYNN THURBER
Member

WILLIAM E. O'GARA, ESQ.
Legal Advisor



RICKY CARUOLO
General Manager

JOSEPH D. CATALDI
Vice Chairperson

JO-ANN RYAN
City Councilperson

CRISTEN L. RAUCCI, ESQ.
Member

CARISSA R. RICHARD
Secretary

CONTRACT 1-20



**Specifications
for
Replacement / Rehabilitation
of
Water Mains and Appurtenances
within the Providence Water Supply Board's
Distribution System
(PW Project No. 20202)**

THE HON. JORGE O. ELORZA
Mayor

XAYKHAM KHAMSYVORAVONG
Chairperson

MICHAEL J. CORREIA
Council President Pro Tempore

SARA SILVERIA
Ex-Officio

KERRI LYNN THURBER
Member

WILLIAM E. O'GARA, ESQ.
Legal Advisor



RICKY CARUOLO
General Manager

JOSEPH D. CATALDI
Vice Chairperson

JO-ANN RYAN
City Councilperson

CRISTEN L. RAUCCI, ESQ.
Member

CARISSA R. RICHARD
Secretary

CONTRACT 2-20



**Specifications
for
Replacement / Rehabilitation
of
Water Mains and Appurtenances
within the Providence Water Supply Board's
Distribution System
(PW Project No. 20203)**

THE HON. JORGE O. ELORZA
Mayor

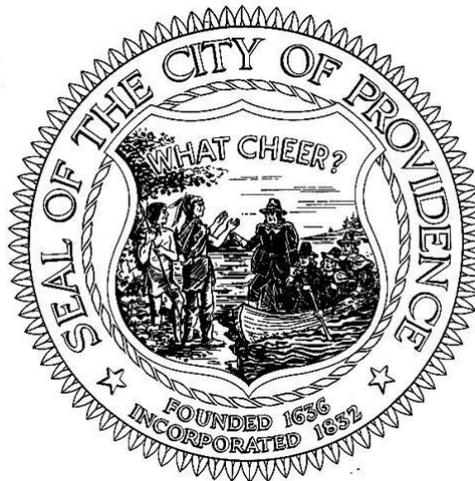
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Council President Pro Tempore

SARA SILVERIA
Ex-Officio

KERRI LYNN THURBER
Member

WILLIAM E. O'GARA, ESQ.
Legal Advisor



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JO-ANN RYAN
City Councilperson

CRISTEN L. RAUCCI, ESQ.
Member

CARISSA R. RICHARD
Secretary

CONTRACT 3-20



**SECTION 00100
INVITATION TO BID**

**ADDENDUM NO. 2
CONTRACT 3-20**

At the current time, it is anticipated that a Notice-to-Proceed (NTP) will be issued in the **Spring of 2020** with a Project Duration of **two** construction **seasons** ending **November 15, 2021**. All water main and service related work, including temporary restoration and permanent restoration, is to be completed along select streets within the **Charles** service area of **Providence**, RI, as directed by Providence Water, during the **2020 and 2021** construction **seasons**. All excavations opened within a construction season must have permanent pavement restoration completed before the winter closeout of that construction season, and/or as directed by Providence Water.

The overall goal is to rehabilitate existing water mains within the **Charles** service area of **Providence**, RI, in the **2020 and 2021** construction **years**, as approved by Providence Water. Further, when possible, it is Providence Water's desire to coordinate the contract work with any future street paving that may be scheduled by the City and/or State. Although specific City street paving scheduling information is not presently available, Providence Water has provided the selected street listings for this contract to the Providence Department of Public Works for advance informational and scheduling coordination purposes.

It is Providence Water's intent to award the contract to the responsive and responsible bidder whose base bid is the lowest evaluated or responsive bid price, in accordance with the criteria set forth below, to perform the work described above.

The objective measurable criteria to be utilized in determining the lowest evaluated or responsive bid price are as follows:

- (1) The lowest Total Bid Price Amount (resolved in favor of corrected sums) submitted for Part 1 of the Bid Schedule Summary;
- (2) The bidder's Qualifications, as set forth in Article 3 of Section 00200, Instructions to Bidders, and as indicated in the bidder's Contractor Qualification Statement;
- (3) The adequacy of the bidder's financial resources, including its ability to comply with the requirements of Article 5 of Section 00700, General Terms and Conditions;
- (4) The quality of work performed previously by the bidder for the Owner, if any, and the quality of work performed on comparably sized projects for other entities;
- (5) The record of the bidder in accomplishing work on other, similar projects in the required time frame;
- (6) The bidder's ability to obtain the necessary materials, as set forth in Section 0300 - 2, List of Approved Materials/Manufacturers for use in the Providence Water Distribution System; and
- (7) Consistency with historical unit pricing of Unit Rates and Unit Prices for bid items for the related contract work.

The award of the Contract to the lowest evaluated or responsive bidder shall NOT guarantee or entitle the lowest evaluated or responsive bidder to the full Contract Amount. It is therefore understood by all parties that the actual amount of work completed and the final Contract Amount shall be subject to availability of funds.

Projects shall be completed, and ready for final payments, within the time specified in the scope of services proposal and as specified in the Notice to Proceed or as provided in Paragraph 2.03 of the General Conditions, as modified by Paragraph 2.03.A of the Supplementary Conditions.

Failure to complete a project by **November 15, 2021** shall result in the assessment of liquidated damages in the amount of **\$5,500** per calendar day that the completion is late beyond the time specified.

Bids will be received by the City of Providence Board of Contract and Supply at the Department of the City Clerk, Room 311, City Hall, Providence, Rhode Island up to **2:15 p.m. on Monday, February 03, 2020**. At 2:15 p.m., all Bids will be publicly opened and read out loud at the Board of Contract and Supply meeting, City Council Chambers, Third Floor, City Hall.

Part 1

[ADDENDUM NO. 2](#)

UNIT RATES for Earthwork and Restoration
within Public and Private Space

[CONTRACT 1-20](#)

20. Earthwork

a. Gravel Borrow

3,300 TN
Est. Qty.

Price per TN (Figures)

Price per Ton (Written)

Total Amt. Bid (Figures)

b. Test Pits

50 CY
Token Qty.

Price per CY (Figures)

Price per Cubic Yard (Written)

Total Amt. Bid (Figures)

21. Temporary Restoration

a. Furnish & Place Sidewalk Pavement - 2" Bituminous

1,200 SY
Est. Qty.

Price per SY (Figures)

Price per Square Yard (Written)

Total Amt. Bid (Figures)

b. Furnish & Place Street Pavement - 2" Bituminous (Intersections)

1,300 SY
Est. Qty.

Price per SY (Figures)

Price per Square Yard (Written)

Total Amt. Bid (Figures)

c. Furnish & Place Street Pavement - 4" Bituminous

ITEM NOT APPLICABLE TO THIS CONTRACT

d. Furnish & Place Street Pavement - 6" Bituminous

ITEM NOT APPLICABLE TO THIS CONTRACT

Part 4

[ADDENDUM NO. 2](#)

[CONTRACT 1-20](#)

31. Tapping Sleeves and Valves

a. Furnish & Install 6" x 6" Tapping Sleeve & Valve

Price per Each (Written)

Price per EA (Figures)

b. Furnish & Install 8" x 8" Tapping Sleeve & Valve

Price per Each (Written)

Price per EA (Figures)

c. Furnish & Install 8" x 6" Tapping Sleeve & Valve

Price per Each (Written)

Price per EA (Figures)

d. Furnish & Install 12" x 6" Tapping Sleeve & Valve

Price per Each (Written)

Price per EA (Figures)

e. Furnish & Install 12" x 8" Tapping Sleeve & Valve

Price per Each (Written)

Price per EA (Figures)

f. Furnish & Install 12" x 12" Tapping Sleeve & Valve

Price per Each (Written)

Price per EA (Figures)

32. Insertion Valves

a. Furnish & Install 6" Insertion Valve

Price per Each (Written)

Price per EA (Figures)

b. Furnish & Install 8" Insertion Valve

Price per Each (Written)

Price per EA (Figures)

Part 1

UNIT RATES for Earthwork and Restoration
within Public and Private Space

20. Earthwork

a. Gravel Borrow

250 TN	
Est. Qty.	Price per TN (Figures)

Price per Ton (Written)	Total Amt. Bid (Figures)
-------------------------	--------------------------

b. Test Pits

50 CY	
Token Qty.	Price per CY (Figures)

Price per Cubic Yard (Written)	Total Amt. Bid (Figures)
--------------------------------	--------------------------

21. Temporary Restoration

a. Furnish & Place Sidewalk Pavement - 2" Bituminous

70 SY	
Est. Qty.	Price per SY (Figures)

Price per Square Yard (Written)	Total Amt. Bid (Figures)
---------------------------------	--------------------------

b. Furnish & Place Street Pavement - 2" Bituminous (Intersections)

1,200 SY	
Est. Qty.	Price per SY (Figures)

Price per Square Yard (Written)	Total Amt. Bid (Figures)
---------------------------------	--------------------------

c. Furnish & Place Street Pavement - 4" Bituminous

ITEM NOT APPLICABLE TO THIS CONTRACT

d. Furnish & Place Street Pavement - 6" Bituminous

ITEM NOT APPLICABLE TO THIS CONTRACT

Part 4

ADDENDUM NO. 2

CONTRACT 2-20

31. Tapping Sleeves and Valves

a. Furnish & Install 6" x 6" Tapping Sleeve & Valve

Price per Each (Written)

Price per EA (Figures)

b. Furnish & Install 8" x 8" Tapping Sleeve & Valve

Price per Each (Written)

Price per EA (Figures)

c. Furnish & Install 8" x 6" Tapping Sleeve & Valve

Price per Each (Written)

Price per EA (Figures)

d. Furnish & Install 12" x 6" Tapping Sleeve & Valve

Price per Each (Written)

Price per EA (Figures)

e. Furnish & Install 12" x 8" Tapping Sleeve & Valve

Price per Each (Written)

Price per EA (Figures)

f. Furnish & Install 12" x 12" Tapping Sleeve & Valve

Price per Each (Written)

Price per EA (Figures)

32. Insertion Valves

a. Furnish & Install 6" Insertion Valve

Price per Each (Written)

Price per EA (Figures)

b. Furnish & Install 8" Insertion Valve

Price per Each (Written)

Price per EA (Figures)

Part 1

ADDENDUM NO. 2

UNIT RATES

CONTRACT 3-20

for Water Main Replacement & Rehabilitation Work

1. Furnish & Install 4-inch D.I. Water Main	80 LF <hr/> Est. Qty.	<hr/> Price per LF (Figures)
<hr/> Price per Linear Foot (Written)		<hr/> Total Amt. Bid (Figures)
2. Furnish & Install 6-inch D.I. Water Main	14,860 LF <hr/> Est. Qty.	<hr/> Price per LF (Figures)
<hr/> Price per Linear Foot (Written)		<hr/> Total Amt. Bid (Figures)
3. Furnish & Install 8-inch D.I. Water Main	8,820 LF <hr/> Est. Qty.	<hr/> Price per LF (Figures)
<hr/> Price per Linear Foot (Written)		<hr/> Total Amt. Bid (Figures)
4. Furnish & Install 12-inch D.I. Water Main	3,740 LF <hr/> Est. Qty.	<hr/> Price per LF (Figures)
<hr/> Price per Linear Foot (Written)		<hr/> Total Amt. Bid (Figures)
5. Furnish & Install 16-inch D.I. Water Main	100 LF <hr/> Est. Qty.	<hr/> Price per LF (Figures)
<hr/> Price per Linear Foot (Written)		<hr/> Total Amt. Bid (Figures)
6. Furnish & Install 20-inch D.I. Water Main	20 LF <hr/> Token Qty.	<hr/> Price per LF (Figures)
<hr/> Price per Linear Foot (Written)		<hr/> Total Amt. Bid (Figures)

Part 1

ADDENDUM NO. 2

7. Furnish & Install Ductile-Iron Pipe Fittings

14,400 LBS

Est. Qty.

Price per LB (Figures)

Price per Pound (Written)

Total Amt. Bid (Figures)

8. Furnish & Install 4-Inch Gate Valve

4 EA

Est. Qty.

Price per Each (Figures)

Price per Each (Written)

Total Amt. Bid (Figures)

9. Furnish & Install 6-Inch Gate Valve

71 EA

Est. Qty.

Price per Each (Figures)

Price per Each (Written)

Total Amt. Bid (Figures)

10. Furnish & Install 8-Inch Gate Valve

33 EA

Est. Qty.

Price per Each (Figures)

Price per Each (Written)

Total Amt. Bid (Figures)

11. Furnish & Install 12-Inch Gate Valve

9 EA

Est. Qty.

Price per Each (Figures)

Price per Each (Written)

Total Amt. Bid (Figures)

31. f. Furnish & Install 12" x 12" Tapping Sleeve & Valve

1 EA

Est. Qty.

Price per Each (Figures)

Price per Each (Written)

Price per EA (Figures)

Part 1

ADDENDUM NO. 2

12. Furnish & Install New Fire Hydrant Assembly

a. 6" Branch

39 EA

Est. Qty.

Price per Each (Figures)

Price per Each (Written)

Total Amt. Bid (Figures)

b. 8" Branch

6 EA

Est. Qty.

Price per Each (Figures)

Price per Each (Written)

Total Amt. Bid (Figures)

13. Furnish & Install 2-Inch Blow-off Assembly

3 EA

Est. Qty.

Price per Each (Figures)

Price per Each (Written)

Total Amt. Bid (Figures)

Part 1

ADDENDUM NO. 2

UNIT RATES for Earthwork and Restoration
within Public and Private Space

20. Earthwork

a. Gravel Borrow

700 TN	_____
Est. Qty.	Price per TN (Figures)

 Price per Ton (Written)

 Total Amt. Bid (Figures)

b. Test Pits

100 CY	_____
Est. Qty.	Price per CY (Figures)

 Price per Cubic Yard (Written)

 Total Amt. Bid (Figures)

21. Temporary Restoration

a. Furnish & Place Sidewalk Pavement - 2" Bituminous

1,500 SY	_____
Est. Qty.	Price per SY (Figures)

 Price per Square Yard (Written)

 Total Amt. Bid (Figures)

b. Furnish & Place Street Pavement - 2" Bituminous (Intersections)

5,000 SY	_____
Est. Qty.	Price per SY (Figures)

 Price per Square Yard (Written)

 Total Amt. Bid (Figures)

c. Furnish & Place Street Pavement - 4" Bituminous

ITEM NOT APPLICABLE TO THIS CONTRACT

d. Furnish & Place Street Pavement - 6" Bituminous

ITEM NOT APPLICABLE TO THIS CONTRACT

Part 1

ADDENDUM NO. 2

TOTAL BASE BID

- a. **Water Main Rehabilitation Work (Bid Item Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 31f, 12a, 12b, 13, 14a to 14c, 15a to 15c, 16a to 16c, 17a to 17d, 18a to 18d, 19a to 19c)**

Total Bid Price (Written)

Total Amt. Bid (Figures)

- b. **Earth Work and Restoration (Bid Item Nos. 20a, 20b, 21a, 22a to 22j, 23a to 23e)**

Total Bid Price (Written)

Total Amt. Bid (Figures)

- c. **Traffic Control - Flaggers**

Three Hundred Thousand and Zero/100 Dollars

Total Bid Price (Written)

\$300,000.00

Total Amt. Bid (Figures)

- d. **Traffic Control - Police Details**

Three Hundred Thousand and Zero/100 Dollars

Total Bid Price (Written)

\$300,000.00

Total Amt. Bid (Figures)

TOTAL BASE BID (PART 1): Overall Contract Area
(Sum of a, b, c, and d above.)

Total Bid Amount (Written)

Total Bid Amount (Figures)

Part 4

[ADDENDUM NO. 2](#)

31. Tapping Sleeves and Valves

- a. Furnish & Install 6" x 6" Tapping Sleeve & Valve**

Price per Each (Written)

Price per EA (Figures)

- b. Furnish & Install 8" x 8" Tapping Sleeve & Valve**

Price per Each (Written)

Price per EA (Figures)

- c. Furnish & Install 8" x 6" Tapping Sleeve & Valve**

Price per Each (Written)

Price per EA (Figures)

- d. Furnish & Install 12" x 6" Tapping Sleeve & Valve**

Price per Each (Written)

Price per EA (Figures)

- e. Furnish & Install 12" x 8" Tapping Sleeve & Valve**

Price per Each (Written)

Price per EA (Figures)

- f. Furnish & Install 12" x 12" Tapping Sleeve & Valve**

SEE PART 1 OF BID SCHEDULE

32. Insertion Valves

- a. Furnish & Install 6" Insertion Valve**

Price per Each (Written)

Price per EA (Figures)

- b. Furnish & Install 8" Insertion Valve**

Price per Each (Written)

Price per EA (Figures)

SECTION 01150 MEASUREMENT & PAYMENT

2.1.16 TRAFFIC CONTROL

- A. Uniformed Traffic Control Police: Special Duty Police for uniformed traffic control within the project's limits of construction, as required by the local Police Departments of the respective Cities and Towns, will be reimbursed to the Contractor per pay period as a pass-through without markup. The Contractor will call in the details and pay the invoices to the respective cities and towns that they have utilized for the period. For reimbursement purposes, the Contractor shall forward detail voucher (slip) copies to PWSB, with a copy of the invoice for verification.
- B. Flagpersons: The utilization of Flagpersons for traffic control employed within the project's limits of construction, as directed by the Engineer and/or the local Police Departments of the respective Cities and Towns, will be paid by the Owner per pay application. If flagger services are subcontracted, the Contractor shall forward flagger invoices with certified payroll to PWSB for payment without markup. If the flagperson is employed by the General Contractor, flagger services shall be compensated for the employee's hourly wage without markup.
- C. Temporary Construction Signage and Traffic Control Devices: Measurement for the placement and relocation of temporary construction signs, traffic cones, drums, barricades, or other traffic control devices, will not be measured separately for payment, but the costs thereof will be considered to be included with applicable items of work, as listed in the Bid Schedule, to perform the overall contract work.

2.1.17 EXISTING WATER MAIN FLOW LINE STOPPING DEVICES

- A. The furnishing and installation of single line stopping devices, of the sizes listed in **Part 4** of the Bid Schedule (**Item Nos. 29a to 29c**), will be measured for payment by the unit price bid per "Each" (EA.), for the actual number of line stopping operations performed on existing water mains as directed by the Owner.
- B. The furnishing and installation of double line stopping devices, of the sizes listed in **Part 4** of the Bid Schedule (**Item Nos. 30a to 30c**), will be measured for payment by the unit price bid per "Each" (EA.), for the actual number of line stopping operations performed on existing water mains as directed by the Owner.

2.1.18 TAPPING SLEEVES AND VALVES

The furnishing and installation of the specified Tapping Sleeves and Valves, of the sizes listed in **Part 4** of the Bid Schedule (**Item Nos. 31a to 31f**), will be measured for payment by the unit price bid per "Each" (EA.), for the actual number of tapping sleeve and valve installations performed on existing water mains, as

SECTION 01150 MEASUREMENT & PAYMENT

- B. Compensation for the Flagperson's services shall be paid by PW per pay period without markup. If flagger services are subcontracted, the General Contractors shall submit flagger invoices with certified payroll for payment. If the flagperson is employed by the General Contractor, flagger services shall be compensated for the employee's hourly wage (on certified payroll) per pay period without markup. The hourly rate of wages paid by the Contractor or Sub-Contractor shall not be less than the prevailing rate set by the Rhode Island Department of Labor.
- C. Temporary Construction Signage and Traffic Control Devices: No separate payment shall be made for the placement and relocation of temporary construction signs, traffic cones, drums, barricades, or other traffic control devices, but the costs thereof will be considered to be included with applicable items of work, as listed in the Bid Schedule to perform the overall contract work.

3.1.17 EXISTING WATER MAIN FLOW LINE STOPPING DEVICES

Payment for the quantity measured, as specified and directed, to furnish and install double line stopping devices, of the sizes listed in **Part 4** of the Bid Schedule (**Item Nos. 29a to 29c and 30a to 30c**), will be made at the unit price per "Each" (EA), which price shall constitute full compensation to furnish all materials, equipment, tools and labor to install the specified line stopping devices, including excavations, backfilling, compaction and temporary pavement restoration. The work will also include the exterior cleaning of the existing water main; thrust and support blocking; disinfection; plug seal testing; temporary valve removal; blind flange installation; and coal tar epoxy coating of the assembly.

3.1.18 TAPPING SLEEVES AND VALVES

Payment for the quantity measured, as specified and directed, for the furnishing and installation of the specified Tapping Sleeves and Valves, as listed in **Part 4** of the Bid Schedule (**Item Nos. 31a to 31f**), will be made at the unit price per "Each" (EA), which price will include the tapping sleeve, gate valve, valve box, mechanical restrained jointing materials, concrete thrust block. and all other necessary accessory materials; for hauling and handling of all materials; for pipe jointing; for all other incidental earthwork associated with the installation of the new tapping sleeve and valve for interconnection to the new water main piping, including saw-cutting, pavement removal, excavations, pipe bedding, backfills and compaction, grading, and preparation of subgrades; for removal and disposal of the existing gate valves and appurtenances; for all

SECTION 05000

UTILITY PIPING

SECTION 05000 UTILITY PIPING

General Provisions

1.1 DEFINITION OF TERMS

1.1.1 This section pertains to all workmanship, materials, equipment, and incidentals required for the repair, removal, and/or installation of piping and appurtenances of water mains and service piping.

1.2 REFERENCES:

a.	ANSI A-21.4	Cement Mortar Lining for Ductile-Iron Pipe and Fittings
b.	ANSI A-21.10	Ductile-Iron and Gray-Iron Fittings
c.	ANSI A-21.11	Rubber-Gasket Joints for Ductile-Iron Pipe and Fittings
d.	ANSI A-21.51	Ductile-Iron Pipe
e.	ASTM A-48	Gray Iron Castings
f.	ASTM A-126	Gray Iron Castings for Valves, Flanges, and Pipe Fittings
g.	ASTM A-276	Stainless Steel Bars and Shapes
h.	ASTM A-536	Ductile Iron Castings
i.	ASTM A-576	Steel Bars, Carbon, Hot-Wrought, Special Quality
j.	ASTM D-429	Rubber Property-Adhesion to Rigid Substrates
k.	ASTM B88	Copper Tubing for Water Services
l.	ASTM D2000	Rubber Products
m.	AWWA C-104	Cement Mortar Lining for Ductile-Iron Pipe and Fittings
n.	AWWA C-153	Ductile-Iron and Gray-Iron Fittings
o.	AWWA C-111	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
p.	AWWA C-151	Ductile-Iron Pipe
q.	AWWA C-504	Rubber-Seated Butterfly Valves
r.	AWWA C-509,C-515	Resilient Seated Gate Valves
s.	AWWA C-550	Protective Interior Coating for Valves and Hydrants
t.	AWWA M41	Ductile Iron Pipe and Fittings
u.	NSF/ANSI 61	Drinking Water System Components - Health Effects
v.	NSF/ANSI 60	Drinking Water Treatment Chemicals – Health Effects
w.	PW Policies	Requirements for Water Mains, Services, and Appurtenances
x.	SSPC-SP10	Near-White Blast Cleaning
y.	ISO 8179	Ductile iron pipes – External zinc-based coating
z.	ISO 2531	Ductile Iron Pipes, Fittings, Accessories and their Joints for Water Applications

1.2.1 Reference is made to “Appendix-B, Typical Construction Details”.

SECTION 05000 UTILITY PIPING

Submittals

2.1 SUBMITTALS

- 2.1.1 The Contractor shall provide submittals in accordance with Section 13 of “Section 01000 - General Requirements”.
- 2.1.2 The Contractor shall submit for Owner’s approval a list of materials including, but not limited to, all pipes, fittings and appurtenances to be installed as part of the work. In addition, all catalog cuts pertaining to the work shall be submitted.
- 2.1.3 The Contractor shall submit to Owner a list of equipment to be used for the removal and/or installation of water mains and appurtenances
- 2.1.4 The Contractor shall submit to Owner the method that shall be utilized for pressure and leakage testing of the mains after installation.
- 2.1.5 The Contractor shall submit to Owner the method that shall be utilized to disinfect the mains after installation.

Reference is hereby made to page 2 of “Section 00300, Information Available to Bidders”, of these Contract Specifications, regarding the availability of the list of “List of Approved Materials/Manufacturers for use in the PWSB Distribution System”, as provided by OWNER as part of their Requirements for Water Mains, Services and Appurtenances.

Coordination

- 3.1 Refer to “Section 01000 – General Requirements, Article 7”.

Materials

4.1 HANDLING MATERIALS

- 4.1.1 The Contractor shall use proper and suitable tools for safe and convenient handling of pipes, fittings and valves.
- 4.1.2 The Contractor shall take great care to prevent damage to protective coatings. Minor damage to exterior coating may be patched with asphalt. Materials with excessive damaged to exterior coatings must be removed and replaced. If interior cement coating is damaged, the fitting or pipe will be deemed unacceptable and rejected.

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4.1.3 The Contractor shall carefully examine all pipes and appurtenances for defects. No material is to be installed which is known to be defective. The Contractor shall replace, at his own expense, any defective material incorporated into the work.

4.1.4 The Contractor shall store all pipe, material, and appurtenances on site in conformance with Section 1000, General Requirements, Article 14.1.5. Before the conclusion of each day, the Contractor must examine the worksite to detect any unsafe conditions, or equipment and take **immediate corrective action**.

4.2 DUCTILE IRON PIPE

4.2.1 The zinc coated ductile iron pipe, to be furnished and installed by the Contractor under these specifications, shall be from manufacturers on the latest revision of the "The List of Approved Materials / Manufacturers for use in the Providence Water Distribution System, or approved substitutes, shall be manufactured in accordance with the standard specifications of the AWWA Designation C-151 (ANSI Designation A-21.51) newest edition, and amendments thereto without exception. Ductile iron pipe shall be Class 52. In areas of the system where "High Service Fire Mains" are present or other circumstances directed by OWNER, Class 56 ductile iron pipe shall be required.

4.2.2 Prior to delivery, all lengths of ductile iron must be secured with plastic bags on both ends.

4.2.3 Metalized detectable identification tape, 2-inches wide, blue in color and imprinted with the words "Caution - WATER LINE BURIED BELOW," shall be utilized over the new water main and all service lines from the main to curb stop. The tape shall be buried a depth of 18-24 inches below finished grade.

4.2.4 Cement mortar lining, seal coating, and admixtures shall be in accordance with AWWA C-104 (ANSI A-21.4) and compliant with ANSI/NSF-61 (standards for material in contact with potable water), newest editions and as amended to date.

4.2.5 Zinc Coating - The exterior of ductile iron pipe shall be coated with a layer of arc-sprayed zinc per ISO 8179, [newest edition and as amended to date](#). The external protective coating system shall be factory applied to ductile iron pipeline components as specified in ISO 2531. A finishing layer topcoat shall be applied to the zinc. The coating system shall conform in every respect to [ISO 8179, newest edition and as amended to date](#).

4.3 DUCTILE IRON FITTINGS

4.3.1 The [zinc coated](#) ductile iron fittings, to be furnished and installed by the Contractor under these specifications, shall be Rubber Seat Mechanical Joints. The fittings shall be standard length or short body castings conforming to AWWA Standard Ductile Iron Fittings specifications designation C-153 or ANSI Standard for Ductile Iron Fittings

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specifications designation A21.53, newest edition and as amended to date. Fittings shall be Class 350 and 250.

4.3.2 Cement mortar lining shall be in accordance with AWWA C-104 or ANSI A21.4, newest edition and as amended to date.

4.3.3 **Zinc Coating** - The exterior of ductile iron fittings shall be coated with a layer of arc-sprayed zinc per ISO 8179, newest edition and as amended to date. The external protective coating system shall be factory applied to ductile iron pipeline components as specified in ISO 2531. A finishing layer topcoat shall be applied to the zinc. The coating system shall conform in every respect to ISO 8179, newest edition and as amended to date.

4.3.4 Rubber gaskets for pipes and fittings shall be in accordance with AWWA specification designation C-111 or ANSI A21.11, newest edition and as amended to date.

4.4 RESILIENT SEATED GATE VALVES

4.4.1 Valves up to 12 inches in diameter shall be resilient seated gate valves, to be furnished and installed by the Contractor under these specifications, shall conform to the latest edition of the AWWA specification designation C-509.

4.4.2 Valves shall be equipped with all accessories including, but not limited to, retainer glands, bolts and gaskets.

4.4.3 Valves shall be designed for 200 pounds per square inch working water pressure and tested to 400 pounds per square inch hydrostatic shell tests.

4.4.4 End connections shall be mechanical joints. Ends shall have a clear waterway equal to the full nominal diameter of the valve. The waterway shall be smooth and have no depressions or cavities in the seating area where foreign material can lodge or collect.

4.4.5 Gate valves shall **open right** and an arrow shall be cast in a standard two-inch square operating nut. The operating nut shall be painted red. The operating stem and nut shall be configured in a way that a "valve box aligner" device can be installed prior to the installation of the valve box and backfilling.

4.4.6 A minimum of two (2) O-rings shall be fitted into the grooves that shall be located in the seal plate. The O-rings shall seat against a smooth bronze stem surface. The design of the seal plate shall be such that it can be fitted with new O-rings while the valve is under pressure and in the fully open position.

4.4.7 All seals between parts such as Seal Plate-to-Bonnet and Bonnet-to-Body shall be Buna N O-rings.

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- 4.4.8 The stem shall be bronze with an integral thrust flange. Located above and below the thrust flange shall be an O-ring and anti-friction device to reduce operating torque.
- 4.4.9 The torque required to open a fully closed valve under 100 psi pressure on one side shall not exceed 100 ft-lbs and the torque required to fully close a valve under the flow conditions of 10 fps shall not exceed 100 ft-lbs. Valves must be able to withstand an input torque of 300 ft-lbs with no distortion of the stem or other damage to the valve.
- 4.4.10 The waterway inside the body of the valve shall be free of pockets, channels, cavities, depressions or obstructions in the seat area.
- 4.4.11 The gate shall have a vulcanized synthetic rubber coating that utilizes a rubber seating edge at the bottom which will eliminate the possibility of entrapment of foreign material.
- 4.4.12 The valve shall be designed so no metal fasteners or screw other than the stem and stem nut are exposed to water. Bonnet bolts, seal plate bolts, stuffing box bolts and other bolts in contact with soil shall be manufactured of stainless steel.
- 4.4.13 All interior and exterior ferrous parts, including the interior of the gate shall be coated with a fusion-bonded epoxy coating with a minimum thickness of 8 mils. **Said coating shall be nontoxic, impart no taste to water and shall conform to NSF 61 and AWWA C-550 or the latest revision.**
- 4.4.14 The resilient seated gate valves, to be furnished and installed by the Contractor under these specifications, shall be from manufacturers on the latest revision of the "List of Approved Materials / Manufacturers for use in the Providence Water Distribution System", or approved substitutes.
- 4.4.15 All valve connections at work limit terminations shall be restrained to the new piping for future work in adjacent areas.

5.1 RESILIENT SEATED TAPPING VALVES

- 5.1.1 The resilient seated tapping valves, to be furnished and installed by the Contractor under these specifications, shall conform to the latest edition of the AWWA specification designation C-509. Where otherwise noted, all tapping valves shall conform to Section 5.4 Resilient Seated Gate Valves.
- 5.1.2 Valves shall be equipped with all accessories including, but not limited to, glands, bolts and gaskets.
- 5.1.3 Valves shall be designed for 200 pounds per square inch working water pressure and tested to 400 pounds per square inch hydrostatic shell tests.

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- 5.1.4 End connections shall be mechanical joint on one end and be flanged on other with ANSI 150 lb drilling. Ends shall have a clear waterway equal to the full nominal diameter of the valve to accommodate full size cutters. The mating valve flange to the tapping sleeve outlet must have a raised male face to insure true alignment of valve and tapping machine. The waterway shall be smooth and have no depressions or cavities in the seating area where foreign material can lodge or collect.
- 5.1.5 Tapping valves shall **open right** and an arrow shall be cast in a red painted standard two inch square operating nut.
- 5.1.6 The design of the valve shall be such that the seal plate can be fitted with new O-rings while the valve is under pressure and in the fully open position.
- 5.1.7 All seals between parts such as Seal Plate-to-Bonnet and Bonnet-to-Body shall be Buna N. O-rings.
- 5.1.8 The stem shall be bronze with an integral thrust flange. Located above and below the thrust flange shall be an O-ring and anti-friction device to reduce operating torque.
- 5.1.9 The gate shall have a vulcanized synthetic rubber coating that utilizes a rubber seating edge at the bottom which will eliminate the possibility of entrapment of foreign material.
- 5.1.10 The valve shall be designed so no metal fasteners or screws, other than the stem and stem nut, is exposed to water. All interior and exterior ferrous parts, including the interior of the gate or wedge shall be coated with a fusion-bonded epoxy coating with a minimum thickness of 8 mils or use stainless steel fasteners. **Said coating shall be nontoxic, impart no taste to water and shall conform to AWWA C-550 and NSF 61 or the latest revision.**
- 5.1.11 The resilient seated tapping valves, to be furnished and installed by the Contractor under these specifications, shall be from manufacturers on the latest revision of the (List of Approved Materials / Manufacturers for use in the Providence Water Distribution System), or approved substitutes.

5.2 TAPPING SLEEVES

- 5.2.1 Tapping sleeves shall be two piece, epoxy-coated, fabricated steel or full circle stainless steel rated for at least 150 psi working pressure. Stainless steel tapping sleeves shall be utilized for all applications. Epoxy coated fabricated steel tapping sleeves shall only be utilized where there is no stainless steel alternative, such as, tapping large diameter pipe.
- 5.2.2 Stainless steel tapping sleeves, to be furnished and installed by the Contractor under these specifications, shall be manufactured by the Smith Blair Co. – Model 664, JCM – Model

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432 or approved equal. All tapping sleeves shall meet or exceed the ANSI/AWWA C-223 Standards.

- 5.2.3 Tapping sleeves shall be supplied with test plugs and flanged outlets. The test plug shall be 3/4" NPT with standard square head.
- 5.2.4 The flange shall be 18-8 Type 304 Stainless Steel or epoxy coated steel with recess to accept standard tapping valves.
- 5.2.5 Bolts shall be self-aligning, 18-8 Stainless Steel. Bolts are to be fluorocarbon coated.
- 5.2.6 The tapping sleeves, to be furnished and installed by the Contractor under these specifications, shall be from manufacturers on the latest revision of the (List of Approved Materials / Manufacturers for use in the Providence Water Distribution System), or approved substitutes.

5.3 BUTTERFLY VALVES

- 5.3.1 Valves sixteen (16) inches and larger shall be butterfly-type and suitable for direct burial. The butterfly valves, to be furnished and installed by the Contractor under these specifications, shall conform to the latest edition of the AWWA standard specification designation C-504 for Class 150B and shall exceed the standard where specified with special attention to section 5.2.2.1 of the standard relating to the pressure testing and acceptance of the valves. The manufacturer must furnish a certified statement that proof-of-design tests were carried out and all requirements were met per Section 5.2.4.1 of the standard. Additional site testing, at the direction of the OWNER, may be required for valves on critical transmission mains. **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 System Components – Health Effects.** In areas within the system where working pressure is 100 psi or higher, Class 250 butterfly valves are required.
- 5.3.2 Valve Bodies shall be constructed of cast iron ASTM A126 Class B or ASTM A48 Class 40 and conform to AWWA C504 in terms of laying lengths and minimum body shell thickness. Body ends shall have mechanical joints (MJ), complete with all accessories, in accordance with the latest revision of AWWA C111. MJ bolts shall be U.S. "Cor-Ten" steel, or approved equal.
- 5.3.3 The Valve Interior and Exterior Surfaces except for seating shall be coated in accordance with AWWA C550 and C504. All internal and/or external surfaces shall be covered with a polyamide cured epoxy coating applied per SSPC-SP10 with a coat thickness compliant with AWWA C550. Said coating shall be nontoxic and impart no taste to water.
- 5.3.4 Valve Discs shall be made from cast iron ASTM A-126 Class B in sizes 20" and smaller.

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Sizes 24" and larger shall be built from ductile iron in conformance to ASTM A-536. Disc shall be furnished with Type 304 or 316 stainless steel seating edge to mate with the rubber seat on the body. Discs shall be capable of maintaining a bubble-tight seal at 150 psi, in either direction.

- 5.3.5** Valve Actuators shall be fully grease packed and have stops in the open/close position. The actuator shall have a mechanical stop which will withstand an input torque of 450 ft. lbs. against the stop. The traveling nut shall engage alignment grooves in the housing. The actuators shall have a built-in packing leak bypass to eliminate possible packing leakage into the actuator housing. Actuator stem extension rods shall be furnished and installed at the request of the Owner, as required.
- 5.3.6** Valve Shafts shall be Type 304 stainless steel conforming to ASTM A-276. Shaft seals shall be standard self-adjusting split V packing. Shaft seals shall be of a design allowing replacement without removing the valve shaft. Valve Bearings shall be sleeve type that are corrosion resistant and self-lubricating.
- 5.3.7** The actuator stem shall have at least one (1) O-ring. It shall function as a dirt seal and prevent ground water from entering the actuator housing. A thrust washer of Teflon, or approved equal, shall be used directly above and below the actuator stem collar.
- 5.3.8** The operating nut shall be 2 inches in size, painted red, and shall open right (clockwise). The operating stem and nut shall be configured in a way that a "valve box aligner" device can be installed prior to the installation of the valve box and backfilling.
- 5.3.9** Valve Seat shall be Buna-N rubber (or approved equal designated for potable water applications) located on the valve body. Reclaimed rubber is not acceptable. The mating seat surface shall be Type 304 or 316 stainless steel. In sizes 20" and smaller, valves shall have bonded seats that meet test procedures outlined in ASTM D-429 Method B. Sizes 24" and larger shall be retained in the valve body by mechanical means without use of metal retainers or other devices located in the flow stream.
- 5.3.10** The butterfly valves, to be furnished and installed by the Contractor under these specifications, shall be from manufacturers on the latest revision of the List of Approved Materials / Manufacturers for use in the Providence Water Distribution System, or approved substitutes.

5.4 STRAIGHT AND TRANSITION PIPE COUPLINGS

- 5.4.1** The center and end rings of couplings shall be modular ductile iron or epoxy coated steel, meeting or exceeding ASTM A536 and ASTM A576. The coupling shall accommodate the entire O.D. range in the specified size, and shall meet or exceed AWWA Standard Specification AWWA C219-01.

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- 5.4.2** The coupling gasket shall be made of virgin rubber or a EDPM compound for water use. The gasket shall have raised lettering and sizing and state the proper color code for the appropriate end ring or be designed with a muti-layered wide range removable outer layer.
- 5.4.3** The coupling shall have ANSI 304 grade stainless steel bolts with heavy hex nuts which conform to the latest edition of the AWWA specification designation C-111.
- 5.4.4** The couplings, to be furnished and installed by the Contractor under these specifications, shall be from manufacturers on the latest revision of the List of Approved Materials / Manufacturers for use in the Providence Water Distribution System, or approved substitutes.
- 5.4.5** All coupling connections at work limit terminations shall be restrained to the new piping for future work in adjacent areas.

5.5 FIRE HYDRANTS

- 5.5.1** The fire hydrants to be furnished and installed by the Contractor under these specifications shall be dry-barrel, post-type, and conform to the latest edition of the AWWA specification designation C-502. The main hydrant valve shall be a compression-type that opens against pressure in the main. The main valve shall have a 5 1/4-inch opening and shall be constructed of solid rubber that may be reinforced with steel. The bottom cap nut shall be bronze or epoxy coated ductile iron or cast iron. An O-ring seal shall be provided in the main valve assembly to ensure that water cannot leak from the hydrant boot, or shoe, into the hydrant barrel or drainway. All O-ring seals in the main valve area shall seat against bronze or epoxy coated cast iron. Also, hydrants shall have a bronze seat ring threaded to a bronze sub-set (NOTE: threads of the main valve seat ring shall not be designed as a sealing thread.)
- 5.5.2** Drainways shall be manufactured of nautical brass, bronze, epoxy-coated cast iron, or an approved substitute. A minimum of two (2) drain ports shall be provided with a minimum net diameter of 1/4-inch. Drain valves shall momentarily force flush each time the hydrant is operated.
- 5.5.3** Hydrants shall **open right** and shall utilize a breakaway design. Each hydrant shall have two (2) 2-1/2-inch hose nozzles, 180-degrees apart and one (1) 4-1/2-inch steamer port nozzle, unless designated as a “Special High Service Hydrant” which would be ULFM rated and have three (3) 2-1/2 inch hose nozzles. All nozzle threads shall be National Standard Thread (NST). Lead shall not be used to secure nozzles to the hydrant barrel. Nozzle caps shall be cast iron and shall be secured to the hydrant barrel with rustproof steel chains.
- 5.5.4** The hydrant bonnet shall be designed so that no part of the threads of the operating stem shall be in contact with water. Two (2) O-rings shall be used to accomplish this. Also, one (1) O-ring shall be used to seal the upper end of the operating mechanism from

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atmospheric moisture. The operating valve stem shall be sheathed with nautical brass or bronze where it contacts the lower O-rings. All temperature grease shall be used as a lubricant for the operating rod threads. Oil is not acceptable. **The grease shall be certified by the National Sanitation Foundation (NSF 61) as "nontoxic and safe for use in contact with potable water supplies"**. Changing the main valve and seat shall only require removal of the bonnet and lubrication chamber or bonnet and seal plate.

- 5.5.5 Hydrant inlets shall be mechanical joints (MJ) with all accessories, and shall accommodate 6-inch ductile iron pipe and cast iron pipe, when requested. All MJ bolts and nuts shall be "Cor-Ten" or an approved substitute. Interior surfaces of the boot, or shoe, shall be epoxy-coated.
- 5.5.6 The exterior of the hydrants, above the ground line, shall be painted with one (1) coat of primer and two (2) finish coats of "Ivy Green" paint that will produce a surface to which subsequent coats of paint, having a linseed oil base, will readily adhere. The bonnet of the hydrant shall be painted, in the same manner, to match existing color ("Safety Yellow").
- 5.5.7 Hydrants shall be designed so that when properly installed a standard 15-inch hydrant wrench will not contact the ground when making a full 360-degree turn on any nozzle cap. Hydrants shall have a minimum vertical distance from the center of the steamer port nozzle to the shoulder of the operating nut (lower most part of the hydrant wrench) of nine (9) inches.
- 5.5.8 The hydrants, to be furnished and installed by the Contractor under these specifications, shall be from manufacturers on the latest revision of the List of Approved Materials / Manufacturers for use in the Providence Water Distribution System, or approved substitutes.
- 5.5.9 Hydrants must be "hydra-shield custodian" ready. Typical low service hydrants must be installed at a depth of five (5) feet. Typical high service hydrants must be installed at a depth of five (5) feet six (6) inches. For replacement of existing hydrants the depth should be determined prior to installation to assure that new hydrant is installed at the prescribed depth.
- 5.5.10 Hydrant extension kits and traffic repair kits shall be available **from the manufacturer** as an off-the-shelf item for the hydrant supplied to the Owner. Kit components shall be those manufactured by the original hydrant manufacturer and considered original equipment. Substitutes shall not be allowed under **any** circumstances.

5.6 WATER SERVICE LINES

- 5.6.1 All water service piping and goosenecks, 2-inch diameter and smaller, shall be ASTM

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B88-03, Type K, soft-temper copper water service tubing. The name and trademark of the manufacturer shall be stamped along the pipe.

- 5.6.2** Tubing for water services over 100 ft. long shall be polyethylene CTS water service tubing (PE 3408) with a 200-psi pressure rating in accordance with AWWA Standard Specification C-901.
- 5.6.3** All water service lines shall have a metalized, 2” wide, detectable identification tape - "water line buried below" - installed 18"-24" below finished grade directly above the water service line.

5.7 COUPLINGS

- 5.7.1** The couplings to join existing lead or copper services to new copper services, to be furnished and installed by the Contractor under these specifications, shall be from manufacturers on the latest revision of the “List of Approved Materials/Manufacturers for use in the Providence Water Distribution System”, or approved substitutes. The couplings shall be the "lead-free" brass compression style couplings for use with service piping (tubing), or the polypropylene compression couplings as specified herein. **The conventional brass couplings shall be utilized for service connections when the house (building) foundation is less than ten (10) feet from the curb stop location. The polypropylene couplings shall be utilized for service connections when the foundation is greater than ten (10) feet from the curb stop location.**
- 5.7.2** Brass compression couplings shall be manufactured in accordance with AWWA Standard C800 and shall be "Lead-Free" as defined for lead-free brass alloys in accordance with the ANSI/NSF-60 and ANSI/NSF-61 standards for components in contact with potable water. These products shall have the letters "NL" or "LF" cast into the main body of coupling for proper identification.
- 5.7.3** Polypropylene compression style connection fittings, which serve as couplings or adapter couplings for service piping connections, shall be manufactured in accordance with the pressure requirements of AWWA Standard Specification C800, and shall be suitable for use with copper, lead, polyethylene and steel service piping. Polypropylene couplings shall also comply with the ANSI/NSF-61 standards for components in contact with potable water. Couplings for use with lead services shall accommodate lead service sizes ranging from 5/8-inch to 1-1/4-inch. The specified polypropylene compression fittings (or couplings) shall be the Philmac UTC design style, as manufactured by the Harrington Corporation (Harco), Lynchburg, VA.

5.8 CORPORATION STOPS AND SERVICE SADDLES

- 5.8.1** The corporation stops, to be furnished and installed by the Contractor under these

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specifications, shall be from manufacturers on the latest revision of the “List of Approved Materials / Manufacturers for PWSB Distribution System”, or approved substitutes.

- 5.8.2** Corporation stops shall be manufactured in accordance with AWWA Standard C800 and shall be "Lead-Free" as defined for lead-free brass alloys in accordance with the ANSI/NSF- 60 and ANSI/NSF-61 standards for components in contact with potable water. These products shall have the letters "NL" or "LF" cast into the main body of corporation stop for proper identification.
- 5.8.3** The inlet thread of all corporation stops shall be AWWA Standard CC inlet thread for their respective sizes. The outlet of all corporation stops shall be provided with compression couplings for type "K" copper service pipe for their respective sizes.
- 5.8.4** Service saddles shall be utilized for all connections to asbestos-cement (transite) pipe and for 1-1/2” and 2” connections on all other pipe. Service saddles, which are to be furnished and installed by the Contractor under these specifications, shall be constructed of Epoxy Coated Ductile Iron with a body curvature designed to fit pipes accurately with a broad pressure activated gasket to provide uniform sealing pressure. Service saddles shall have double straps.
- 5.8.5** The saddle clamp must be furnished with a tapped outlet with full length threads that meet AWWA Standards for corporation stops, and shall be from manufacturers on the latest revision of the “List of Approved Materials / Manufacturers for use in the Providence Water Distribution System”, or approved substitutes.
- 5.8.6** The saddle’s double straps, bolts, nuts and washers shall be 18-8 stainless steel with all welds passivated for resistance to corrosion. The combined strap width shall be 3-1/4” wide to provide a wide stance on the pipe.
- 5.8.7** A neoprene or virgin rubber gasket must be bonded into a cavity in the saddle body to provide a pressure tight seal on a water main.
- 5.8.8** New corporation stops shall be installed in the same location as the existing. The existing corporation stop shall be removed from the main using the tapping machine with the extraction tool and the new stop shall be installed after drilling for the larger corporation.

5.9 CURB STOPS

- 5.9.1** The curb stops, to be furnished and installed by the Contractor under these specifications, shall be from manufacturers on the latest revision of the “List of Approved Materials / Manufacturers for use in the Providence Water Distribution System”, or approved substitutes.

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- 5.9.2** Curb stops shall be manufactured in accordance with AWWA Standard C800 and shall be "Lead-Free" as defined for lead-free brass alloys in accordance with the ANSI/NSF-60 and ANSI/NSF-61 standards for components in contact with potable water. These products shall have the letters "NL" or "LF" cast into the main body of curb stop for proper identification.
- 5.9.3** Curb stops shall be ball valve type with combined cap and tee and shall be provided with a positive stop at fully open and fully closed.
- 5.9.4** The inlet and outlet ends of the curb stops shall be provided with compression couplings for Type "K" copper service pipe for their respective sizes.
- 5.9.5** The curb stops to be furnished under these specifications shall "OPEN TO THE RIGHT - CLOCKWISE."

5.10 CURB SERVICE BOXES

- 5.10.1** The extension service boxes, to be furnished and installed by the Contractor under these specifications, shall be from manufacturers on the latest revision of the "List of Approved Materials / Manufacturers for use in the Providence Water Distribution System", or approved substitutes.
- 5.10.2** Curb boxes for $\frac{3}{4}$ and 1" services shall be Erie style type boxes with an arch or bell bottom, and shall be so constructed as to permit the total length of the box to be adjusted from not less than 4 $\frac{1}{2}$ feet to 5 $\frac{1}{2}$ feet.
- 5.10.3** The upper section of the box shall not be less than one (1) inch in diameter and provided with a suitable and removable cover. The covers for all curb boxes shall be screwed to top section, have a bronze pentagon plug, and have the word "Water" cast into them.
- 5.10.4** The boxes shall be constructed so as to prevent the separation of the upper section from the lower section and to prevent the upper section from turning when removing the lid.
- 5.10.5** The boxes shall be furnished with stationary rods extending up into the upper section to allow the use of a short wrench. The rod shall be of steel not less than $\frac{5}{8}$ of an inch in diameter, the upper end of which shall be shaped to receive a curb stop operating wrench. The lower end of the rod shall be provided with a malleable iron fork to fit standard curb stop operating keys. A suitable pin shall be furnished to attach the rod to the key.
- 5.10.6** The boxes shall be coated both inside and outside with the manufacturer's standard paint or enamel.

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5.10.7 The service box covers are to be furnished with a plug cover.

5.10.8 Curb boxes for 1-1/2 inch and 2-inch curb stops shall be constructed of a cast iron two section roadway style box, and shall have a 4-1/2 inch cover with the word "Water" cast into them, with an arched bell and foot bottom section. Curb stops shall be placed on a bedding of crushed stone to provide adequate drainage with suitable blocking on each side of the pipe to support the curb box bottom. At no time should the service box bottom rest or contact the service piping. Boxes shall be adjustable for a maximum burial depth of 5.5 feet.

5.11 VALVE / GATE BOXES

5.11.1 The valve / gate boxes, to be furnished and installed by the Contractor under this specification, shall be from manufacturers on the latest revision of the "List of Approved Materials / Manufacturers for use in the Providence Water Distribution System", or approved substitutes.

5.11.2 The valve / gate boxes shall be cast iron and furnished complete with covers. The cover shall be marked "Water."

5.12 GATE BOX ALIGNERS

5.12.1 All valves shall be installed with a valve box aligner to center the operating nut within the bell of the gate valve box bottom preventing shifting of the gate box during the backfill operation. Gate valve box aligners shall be used in every gate valve box installation.

5.13 AIR RELEASE ASSEMBLY

5.13.1 The contractor shall furnish and install air release assemblies as indicated within the Contract Documents or otherwise directed by the Owner.

5.13.2 Air release assemblies shall consist of a corporation stop, two ninety (90) degree elbows, two brass nipples, a curb stop, two gate boxes, and a stand pipe and cap. The Contractor will be required to contact the OWNER for specific material, size, and assembly requirements.

5.14 BLOWOFF ASSEMBLY

5.14.1 The contractor shall furnish and install blowoff assemblies as indicated within the

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Contract Documents or otherwise directed by the Owner.

5.14.2 A 2" blow off assembly shall be used at the terminus of a "dead end" main. It consists of the following 2" diameter components: tapping saddle, brass nipples, brass elbow, curb stop valve (open "RIGHT") with drain, galvanized pipe, ductile iron end cap (MJ) for main, poured concrete thrust block, cast iron 4 1/4" gate valve roadway box, and cast iron 5 1/4" gate valve box. Components shall be joined together with iron pipe threads.

5.14.3 2" Blow off assemblies shall be as manufactured by Wedge Manufacturing.

5.15 SWING-CHECK VALVES

5.15.1 Swing-check valves shall utilize iron-body bronze-mounted (IBBM) design. They may employ metal-to-metal or composition-to-metal seat construction. Working pressure shall be 175 psi for valves up to 12-inches and 150 psi for those 16-inches and larger.

5.16 THRUST BLOCKS

5.16.1 The Contractor shall furnish and install all concrete for thrust blocks.

5.16.2 Cement shall be domestic Portland Cement conforming to ASTM designation C150, Type II (Rhode Island Department of Transportation Class "B").

5.16.3 Fine aggregate shall be natural sand conforming to ASTM designation C33.

5.16.4 Coarse aggregate shall be well graded stone conforming to ASTM designation C33 Size No. 67.

5.16.5 The Cement Concrete shall develop a minimum compressive strength of 3000 psi at 28-days.

5.16.6 Concrete for thrust blocks shall be placed where directed, with rough side forming or stone bulkheads as required, in such manner as to transmit pipe thrust loads against the undisturbed earth of the trench walls. Concrete materials, mixing, handling and placing shall conform to all applicable requirements of the latest revision to the State of Rhode Island, Department of Transportation, Standard Specifications for Road and Bridge Construction. Vertical Fittings and Rods.

5.16.7 Vertical fittings shall be anchored to thrust blocks using at least two (2) #5 (5/8-inch minimum), Grade 60, deformed steel rebars. Blocks shall be designed by a professional engineer for pipe sizes greater than 12-inches. Anchors shall be bent to match to outside radius of the fitting to be restrained.

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5.17 CRUSHED STONE

5.17.1 Reference is made to Section 02000, Earthwork, for crushed stone requirements.

5.18 INSERTION VALVES

5.18.1 General: Insertion Valves, of the sizes required and directed by the Owner, shall be a resilient wedge gate valve, of ductile-iron construction with a 250 psi operating (working) pressure rating, designed for use in potable water applications. The design will allow the valve to be installed into an existing pressurized water main while maintaining constant pressure and service. Whereupon the wedge is closed and the valve body is adequately restrained, the downstream pipe can be completely removed and replaced.

5.18.2 Ductile Iron Construction: The ductile iron body, bonnet and wedge shall meet or exceed the requirements of AWWA Standard C-515. The ductile-iron construction of the insertion valve shall be in accordance with ASTM A536 Grade 65-45-12.

5.18.3 Water Main Sizes: Insertion valve sizes of 12" and smaller must be suitable for use with Cast/Grey Iron or Ductile Iron Class A, B, C and D pipe diameters, or AC pipe diameters without changing either top or bottom portion of split valve body.

5.18.4 Working Pressure: The insertion valve shall be rated for a maximum working pressure of 250 psig. The pressure rating marking shall be cast into the body of the insertion valve.

5.18.5 Resilient Wedge Gate: The construction of the resilient wedge gate assembly shall comply with the requirements of AWWA Standard C-509. The ductile iron wedge shall be fully encapsulated with EPDM rubber to ensure that the ductile iron gate is fully coated with molded rubber with no exposed iron. The resilient wedge shall seat on the valve body and not the existing water main piping to obtain the optimum seating and flow control results. The resilient wedge shall be totally independent of the existing water main (carrier pipe) and shall not come into contact with the carrier pipe or depend on the carrier pipe to create a seal. Pressure equalization on the down or upstream side of the closed wedge shall not be necessary to open the valve. The wedge shall be symmetrical and seal equally well with flow in either direction. The resilient wedge must travel inside the body channels to maintain wedge alignment throughout its travel to achieve maximum fluid control regardless of high or low flow pressure or velocity. The flow way shall be oversized and unobstructed so as to provide optimum flow.

5.18.6 Epoxy Coating: The insertion valve is fully epoxy coated on the interior and the exterior. The required fusion-bonded coating is also applied to the bolt holes and body-to-bonnet flange surfaces. The insertion valve shall be coated with a minimum of 10 mils epoxy

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in compliance with AWWA Standard C-550 and certified in accordance with ANSI/NSF-61.

- 5.18.7** O-Ring Stem Seals: The design of the insertion valve includes triple O-Ring stem seals, which consists of two O-Rings located above the thrust collar and one O-Ring located below the thrust collar. The lower two O-Rings provide a permanently sealed lubrication chamber for prolonged valve operation. The upper O-Ring ensures that sand, dirt or grit cannot enter the valve to cause damage to the lower O-Rings. Side flange seals shall be of the O-Ring type of either round, oval, or rectangular cross-sectional shape.
- 5.18.8** Valve Stem: The gate valve stem and wedge nut shall be copper alloy in accordance with Section 4.4.5.1 of the AWWA Standard C-515. The non-rising stem (NRS) stem must have an integral thrust collar in accordance with Section 4.4.5.3 of AWWA Standard C-515. The wedge nut shall be independent of the wedge and held in place on three sides by the wedge to prevent possible misalignment. Two thrust washers are utilized with one located above the stem thrust collar and one located below the stem thrust collar. The NRS shall provide valve actuation with AWWA standard turns and be operated by 2” square wrench nut in accordance with ASTM A126 CL.B. The insertion valve shall **“Open Right”**.
- 5.18.9** Bolting Materials: Bolting materials shall be manufactured in accordance with ASTM A307 with dimensions conforming to ANSI B18.2.1
- 5.18.10** Split Restraint Devices: Split restraint devices shall consist of multiple gripping wedges incorporated into a follower gland that meet the applicable requirements of ANSI/AWWA Standard C110/A21.10. The devices shall have a working pressure rating of 350 psi for the 4 inches through 12 inch pipe sizes. Ratings are for water pressure and must include a minimum safety factor of 2 to 1 in all sizes. Gland body wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536. Mechanical joint restraint shall require conventional tools and installation procedures per AWWA Standard C-600, while retaining full mechanical joint deflection during assembly as well as allowing joint deflection after assembly. Proper actuation of the gripping wedges shall be ensured with torque limiting twist off nuts. Set screw pressure point type hardware shall not be used. Restraint devices shall be listed by Underwriters Laboratories and Approved by Factory Mutual (3” through 12” inch size).
- 5.18.11** Maintenance Features: The stuffing box, operating stem and resilient wedge (complete bonnet and all moving parts) shall be removable, repairable and or replaceable while the valve is fully pressurized within the system. Whereupon the valve stem is broken or damaged, the bonnet can be removed under pressure. Internal pressure equalization system assures the safe entry and removal of the valve bonnet during initial installation as well as future maintenance.

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- 5.18.12** The specified Insertion Valve shall be the "InsertValve RW-Gate" as manufactured by TEAM Industrial Services, Alvin, Texas.
- 5.18.13** Insertion Valves: After the installation of the insertion valve body onto the existing pipe, a pressure test of 1.1 times that of the system operating pressure shall be sustained for a 15 minute period. Once the pressure test is effectively achieved, the insertion valve body must not be moved in accordance with AWWA Standards. Whereupon the insertion valve is moved, the pressure test must be performed and satisfactorily completed again. The insertion valve must not be moved or repositioned once the pressure test has been satisfactorily achieved.
- 5.19 ASBESTOS CEMENT (AC) PIPE RESTRAINERS**
- 5.19.1** Restrainers shall be used on asbestos cement (AC) pipe connections to new ductile iron pipe.
- 5.19.2** Restrainers shall be JCM 630 Restrainer Series as manufactured by JCM Industries.

Equipment

- 6.1 PIPE SAW**
- 6.1.1** When applicable and where directed by the Owner, the Contractor shall employ a pipe saw for field cutting of all pipe. The pipe saw shall produce a clean true cut, free from irregularities and leave a smooth end at right angles to the axis of the pipe. When the project requires large diameter pipe an air or hydraulic operated wrap around style saw may utilized to provide a true and square cut.
- 6.2 VALVE OPERATOR**
- 6.2.1** When applicable and where directed by the Owner, the Contractor shall employ a Wachs TM6 type valve operator, or better, for opening and closing gate valves as required and/or directed.
- 6.3 VACUUM**
- 6.3.1** When applicable and where directed by the Owner, the Contractor shall employ a Wachs TRAV-L-VAC 300 type vacuum, or better, for the removal of debris and/or water from gate boxes and manholes as required and /or directed.

Execution

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7.1 INSTALLATION/REMOVAL

- 7.1.1** The Contractor shall perform and complete all work in accordance with the drawings and specifications. The Owner shall determine the amount, quality, acceptability, and fitness of all parts of the work completed. The Contractor shall perform all work in a workmanlike manner, with due diligence, and in a continuous and uninterrupted manner.
- 7.1.2** Removal of Existing Water Main - Existing water main removal from the system, for replacement, shall be removed from the trench in a manner as not to disrupt adjoining pipes/utilities. As the main is removed, ALL service connections shall be mechanically cut and sealed to prevent any debris from entering service tubing until such time the permanent connection to the new main is completed. All existing main connections shall be temporarily capped and restrained until such time the permanent connection to the system can be completed as detailed in Section 7.7.1.
- 7.1.3** Trench Excavation and Backfill - Water mains and services shall be installed with a minimum cover of 4'-6" to the crown of the pipe in an AWWA "Type 5 Trench". Where unsuitable material is found at or below the grade of the placement of the pipe or fitting, said material shall be removed to the required width and depth and replaced with thoroughly compacted bank run or processed gravel (Ref. Section 02000, Materials). Material shall be deposited across the full width and length of the trench in layers of not more than twelve (12) inches in depth, *before* compaction. Each layer shall be compacted to 95% Standard Proctor to a minimum depth of the street subgrade.
- 7.1.4** Compacted gravel bedding (12" min) shall be installed under the entire length of the pipe and across the full width of the trench. Firm bearing shall be achieved by tamping selected material at the sides of the pipe/fitting, up to the "spring line" (mid-point height).
- 7.1.5** Dig-Safe® is to be notified prior to commencement of work. Any broken or damaged utility connection or services (water, sewer, gas, telephone, electric, etc.) shall be fully repaired at the expense of the party responsible for the damage. Underground structures shall be thoroughly supported or otherwise protected to maintain uninterrupted service.

7.2 CONNECTING DUCTILE IRON PIPE

- 7.2.1** With the exception of MJ and flanged pipe, each section of ductile iron pipe comes complete with a spigot end and a bell & O- ring end. To connect the pipes, the Contractor shall slide the spigot end of one pipe into the bell and gasket end of another pipe. When directed by the Owner, a restraint style gasket (Field Lok) may be required in place of a standard Tyton gasket. See Restraint Guide Table at the end of this section. At all times it will be required to lube the pipe to facilitate the connection. The pipe lubricant shall be a nontoxic vegetable based product as supplied by the pipe manufacturer, and be certified by the National Sanitation Foundation (NSF 61) as safe for drinking water use.

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All ductile pipe shall be installed adhering to the latest guidelines published by the Ductile Iron Pipe Research Foundation and AWWA standards manual M41- Ductile Iron Pipe and Fittings.

7.3 REPLACEMENT OF LEAD SERVICES

7.3.1 The Contractor shall install the service saddle if required, tap the existing or newly installed main, install the corporation stop, and install the copper tubing to a point approximately one (1) foot beyond the existing curb line or as directed by the Owner, to the new curb stop.

7.3.2 For lead services replaced within the scope of Cleaning and Lining rehabilitation contracts, the existing corporation stop shall be removed and replaced with a new corporation at the existing location on the main (unless otherwise obstructed).

7.3.3 The Contractor shall install a new curb stop and make connection to the existing service using a short section of copper tubing and a compression coupling (as delineated in Article 5.11 Couplings) on the property owner's side.

7.3.4 For operating purposes, the Contractor shall install a new curb box and rod as part of the completed curb stop installation. Upon completion of the overall curb stop assembly, the Contractor shall exercise the curb stop to ensure that the valve is functioning properly. The Contractor is reminded that the new curb stop shall be left in the same position (open or closed) as was found upon examination and inspection of the old (existing) curb stop.

7.3.5 All fittings and tubing shall be in accordance with OWNER specifications. The minimum depth to the top of the copper tubing shall be 4'-6".

7.3.6 The Contractor shall remove the existing lead service and curb box and restore the excavation to its original condition.

7.4 INSTALLATION OF COPPER SERVICES – PUBLIC SIDE

7.4.1 The Contractor shall direct tap or install a service saddle, if required; tap the existing or newly installed main; install the corporation stop; and install the copper tubing to the closest point on the existing copper service with a compression coupling to re-connect to the existing copper service.

7.4.2 All fittings and tubing shall be in accordance with OWNER specifications. The minimum depth to the top of the copper tubing shall be 4'-6".

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7.5 INSTALLATION OF COPPER SERVICES – PRIVATE SIDE

- 7.5.1** When directed, the Contractor shall install a new private-side water service from the curb stop to the water meter within the basement of the building. The new water service installation shall be performed by trenchless technology methods, or by open-cut trench, depending on the existing conditions of the private property. Whenever possible, it is desirable that the Contractor will install the new copper water service by trenchless technology utilizing the pulling method so as to minimize disturbance of existing conditions and other features within the exterior grounds of the private property.
- 7.5.2** Whereupon the Contractor is directed to perform a private service replacement that will require the internal moling method for the installation of the private service, the Contractor will be required to cut and remove a portion of the existing basement floor in order to excavate a suitable access pit to perform the moling work within the interior of the building. The Contractor will hand-excavate to a suitable depth to accommodate the operations required for the trenchless means of underground pipe installation. The Contractor will be required to refill and compact the interior excavation, and replace that portion of the existing concrete basement floor that was cut, removed and disturbed as a result of the interior construction operations.
- 7.5.3** All exterior fittings and tubing shall be in accordance with OWNER specifications. The minimum depth to the top of the copper tubing shall be 4'-6". No couplings will be allowed for the new exterior service installation, which shall be continuous from the curb stop to the building.
- 7.5.4** The Contractor shall also perform interior plumbing work as part of the overall private service replacement. This work will consist of the installation of new ball valves on each side of the existing or new meter (as provided by OWNER), and the installation of all appurtenant interior copper piping and fittings required for the completed valve installations. This internal plumbing work will also require the installation of jumper pipe at the water meter location, and the installation of backflow prevention device. All materials and installations shall be in accordance with OWNER specifications and/or the local plumbing code.
- 7.5.5** If and when required, the Contractor shall also install additional interior plumbing equipment as part of the overall interior private service replacement work. This work will consist of the installation of new pressure reducing valve before the water meter, and the installation of a new expansion tank. This work will also include the all appurtenant interior copper piping and fittings required for the completed equipment installations. All materials and installations shall be in accordance with OWNER specifications and/or the local plumbing code.
- 7.5.6** All exterior fittings and tubing shall be in accordance with OWNER specifications. The

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minimum depth to the top of the copper tubing shall be 4'-6". No couplings will be allowed for the new exterior service installation, which shall be continuous from the curb stop to the building.

7.6 INSTALLATION OF FIRE HYDRANTS

- 7.6.1** The Contractor shall utilize an anchor tee fitting, as opposed to a tapping sleeve and valve approach for a newly installed water main. At the necessary locations, the Contractor shall cut the new ductile iron main and install an anchor tee fitting to provide a service to the new hydrant. Tapping sleeve and valve for hydrant installation shall be utilized only with prior OWNER approval.
- 7.6.2** Locations of new hydrants shall be as near to the replacement hydrants as possible or as per contract drawings.
- 7.6.3** Hydrants shall be set plumb with the steamer port facing the roadway. Hydrants shall be positioned with the center of the operating nut 24-inches back from the face of the curb or as required by the local fire chief.
- 7.6.4** The hydrants shall be set so that the manufacturer's "bury" mark or ground line is at finished grade. If there is no "bury" mark on the hydrant, the bottom of the breakaway feature shall be set at a minimum of 2-inches to a maximum of 4-inches above finished grade. Depths of bury shall be at least 4'-6". Hydrant base shall be set on either a flat stone or a concrete base that is at least 14-inches square and 6-inches thick.
- 7.6.5** Hydrants shall be restrained using poured concrete thrust blocks along with a mechanical restraining device such as the "Megalug" or strapped back to the hydrant gate valve.
- 7.6.6** A drainage pit shall be excavated below and around each hydrant and backfilled to a height of at least 6-inches above all drain ports with at least one (1) cubic yard of 1/2" to 1-inch washed crushed stone. The stone shall be compacted prior to backfilling and compaction of the hydrant. Aggregates shall be covered with a layer of non-woven filter fabric to lessen the intrusion of fine soil particles into the stone.
- 7.6.7** Hydrants shall be fed from the main with a 6 or 8-inch ductile iron lateral (8-inch is used when hydrant laterals exceed 10 feet). A resilient seated gate valve (MJ) shall be installed in the lateral between the tee and the hydrant. Special anchor or swivel tees (MJ) shall be used to connect the hydrant branch to the main.
- 7.6.8** As directed on the plans or at the OWNER's discretion, existing hydrants removed from service shall be properly disposed of by the Contractor. If the Contractor is directed **not** to remove an existing hydrant, and the hydrant is removed by OWNER forces, the Owner shall be the responsible party for disposal.

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7.7 CONNECTION TO EXISTING MAIN

- 7.7.1** The Contractor shall excavate; place processed stone on the excavation bottom; cut the existing main; dewater the excavation; clean the main; swab with a 50 ppm chlorine solution; install a tee; pour a concrete thrust block behind the tee; install the required fittings; and backfill and compact the excavation. After the connection is made, the existing water main shall be flushed until clear with the assistance of OWNER forces.
- 7.7.2** At the discretion and direction of the Owner, the Contractor shall make necessary excavations, install the tapping sleeve and valve, make the required size tap using a tapping machine or remove the existing end plug, and install the required fittings.

7.8 CUT AND PLUG EXISTING MAIN

- 7.8.1** The Contractor shall excavate, place crushed stone on the excavation bottom; cut the existing main; dewater the excavation; clean the main by spraying with a chlorine solution; install a cap; restrain cap back to the tee; pour a cement thrust block behind the cap; and backfill and compact the excavation.
- 7.8.2** The Contractor shall make cuts and plugs in the existing mains, at points shown on the Contract Drawings or where directed by the Owner, after the newly installed main is satisfactorily in service and all services have been transferred to the new main.

7.9 WATER MAINS AND APPURTENANCES ABANDONED IN PLACE

- 7.9.1** Water mains, water services, and hydrant runouts that are disconnected from the system and **abandoned in place** shall be capped at ALL openings.

7.10 INSTALLATION OF VALVES

- 7.10.1** The Contractor shall furnish and install valves at the locations designated on the Contract Drawings or where directed by the Owner.
- 7.10.2** All valves and fittings shall be carefully examined for defects and no piece shall be installed which is known to be defective. If any defective piece is discovered after having been installed, it shall be removed and replaced at the expense of the Contractor. All valves and fittings shall be thoroughly cleaned before they are installed and shall be kept clean until they have been accepted in the completed work.
- 7.10.3** Prior to installing butterfly valves, concrete blocks shall be firmly bedded on the excavation bottom slightly below the grade of the finished valve. After the valve and fittings have been lowered into the trench, wedges shall be placed and adjusted so as to bring the valve and fittings to proper alignment and grade. Ductile Iron pipe, a minimum

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of 22 inches in length (assembled), shall be installed on both sides of the butterfly valve or as required to facilitate the installation of the new valve. Before backfilling occurs, the work shall be tested under pressure. Additional on-site testing may be required at the OWNER's discretion.

7.10.4 All valves and fittings shall be carefully examined for defects and no piece shall be installed which is known to be defective. If any defective piece is discovered after having been installed, it shall be removed and replaced at the expense of the Contractor. All valves and fittings shall be thoroughly cleaned before they are installed and shall be kept clean until they have been accepted in the completed work.

7.10.5 If leakage is visible, the Contractor shall do whatever is necessary to repair said leak at his own expense. Upon completion of the repair the work shall be retested.

7.11 AIR RELEASE ASSEMBLY

7.11.1 The Contractor shall drill and tap the water main and furnish and install the brass pipe, brass fittings, corporation stop, hydrant stop, drain and valve box necessary for the complete installation of the Air Release Assembly as per OWNER Standards.

7.12 BLOWOFF ASSEMBLY

7.12.1 The Contractor shall provide all materials, labor and equipment for the complete installation of the Blowoff Assembly as per OWNER Standards. The Contractor shall insure that the Blowoff Assembly is free to move vertically within the valve box and to surround the drain port with a sufficient amount of crushed stone to provide an adequate drain field.

7.13 THRUST BLOCKS

7.13.1 The preferred method of counteracting thrust is through the use of a mechanical joint restraint device. Concrete thrust blocks are allowed and may be used as an option to or in conjunction with a mechanical joint restraint device.

7.13.2 Thrust blocks shall be designed using a soil bearing strength of 1,500 pounds per square foot (psf). They shall be constructed in place using Portland cement concrete (R.I. Department of Transportation Class "B") having a 28-day compressive strength of at least 3,000 psi, and be located in such a way so as to bear against undisturbed earth. They shall be utilized on all water mains for the following conditions:

- Pipeline direction changes (tees, bends, etc.)
- Dead end lines (caps, plugs or hydrants)
- Transition pieces (reducers, offsets, etc.)

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The sides of thrust blocks shall be formed. Forms shall be removed before backfilling commences. Curing time should be at least forty-eight (48) hours. Minimum bearing shall be that which is depicted on the plans or as directed by OWNER. Felt roofing paper shall be used to protect pipe joints. Concrete shall not be placed over bolts or nuts, or placed in such a way that will prevent the removal of joints (NOTE: concrete reaction blocks may be used when bearing against undisturbed soil cannot be achieved).

7.14 OPERATION OF VALVES

7.14.1 Unless precluded by unexpected events, the Contractor shall notify the OWNER at least seventy-two (72) hours prior to a water main shutdown. The OWNER shall determine if the operation of valves will be performed by OWNER work forces, the Contractor, or a OWNER Subcontractor. **The immediacy of water main shutdowns or valve operation is not warranted by OWNER.** In the operation of valves, for the purpose of shutting down existing mains, the OWNER does not guarantee or imply that shut down will be completely effective in stopping the flow of water to open ends.

7.14.2 The Contractor must notify the OWNER and/or its representative at least seventy-two (72) hours prior to a water main shutdown. Prior to the shutdown notification, and whereupon OWNER authorizes the Contractor to operate valves, the Contractor shall locate, uncover buried valves, and clean the valve boxes, if necessary, and perform a preliminary test of the valves required to accomplish the shutdown, in order to assess the condition of the valve and its capability to achieve the shutdown. If a valve **within the scope of work** is found to be inoperable or not functioning properly and is required to complete a shutdown, it may be replaced out of sequence (as directed by OWNER) at no additional cost. Additionally if a valve **not within the scope of work** is found to be inoperable or not functioning properly and is required to complete a shutdown, the Contractor shall notify OWNER and/or its representative. Upon notification by the Contractor, OWNER will make the determination on whether the valve repair or replacement will be accomplished by the Contractor (at cost to the owner in accordance with the Bid Schedule Part 1, Items 8 to 11-1; or Part 6, Items 40 and 41), its own forces, or by an OWNER's contractor. The Contractor must notify OWNER and/or its representative of all problematic valves. Ultimately, OWNER will make the determination on whom will accomplish the valve repair or replacement, as delineated above. During the interim period, the Contractor shall locate other backup isolation valves and test in a like manner. The preparatory and/or explorative work required for a satisfactory shutdown shall be completed at no cost to OWNER.

7.14.3 As specified herein, the Contractor may be authorized to operate all valves required to shut down (and subsequently reopen) existing water mains under this contract. Whereupon the Contractor is unable to shut down a valve after two (2) hours of attempting to do so, OWNER will direct the Contractor as to how to proceed. In order to complete the shutdown, it may be necessary to operate additional isolation valves not originally anticipated in the shutdown. There shall be no additional payment to the contractor for

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the operation of these auxiliary valves to achieve the shutdown.

- 7.14.4** When authorized, the operation of valves of any diameter, hydrants, and other water appurtenances for work associated with this contract shall be performed by the Contractor under the supervision of the OWNER and/or its representative. Valves shall be operated slowly, especially in the near closed position, so as to cause the least disturbance to the distribution system. Upon completion of the construction work in the area, all new and all existing valves that have been operated in conjunction with the contract work shall be checked for position by the Contractor in the presence of OWNER or its representative. All valves shall be left fully open unless otherwise directed.
- 7.14.5** During the required valve operations, packing leaks may appear on valves left in the closed position. Should this occur, OWNER will make the determination on whether to have the valve repaired to make it leak free by the Contractor, its own forces, or by another OWNER contractor.
- 7.14.6** In accessing and operating existing valves, the Contractor shall take the utmost care to protect the valve and appurtenances including the valve box assembly. The Contractor shall immediately notify OWNER or its representative of any pre-construction/existing damage of the valve and appurtenances such as a rounded operating nut, broken stem, cracked casting, or other observed conditions. Should the Contractor damage an existing valve or appurtenances through its own neglect, the Contractor shall repair or replace the asset to the satisfaction of OWNER and at no additional cost to OWNER.

7.14 SALVAGE AND DISPOSAL

- 7.14.1** Unless otherwise stated herein, or as directed by the OWNER or its Construction Manager, all existing water mains, valves, hydrants and appurtenances, which are removed as part of the contract work, shall be disposed of by the Contractor.
- 7.14.2** As the contract work progresses, OWNER will identify certain items, such as hydrants, valves, or parts thereof, including valve box covers, where OWNER will retain ownership. In these cases, OWNER forces will pick up the item in its entirety, or remove pertinent parts in the field for future use by OWNER. Upon completion of the pick-up or the removal of parts by OWNER forces, any remaining portions will be disposed of by the Contractor.

Field Quality Control

8.1 WATER MAIN PRESSURE AND LEAKAGE TESTS

8.1.1 GENERAL

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- 8.1.2** The Contractor shall be responsible for the planning, coordination and execution of a combined pressure and leakage testing of water mains prior to them being placed in service. The pressure and leakage test shall be conducted in accordance with ANSI/AWWA C-600, except as modified herein.
- 8.1.3** After water main pipe has been installed, it shall be subjected to combined pressure and leakage test. Regardless of length of water main in a project, all segments shall be tested unless otherwise approved by OWNER.
- 8.1.4** Contract work shall remain separated from the existing distribution system, except for test connections, until the pressure/leakage test, and chlorination work has been completed, and connection to the water distribution system is approved by OWNER. Testing against closed valves shall be permitted only under special circumstances and with prior approval by OWNER.
- 8.1.5** Water required to fill the new water main for hydrostatic pressure testing, disinfection, and flushing shall be supplied through a temporary connection between the distribution system and the new main. The temporary connection shall include an appropriate double check valve backflow prevention device and shall be disconnected (physically separated) from the new main during the hydrostatic pressure test. It will be necessary to re-establish the temporary connection after completion of the hydrostatic pressure test to flush out the disinfectant water prior to final connection of the new water main to the distribution system. The source of potable water used for disinfection and pressure testing shall be flushed prior to its use to ensure that contaminants or debris are not introduced into the new pipe. Adequate drainage must be provided during flushing.
- 8.1.6** The Contractor shall perform all work necessary to complete testing. This shall include furnishing all labor, materials and equipment including pumps, gauges, charts, meters, and water source connections. Test gauges shall have pressure scale increments of no more than two (2) psi and have an operating range of 0 to 250 psi. The Contractor shall demonstrate that the test gauges have been tested, and that their calibration is certified within one year of the proposed date of the test. Otherwise, the test gauges shall be newly purchased.
- 8.1.7** The Contractor shall provide and install approved caps and plugs in sections to be tested. Openings in pipe and fittings shall be closed tight to prevent leakage. All temporary plugged and capped ends shall be properly blocked to prevent displacement and leakage. All fire hydrant laterals shall be installed and the hydrant control valves in the open position. The Contractor shall install water source and discharge connections to the isolated pipe section for test purposes as directed. If a water main tap is approved for test connection to new water main, the tap will be furnished and installed by the Contractor.
- 8.1.8** The Contractor shall fill and flush the new main to remove any air that may become trapped within the new piping. The new water main shall be filled no less than twenty

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four (24) hours prior to the start of testing procedures. Water utilized for this purpose, which is obtained directly from the OWNER's system, must flow through an approved backflow device that has been tested and certified to be in working condition at the time it is used for this purpose.

- 8.1.9** If the Contractor should choose to conduct tests prior to backfilling, he shall be responsible for providing and installing temporary blocking to properly restrain pipe. Temporary blocking shall be approved by OWNER prior to testing.
- 8.1.10** Upon test completion and approval of samples tested for bacteriological quality, the Contractor shall remove temporary caps, plugs and other temporary construction, and shall complete connections of new work to the water distribution system.
- 8.1.11** All materials and equipment furnished by the Contractor for water main testing, including closure caps, plugs and other temporarily required accessories, shall remain the property of the Contractor upon completion of testing.

8.2 FIELD PRESSURE AND LEAKAGE TEST

- 8.2.1** Each segregated section to be tested shall be subjected to a hydrostatic test pressure per subsection **8.3**, which shall:
- a. Be of at least one hour duration; and
 - b. Be pressurized to 150 psi, or 1-½ times the working pressure of the existing main.
 - c. Not vary by more than ±5 psi from the specified test pressure for the duration of the test.
- 8.2.2** Leakage shall not exceed the total computed from the Table 08-02-01 as determined by the following formula:

$$L = \frac{SD \times I}{P} \times 133,200$$

Where:

- L = Allowable leakage in gallons per hour
- S = Length of pipe tested in feet
- D = Nominal diameter of the pipe in inches
- P = Average test pressure during the test in pounds per square inch

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Pipe Size (in.)	Maximum Allowable Leakage Per 1,000 LF of Pipeline (Gallons / Hour)
4	0.37
6	0.55
8	0.74
10	0.92
12	1.10
14	1.29
16	1.47
18	1.66
20	1.84
24	2.21
30	2.76
36	3.31
42	3.86
48	4.41
54	4.97

*If the pipeline under test contains sections of various diameters, the allowable leakage will be the sum of the computed leakage for each size.

8.2.3 Any section that fails the pressure and leakage test shall be repaired by the Contractor. The Contractor shall then retest the section until approved at no additional costs to OWNER.

8.2.4 All visible leaks shall be repaired regardless of the amount of leakage.

8.3 PRESSURIZATION

8.3.1 Each section of pipe shall be slowly pressurized to the specified test pressure by means of an approved hydrostatic test pump connected to the pipe in a manner satisfactory to OWNER.

8.3.2 The system shall be allowed to stabilize at the test pressure before conducting the test.

8.4 AIR REMOVAL

8.4.1 Before applying the specified test pressure, air shall be expelled completely from the pipe, valves and hydrants. If permanent air valves are not located at all high points, the Contractor shall expose the entire pipe circumference at those points and install corporation cocks at such points so that trapped air can be expelled as the line is filled

SECTION 05000 UTILITY PIPING

with water.

8.4.2 After all the air has been expelled, the corporation cocks shall be closed and the test pressure applied.

8.4.3 At the conclusion of pressure and leakage tests, the Contractor shall remove the corporation cocks and plug the tapped holes with brass plugs.

8.5 EXAMINATION

8.5.1 Any damaged or defective pipe, fittings, valves or hydrants which are discovered following the pressure and leakage test, shall be replaced by the Contractor, and the test shall be repeated until work is satisfactory.

8.6 WATER MAIN DISINFECTION

8.6.1 Upon completion of installation and testing, the Contractor shall disinfect all water mains in the following manner:

a. The Contractor shall furnish and install suitable temporary testing plugs, caps, pumps, pipe connections and appurtenances, as necessary.

b. Water required to fill the new water main for hydrostatic pressure testing, disinfection, and flushing shall be supplied through a temporary connection between the distribution system and the new water main. The temporary connection shall include an appropriate double-check valve backflow prevention device and shall be disconnected (physically separated) from the new water main during the hydrostatic pressure test. It will be necessary to re-establish the temporary connection after completion of the hydrostatic pressure test to flush out the disinfectant water prior to final connection of the new water main to the distribution system. The source of potable water used for disinfection and pressure testing shall be flushed prior to its use to ensure that contaminants or debris are not introduced into the new pipe. Adequate drainage must be provided during flushing.

c. Pipes shall be completely filled with water, all air released, and then thoroughly flushed out in the amount of twice the capacity of the section to be treated. Chlorine liquid/gas, or other OWNER approved disinfection agents, shall be introduced into the new water main near the point of water supply, with OWNER approved Chlorine constant feed chemical injection equipment, in the concentration required (not less than 100 parts of available Chlorine per million parts of water [ppm]) to maintain residual concentrations at the end of the disinfection period, as specified.

d. The disinfecting solution shall be left in the mains under full pressure for a period

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of not less than 24 hours. Prior to flushing the water main, a sample shall be obtained from the water main to verify that a minimum Chlorine residual concentration of 50 ppm is present. The entire section shall then be flushed through a neutralizing agent until all traces of Chlorine are removed. NOTE: Under special circumstances approved by OWNER, a 3 hour disinfection period may be allowed with the requirement that a minimum Chlorine residual concentration 100 ppm is present in the main at the end of the disinfection period.

e. After completion of the final flushing of the new water main, and prior to connecting main to the distribution system and placing into service, two (2) consecutive sets of water samples from the new main **shall be taken by OWNER and delivered to OWNER's laboratory, at least 24 hours apart, to be analyzed for total coliform and heterotrophic plate count (HPC).**

f. Water samples shall be collected by the OWNER's representative, from only approved water sample locations. At no time shall bacterial samples be collected from Fire Hydrants without prior approval by OWNER and special procedures followed. Water sample shall be taken at every terminus of the main, also at points no further apart than 1,000 feet. Sample collection and analysis must be performed by OWNER's personnel and laboratory, at no additional cost to the contractor.

g. Any new water main or section of pipe failing to meet OWNER's laboratory standards for disinfection shall be flushed or re-chlorinated, at the discretion of the Owner, until the desired results are obtained.

h. The analytical results of the samples shall reflect what is typical of the distribution system in the area where the water main is replaced.

Parameters measured by the OWNER's laboratory:

- Total Coliform
- HPC (Heterotrophic Plate Count)
- Free Chlorine
- Total Iron

Required standards for acceptance:

- Total Coliform = Negative
- HPC = <30 Colonies per plate
- Free Chlorine = <0.90 ppm (acceptable range shall be 0.10 - 0.90 ppm)
- Iron = <0.30 ppm Total Iron

Samples that are visibly discolored due to elevated iron levels shall be rejected.

i. Connections at cuttings shall be swabbed with 50 ppm solution of Chlorine at

SECTION 05000 UTILITY PIPING

locations when other methods are not applicable.

j. Chlorine, or other OWNER approved disinfection agents, shall be ANSI/NSF-60 certified for use in potable water.

8.6.2 Particular attention is directed to the requirement that a double-check valve installation shall be made in the water supply to the main under treatment, to prevent possible backflow or siphonage of chlorine treated solutions into the distribution system in service. At no time is an existing Valve separating a live water main to the new water main be opened for the purpose of flushing or filling a newly installed water main, until that new water main has been accepted by OWNER and placed into service.

8.6.3 Permission of the Owner must be obtained by the Contractor before any water main is placed into service.

8.6.4 Valves and Fittings

8.6.4.1 Before valves and fittings are installed, they shall be thoroughly disinfected in accordance with AWWA Standard C651. **Chlorine used for disinfection shall be ANSI/NSF-60 certified for potable water use.**

8.6.4.2 A solution of 50 mg/L available chlorine shall be applied directly to the surfaces of all parts of the valve and fittings that would be in contact with potable water.

8.6.4.3 The chlorine solution may be applied with suitable brushes or spray equipment. The solution shall thoroughly coat all surfaces to be treated.

8.6.4.4 The disinfected surfaces shall remain in contact with the strong chlorine solution for at least 30 minutes, after which the valve and fittings shall be rinsed with potable water. Following this procedure, the valve and fittings may be installed upon approval of the Owner.

8.7 WATER SERVICE LEAKAGE REPAIRS

8.7.1 Upon activation, the Contractor shall observe and check the new water service line for any visible leaks. The Contractor shall stop all visible leaks at the joints or connections, and remove and replace any cracked or defective piping, fittings, or valve.

8.8 WATER SERVICE DISINFECTION

8.8.1 Before the piping, curb valve and fittings are installed, they shall be disinfected in accordance with AWWA Standard C651. Chlorine used for disinfection shall be NSF

SECTION 05000 UTILITY PIPING

60 certified for potable water use.

- 8.8.2** A 50% chlorine solution shall be applied directly to the surfaces of the corporation stop, service piping, curb valve and fittings. The chlorine solution may be applied with suitable brushes or spraying devices. The solution shall thoroughly coat all surfaces to be treated.

8.9 WATER SERVICE FLUSHING

- 8.9.1** The Contractor shall open the corporation at the water main connection to perform a preliminary flushing and cleaning of the new service piping prior to connection to the existing private-side service piping.

- 8.9.2** Whereupon the final connection of the new service to the existing private service piping is completed, and the water service is activated, the Contractor will perform a final flushing of the overall service line utilizing the exterior faucet/hose bib of the house or building. The final flushing shall be performed for a minimum period of fifteen (15) minutes. If an exterior faucet is not available, or is inoperable, and a final flush cannot be performed, the Contractor shall deliver and place a "red" door-hanger notice, as provided by the Owner, at the home (building). This notice will advise the homeowner and/or resident to flush their internal plumbing.

- 8.9.3** The contractor must coordinate with OWNER before removing a lead water service from the bypass, and shall notify OWNER 24 hours prior to the final connection and activation of a new service line connection to an existing lead private side pipe.

8.10 WATER QUALITY SAMPLING AND TESTING

- 8.10.1** When a public-side lead service is removed, replaced with a copper service, reconnected to a private-side lead service, and after it is activated; the OWNER shall then make arrangements to obtain a water sample for lead testing at a certified testing laboratory. The Owner is responsible for obtaining the water samples and the costs associated with the laboratory testing.

**SECTION 05000
UTILITY PIPING**

Ductile Iron Pipe Restraint Guide

Bends				
	11.25	22.5	45	90
<i>Pipe Size</i>	<i>Restraint Length</i>			
4"	2'	3'	6'	14'
6"	2'	4'	8'	20'
8"	3'	6'	11'	26'
10"	3'	6'	13'	31'
12"	4'	8'	15'	36'
16"	5'	10'	19'	46'

End Caps	
<i>Pipe Size</i>	<i>Restraint Length</i>
4"	25'
6"	35'
8"	46'
10"	55'
12"	65'
16"	83'

Tees				
<i>Pipe Size</i>	<i>Restraint Length</i>		<i>Pipe Size</i>	<i>Restraint Length</i>
4" x 4"	25'		12" x 4"	25'
6" x 4"	25'		12" x 6"	35'
6" x 6"	35'		12" x 8"	46'
8" x 4"	25'		12" x 10"	55'
8" x 6"	35'		12" x 12"	65'
8" x 8"	46'		16" x 6"	35'
10" x 4"	25'		16" x 8"	46'
10" x 6"	35'		16" x 12"	65'
10" x 8"	46'		16" x 16"	83'
10" x 10"	55'			

Reducers	
<i>Pipe Size</i>	<i>Restraint Length</i>
6" x 4"	18'
8" x 4"	33'
8" x 6"	19'
10" x 4"	45'
10" x 6"	34'
10" x 8"	19'
12" x 4"	56'
12" x 6"	47'
12" x 8"	35'

Notes:

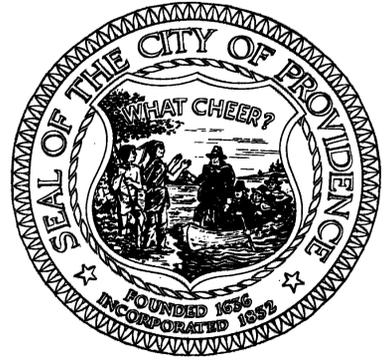
Restraint lengths are calculated in feet from face of fitting to closest bell or mechanical joint.

All calculations are based on the pipe bedded in a 4" minimum of loose soil backfill, lightly consolidated to top of pipe and then backfilled to a depth of 4.0'.

Also the piping will have a maximum pressure of 150psi.

END OF SECTION

05000-35



CITY OF PROVIDENCE
WATER SUPPLY BOARD

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WILLIAM E. O'GARA, ESQ.
LEGAL ADVISOR

WATER MAIN REHABILITATION

BLACKSTONE PROVIDENCE, RI

CONTRACT NUMBER:
CONTRACT 1-20

ISSUED FOR BID:
NOVEMBER 13, 2019

DRAWING TYPE:
100% BID DOCUMENT



CONTRACT
1-20



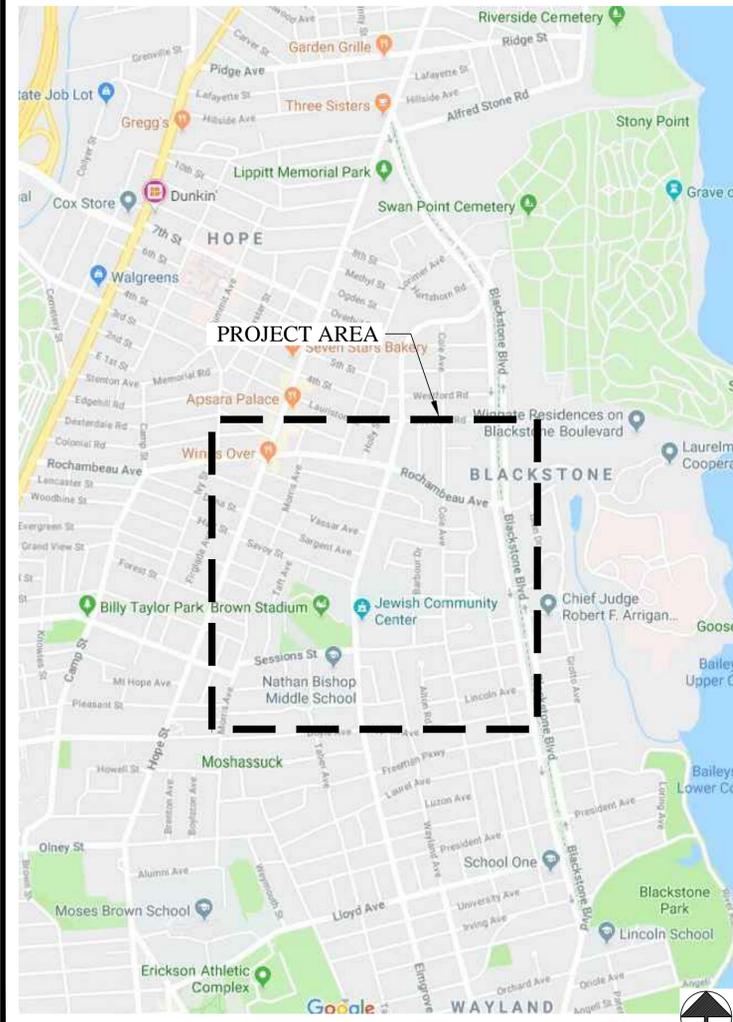
Peter R. Lepage
PETER R. LEPAGE
DIRECTOR OF ENGINEERING

CONTRACT NOTES

- CONTRACTOR SHALL REVIEW ALL EXISTING AS-BUILT DOCUMENTATION AND VERIFY ALL EXISTING CONDITIONS IN THE FIELD.
- UNLESS OTHERWISE NOTED, EXISTING 6", 8" & 12" CAST-IRON WATER MAIN AS INDICATED SHALL BE CLEANED & CEMENT-MORTAR LINED WITHIN THE LIMITS OF WORK ALONG THE RESPECTIVE STREETS.
- SELECT SECTIONS OF THE EXISTING CAST-IRON WATER MAINS SHALL BE REMOVED AND REPLACED WITH NEW DUCTILE IRON (DI) WATER MAIN AS SHOWN ON DRAWINGS. SIZES SHALL BE IDENTICAL TO EXISTING CONDITIONS UNLESS OTHERWISE NOTED.
- ALL APPURTENANCES (VALVES, TEES, HYDRANTS, ETC.) SHALL BE REMOVED & REPLACED AS INDICATED ON DRAWINGS INCLUDING ALL COUPLINGS, RESTRAINTS, HARDWARE, ETC.
- ALL PIPE, COUPLINGS, SLEEVES, FITTINGS, HARDWARE, ETC. INSTALLED UNDER THIS PROJECT SHALL BE NEW. ANY EXISTING COUPLINGS, SLEEVES, HARDWARE, ETC. REMOVED FOR NEW CONNECTIONS TO EXISTING FEATURES SHALL BE REPLACED.
- ALL EXISTING LEAD SERVICES SHALL BE REPLACED WITH NEW COPPER SERVICES. SERVICE SIZE SHALL MATCH EXISTING. EXISTING LEAD SERVICES LESS THAN 1" SHALL BE REPLACED WITH 1" COPPER.
- ALL CAST IRON SERVICES WHERE NOTED ON THE DRAWINGS SHALL BE REPLACED TO THE PROPERTY LINE UNLESS OTHERWISE NOTED.
- SERVICES FOUND CLOSED AT CURB STOP ARE TO BE LEFT IN CLOSED POSITION.

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1	COVER SHEET	6	AREA 4 PLAN
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4	AREA 2 PLAN	9	AREA 7 PLAN
5	AREA 3 PLAN	10	AREA 8 PLAN



VICINITY MAP
NOT TO SCALE
MAP SOURCE: GOOGLE, 2019

LEGEND

EXISTING CONDITIONS	ABBREVIATIONS
	AC ASBESTOS CEMENT
	CI CAST IRON
	CNU CLOSED - NON USE
	DI DUCTILE IRON
	UNK UNKNOWN
CONTRACT WORK	
	LEAD SERVICE LINE TO BE REMOVED, REPLACE PER SPEC
	OTHER SERVICE LINE TO BE REMOVED
	HYDRANT ASSEMBLY TO BE REPLACED
	GATE VALVE TO BE REPLACED
	DIVISIONAL VALVE TO BE REPLACED
	BLOWOFF WITH CAP TO BE REPLACED, SIZE PER PLAN
	WATER MAIN TO BE CLEANED AND LINED (C&L)
	DUCTILE IRON WATER MAIN, SIZE TO MATCH EX. CONDITIONS
	GATE VALVE, SIZE PER PLAN
	MECHANICAL COUPLING, SIZE PER PLAN
	TEE, SIZE TO MATCH EXISTING CONDITIONS
	CROSS, SIZE TO MATCH EXISTING CONDITIONS
	HORIZONTAL BEND, SIZE TO MATCH EXISTING CONDITIONS
	THRUST BLOCK (TB)
	REDUCER

GENERAL NOTES

- CONTRACT PLANS ARE DRAWN TO SCALE, HOWEVER ALL SYMBOLY SHOWN ON DRAWINGS ARE FOR DIAGRAMMATIC PURPOSES ONLY AND ARE NOT TO SCALE.
- EXISTING UTILITIES ARE SHOWN FOR REFERENCE ONLY. ALL UTILITIES MAY NOT BE SHOWN. CONTRACTOR SHALL NOTIFY "DIG-SAFE" PRIOR TO COMMENCING WORK.
- NEW WATER MAINS SHALL BE TESTED AND CHLORINATED IN ACCORDANCE WITH PROVIDENCE WATER STANDARDS AND AS DIRECTED BY PROVIDENCE WATER.
- PROVIDENCE WATER MUST BE NOTIFIED A MINIMUM OF 72 HOURS IN ADVANCE OF ANY SERVICE INTERRUPTION.
- ALL MATERIALS USED IN CONSTRUCTION, REPAIR OR MAINTENANCE OF THE WATER SYSTEM SHALL MEET THE APPROVAL OF PROVIDENCE WATER. AN APPROVED LIST OF MATERIALS AND MANUFACTURERS IS PROVIDED IN THE SPECIFICATIONS.
- NEW WATER MAINS SHALL BE CEMENT-LINED ZINC-COATED CLASS 52 DUCTILE IRON PIPE CONFORMING TO THE LATEST AWWA STANDARDS. (HIGH SERVICE MAINS WITHIN METRO PROVIDENCE AREA TO BE CL56 DI).
- PIPE FITTINGS SHALL BE CEMENT-LINED ZINC-COATED COMPACT DUCTILE IRON, CLASS 350 (AWWA C153), WITH MECHANICAL JOINT ENDS.
- ALL MECHANICAL JOINTS SHALL BE FURNISHED WITH MECHANICAL JOINT RESTRAINTS PLACED ON EACH SIDE OF IN-LINE FITTINGS. ALL PIPE JOINTS PRIOR TO END CAPS AND CHANGES IN PIPE DIRECTION SHALL BE RESTRAINED IN ACCORDANCE WITH PROVIDENCE WATER STANDARDS.
- ALL RESTRAINING RODS & BOLTS, WHEN USED, MUST BE COATED WITH SPRAY BITUMINOUS COATING.
- UNLESS OTHERWISE NOTED, EARTH COVER OVER PIPE SHALL NOT BE LESS THAN 4.5 FEET.
- GATE VALVES SHALL BE RESILIENT SEAT TYPE WITH MECHANICAL JOINT ENDS AND SHALL OPEN "RIGHT" (CLOCKWISE).
- METALLIZED, DETECTABLE, IDENTIFICATION TAPE SHALL BE 2-INCHES WIDE, BLUE IN COLOR, AND IMPRINTED WITH THE WORDS "CAUTION - WATER LINE BURIED BELOW", AND SHALL BE INSTALLED OVER ALL MAINS AND HYDRANT RUN-OUTS AT A DEPTH OF 18-24 INCHES BELOW FINISHED GRADE.
- CURB STOPS SHALL BE INSTALLED 1 FT. TO 1-1/2 FT. BEHIND FACE OF CURB OR EDGE OF PAVEMENT. CURB STOPS ARE NOT TO BE INSTALLED IN EXISTING OR FUTURE DRIVEWAYS.
- UNLESS OTHERWISE NOTED, BREAKAWAY TYPE HYDRANTS, SHALL BE INSTALLED AT EXISTING LOCATIONS WITH OPERATING NUT POSITIONED 24-INCHES BEHIND FACE OF CURB OR EDGE OF PAVEMENT. THE BREAKAWAY FLANGE SHALL BE SET 2-INCHES TO 4-INCHES ABOVE FINISHED GRADE. HYDRANTS SHALL OPEN "RIGHT" (CLOCKWISE).
- PORTLAND CEMENT CONCRETE THRUST BLOCKS AND/OR GRAVITY BLOCKS SHALL BE CONSTRUCTED IN PLACE AT CHANGES OF PIPE DIRECTION (TEES, BENDS, ETC) AND/OR DEAD ENDS IN ACCORDANCE WITH PROVIDENCE WATER STANDARDS.
- ALL UTILITIES TO BE ABANDONED SHALL BE CAPPED OR PLUGGED.
- UTILITY SERVICE CONNECTIONS SHALL BE MAINTAINED TO ALL EXISTING FACILITIES.
- FIRE HYDRANTS SHALL NOT BE REMOVED FROM SERVICE WITHOUT EXPRESSED CONSENT FROM THE FIRE DEPARTMENT AND PROVIDENCE WATER.
- DEMOLITION OF BITUMINOUS PAVING AND CONCRETE SHALL BE PERFORMED BY SAWCUTTING ONLY. RIPPING OF PAVEMENT IS UNACCEPTABLE.
- UNDER NO CIRCUMSTANCE SHALL THE CONTRACTOR BE ALLOWED TO STOCKPILE REMOVED PAVEMENT MATERIALS WITHIN THE PROJECT LIMITS OR DESIGNATED AREA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ROADWAYS FREE OF DEBRIS RESULTING FROM THEIR CONSTRUCTION OPERATIONS. ALL DEBRIS SHALL BE REMOVED TO THE SATISFACTION OF THE ENGINEER AT THE END OF EACH WORK DAY.
- ALL EXCAVATIONS SHALL BE TEMPORARILY PAVED AT THE CLOSE OF EACH DAYS WORK IN ACCORDANCE WITH EACH RESPECTIVE CITY OR TOWN PERMIT, AS REQUIRED PER SPECIFICATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION, REPAIRS AND/OR RESTORATION OF ALL AREAS ADJACENT TO THE CONTRACT AREA DISTURBED BY THE CONTRACTOR'S OPERATIONS.
- ALL VALVES AND COUPLING CONNECTIONS AT WORK LIMIT TERMINATIONS SHALL BE RESTRAINED TO THE NEW PIPING FOR FUTURE WORK IN ADJACENT AREAS.

COVER SHEET
WATER MAIN REHABILITATION
BLACKSTONE
PROVIDENCE, RI

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NO.	DATE	REVISION	APPROVED BY
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SHEET

1 OF 10



Peter R. Lepage
PETER R. LEPAGE
DIRECTOR OF ENGINEERING

KEY MAP
WATER MAIN REHABILITATION
BLACKSTONE
PROVIDENCE, RI

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DOCUMENT

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SHEET

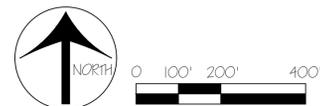
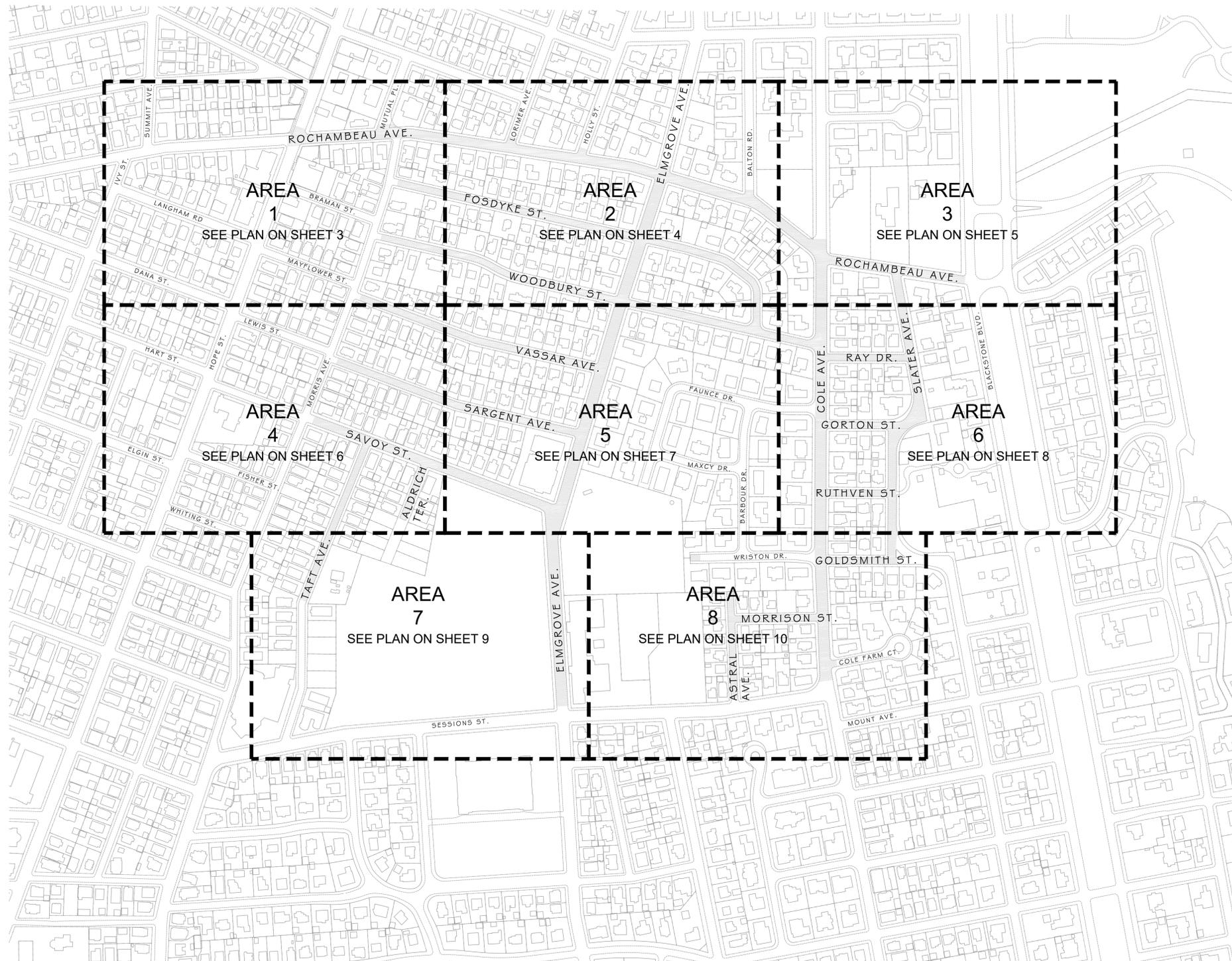
CONTRACT STREETS

KEY



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MATCHLINE A - SEE SHEET 4

MATCHLINE C - SEE SHEET 6

AREA 1 PLAN
WATER MAIN REHABILITATION
BLACKSTONE
PROVIDENCE, RI

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AREA 2 PLAN
WATER MAIN REHABILITATION
BLACKSTONE
PROVIDENCE, RI

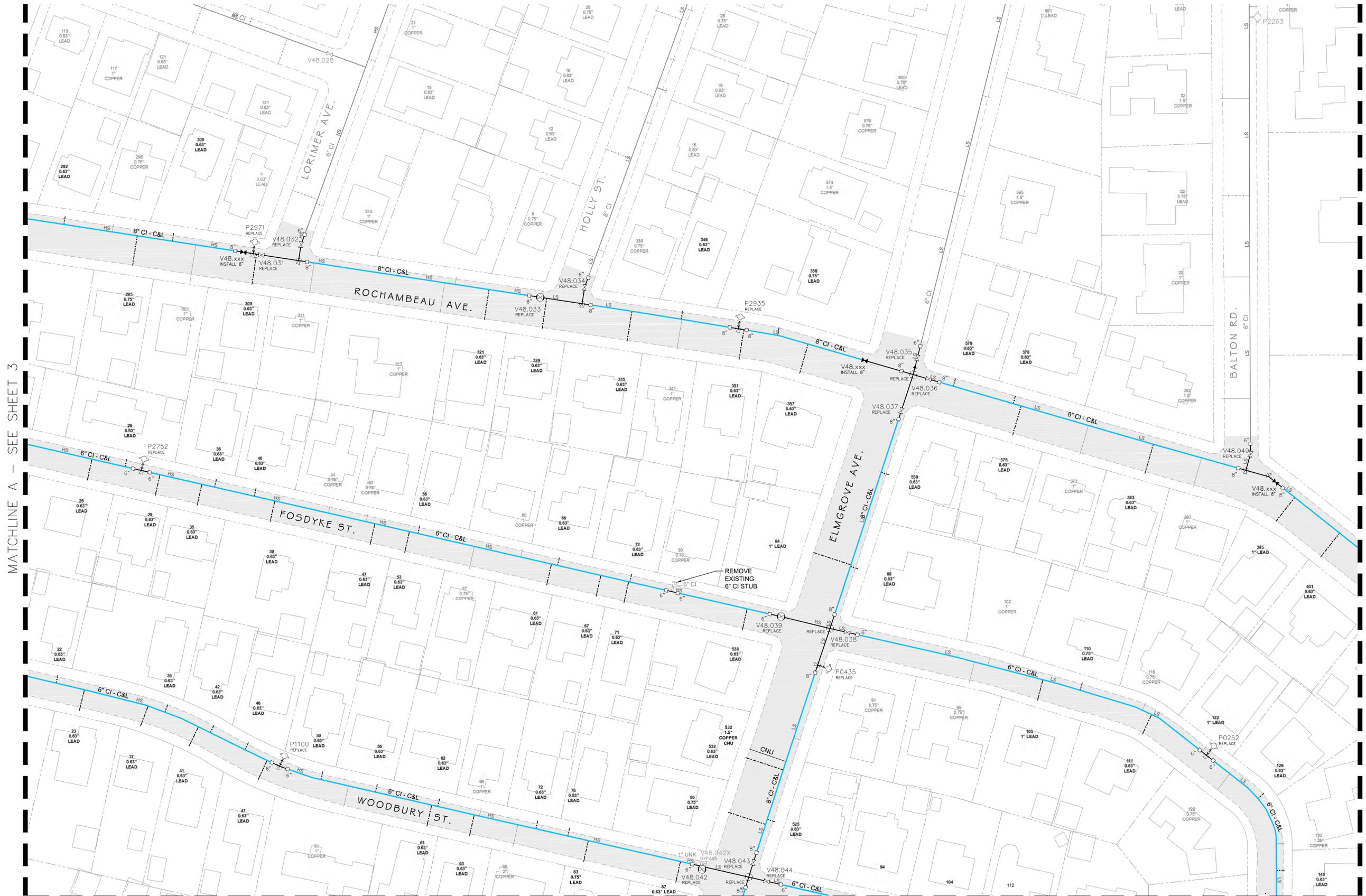
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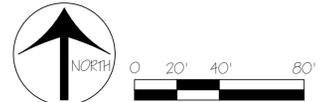
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MATCHLINE A - SEE SHEET 3

MATCHLINE B - SEE SHEET 5

MATCHLINE D - SEE SHEET 7





Peter R. Lepage
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DIRECTOR OF ENGINEERING

AREA 3 PLAN
WATER MAIN REHABILITATION
BLACKSTONE
PROVIDENCE, RI

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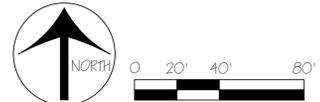
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MATCHLINE B - SEE SHEET 4

MATCHLINE E - SEE SHEET 8



MATCHLINE C - SEE SHEET 3



MATCHLINE H - SEE SHEET 9

MATCHLINE F - SEE SHEET 7



CONTRACT
1-20



Peter R. Lepage
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AREA 4 PLAN
WATER MAIN REHABILITATION
BLACKSTONE
 PROVIDENCE, RI

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MATCHLINE D - SEE SHEET 4



CONTRACT 1-20



Peter R. Lepage, Director of Engineering



MATCHLINE F - SEE SHEET 6

MATCHLINE G - SEE SHEET 8

MATCHLINE I - SEE SHEET 9

MATCHLINE I - SEE SHEET 10

AREA 5 PLAN

WATER MAIN REHABILITATION
BLACKSTONE
PROVIDENCE, RI

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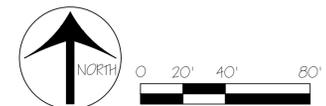
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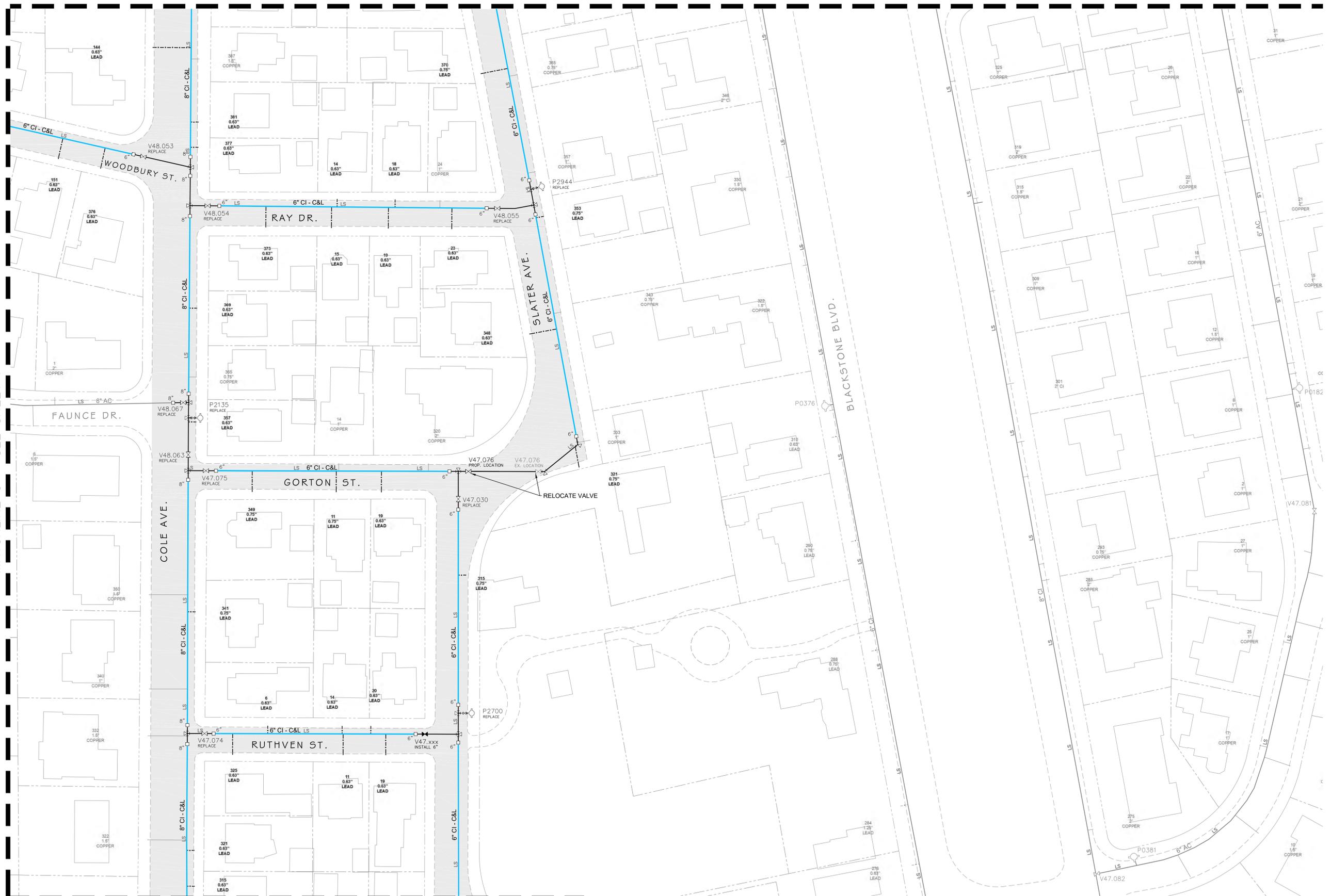
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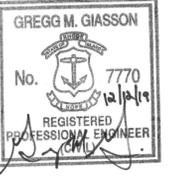
MATCHLINE E - SEE SHEET 5

MATCHLINE G - SEE SHEET 7

MATCHLINE J - SEE SHEET 10



CONTRACT
1-20



Peter R. Lepage
PETER R. LEPAGE
DIRECTOR OF ENGINEERING

AREA 6 PLAN
WATER MAIN REHABILITATION
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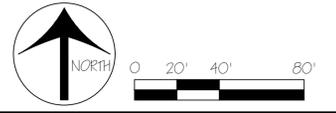
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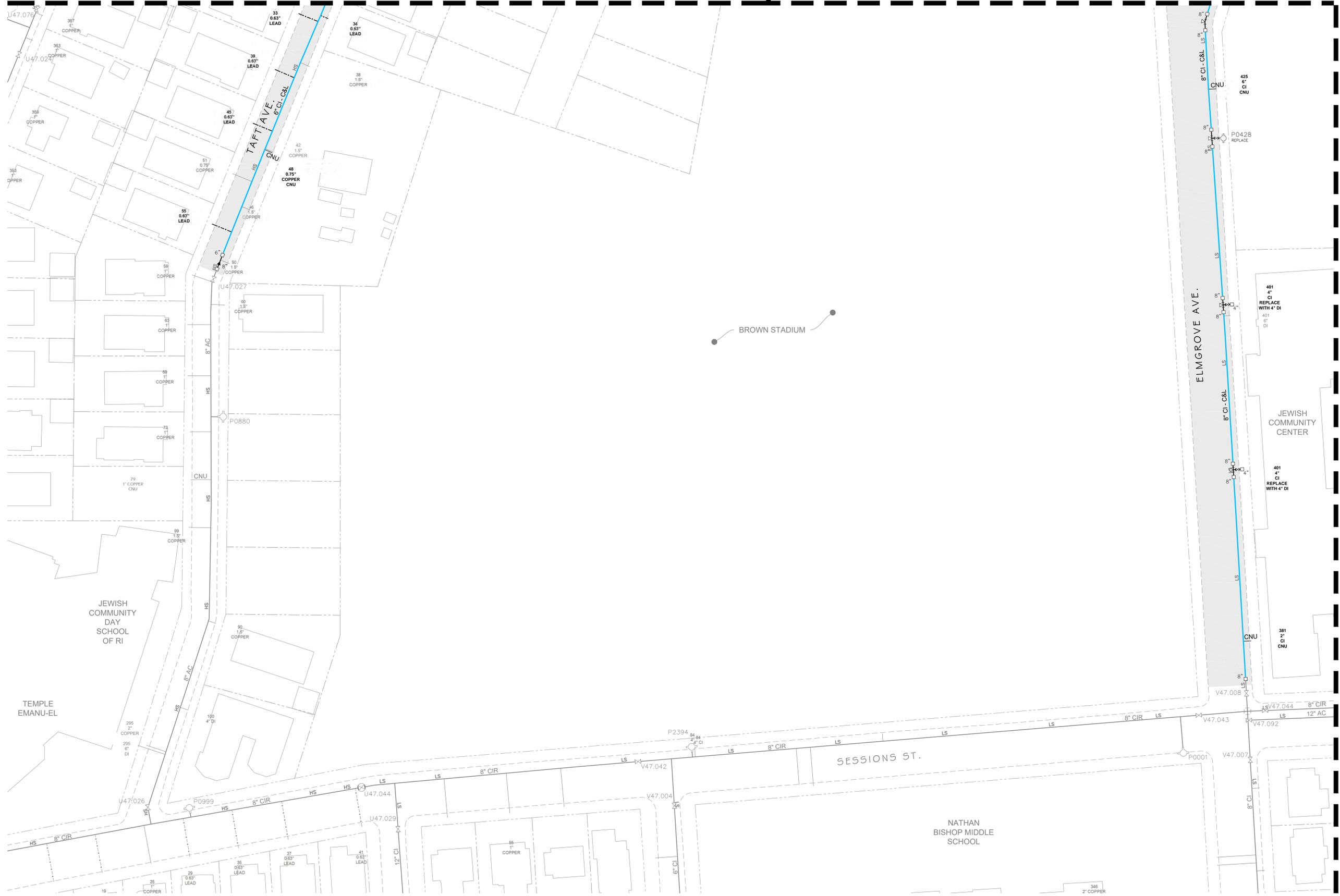
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MATCHLINE H - SEE SHEET 6

MATCHLINE I - SEE SHEET 7



CONTRACT
1-20



Peter R. Lepage
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AREA 7 PLAN
WATER MAIN REHABILITATION
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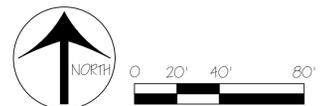
NCR/AP
CHECKED BY

1"=40'-0"
SCALE

11/13/19
DATE

SHEET

9 OF 10



MATCHLINE K - SEE SHEET 10

MATCHLINE I - SEE SHEET 7

MATCHLINE J - SEE SHEET 8

MATCHLINE K - SEE SHEET 9



CONTRACT
1-20



Peter R. Lepage
PETER R. LEPAGE
DIRECTOR OF ENGINEERING

AREA 8 PLAN
WATER MAIN REHABILITATION
BLACKSTONE
PROVIDENCE, RI

100% BID
DOCUMENT

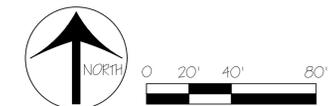
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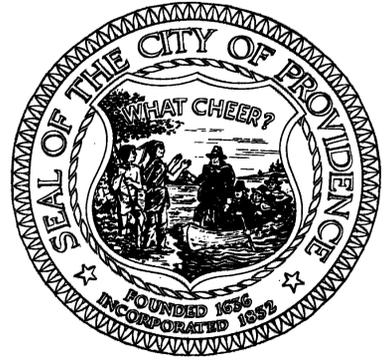
KD NCR/AP
DRAWN BY CHECKED BY

1"=40'-0" 11/13/19
SCALE DATE

SHEET

10 OF 10





CITY OF PROVIDENCE
WATER SUPPLY BOARD

XAYKHAM KHAMSYVORAVONG
CHAIRPERSON

RICKY CARUOLO
GENERAL MANAGER

JOSEPH D. CATALDI
VICE CHAIRPERSON

CRISTEN L. RAUCCI, ESQ.
MEMBER

MICHAEL J. CORREIA
COUNCIL PRESIDENT PRO TEMPORE

KERI LYNN THURBER
MEMBER

JO-ANN RYAN
COUNCILPERSON

CARISSA R. RICHARD
SECRETARY

SARA SILVERIA
EX-OFFICIO

WILLIAM E. O'GARA, ESQ.
LEGAL ADVISOR

WATER MAIN REHABILITATION

AUBURN CRANSTON, RI

CONTRACT NUMBER:
CONTRACT 2-20

ISSUED FOR BID:
NOVEMBER 13, 2019

DRAWING TYPE:
100% BID DOCUMENT



CONTRACT
2-20



Peter R. Lepage
DIRECTOR OF ENGINEERING

CONTRACT NOTES

- CONTRACTOR SHALL REVIEW ALL EXISTING AS-BUILT DOCUMENTATION AND VERIFY ALL EXISTING CONDITIONS IN THE FIELD.
- UNLESS OTHERWISE NOTED, EXISTING 6", 8" & 12" CAST-IRON WATER MAIN AS INDICATED SHALL BE CLEANED & CEMENT-MORTAR LINED WITHIN THE LIMITS OF WORK ALONG THE RESPECTIVE STREETS.
- SELECT SECTIONS OF THE EXISTING CAST-IRON WATER MAINS SHALL BE REMOVED AND REPLACED WITH NEW DUCTILE IRON (DI) WATER MAIN AS SHOWN ON DRAWINGS. SIZES SHALL BE IDENTICAL TO EXISTING CONDITIONS UNLESS OTHERWISE NOTED.
- ALL APPURTENANCES (VALVES, TEES, HYDRANTS, ETC.) SHALL BE REMOVED & REPLACED AS INDICATED ON DRAWINGS INCLUDING ALL COUPLINGS, RESTRAINTS, HARDWARE, ETC.
- ALL PIPE, COUPLINGS, SLEEVES, FITTINGS, HARDWARE, ETC. INSTALLED UNDER THIS PROJECT SHALL BE NEW. ANY EXISTING COUPLINGS, SLEEVES, HARDWARE, ETC. REMOVED FOR NEW CONNECTIONS TO EXISTING FEATURES SHALL BE REPLACED.
- ALL EXISTING LEAD SERVICES SHALL BE REPLACED WITH NEW COPPER SERVICES. SERVICE SIZE SHALL MATCH EXISTING. EXISTING LEAD SERVICES LESS THAN 1" SHALL BE REPLACED WITH 1" COPPER.
- ALL CAST IRON SERVICES WHERE NOTED ON THE DRAWINGS SHALL BE REPLACED TO THE PROPERTY LINE UNLESS OTHERWISE NOTED.
- SERVICES FOUND CLOSED AT CURB STOP ARE TO BE LEFT IN CLOSED POSITION.

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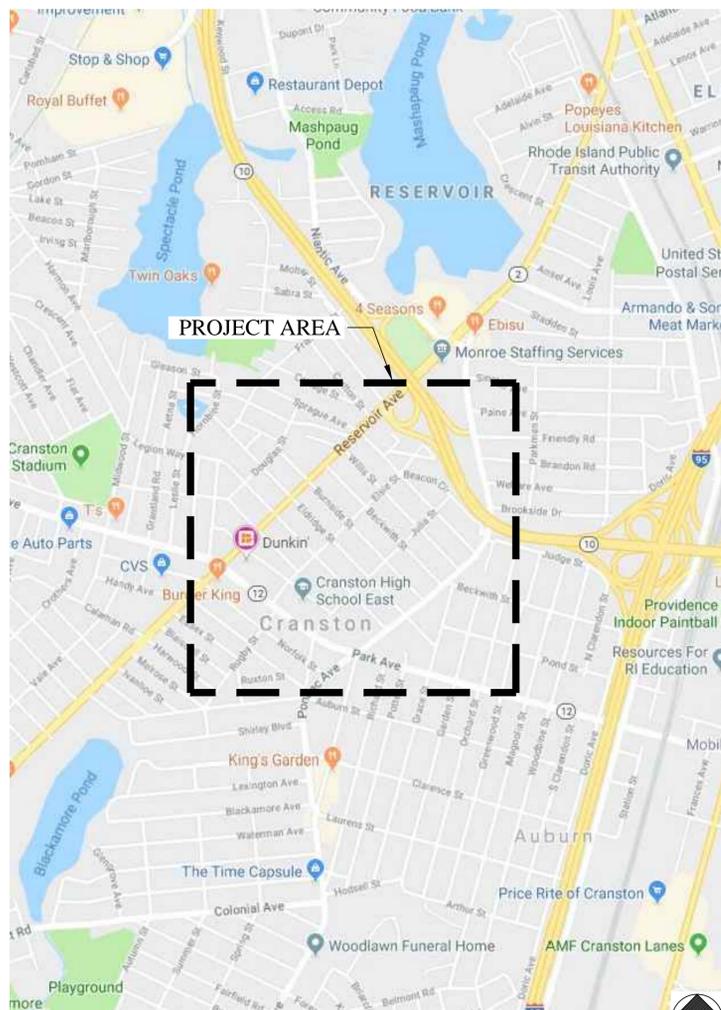
SHEET NO.	SHEET NAME	SHEET NO.	SHEET NAME
1	COVER SHEET	6	AREA 4 PLAN
2	KEY MAP	7	AREA 5 PLAN
3	AREA 1 PLAN	8	AREA 6 PLAN
4	AREA 2 PLAN	9	AREA 7 PLAN
5	AREA 3 PLAN		

LEGEND

EXISTING CONDITIONS	ABBREVIATIONS
PROPERTY LINE	AC ASBESTOS CEMENT
CURB LINE/ROAD	CI CAST IRON
INFRASTRUCTURE TO REMAIN	CNU CLOSED - NON USE
SERVICE LINE INFORMATION	DI DUCTILE IRON
SERVICE LINE INFORMATION	RC REINFORCED CONCRETE
SERVICE LINE INFORMATION	UNK UNKNOWN
VALVES TO REMAIN	
PIPE STUB WITH CAP TO REMAIN	
BLOWOFF WITH CAP TO REMAIN	
AIR RELEASE TO REMAIN	
MAIN LINE - LOW SERVICE TO REMAIN	
MAIN LINE - PRESTRESSED CONCRETE (PC) TO REMAIN	
HYDRANT TO REMAIN	
SPRINKLER HYDRANT TO REMAIN	
CONTRACT WORK	
LEAD SERVICE LINE TO BE REMOVED, REPLACE PER SPEC	
OTHER SERVICE LINE TO BE REMOVED	
HYDRANT ASSEMBLY TO BE REPLACED	
GATE VALVE TO BE REPLACED	
BUTTERFLY VALVE TO BE REPLACED	
BLOWOFF WITH CAP TO BE INSTALLED, SIZE PER PLAN	
WATER MAIN TO BE CLEANED AND LINED (C&L)	
DUCTILE IRON WATER MAIN, SIZE TO MATCH EX. CONDITIONS	
GATE VALVE, SIZE PER PLAN	
MECHANICAL COUPLING, SIZE PER PLAN	
TEE, SIZE TO MATCH EXISTING CONDITIONS	
CROSS, SIZE TO MATCH EXISTING CONDITIONS	
HORIZONTAL BEND, SIZE TO MATCH EXISTING CONDITIONS	
THRUST BLOCK (TB)	
SOLID SLEEVE	
REDUCER	

GENERAL NOTES

- CONTRACT PLANS ARE DRAWN TO SCALE, HOWEVER ALL SYMBOLOGY SHOWN ON DRAWINGS ARE FOR DIAGRAMMATIC PURPOSES ONLY AND ARE NOT TO SCALE.
- EXISTING UTILITIES ARE SHOWN FOR REFERENCE ONLY. ALL UTILITIES MAY NOT BE SHOWN. CONTRACTOR SHALL NOTIFY "DIG-SAFE" PRIOR TO COMMENCING WORK.
- NEW WATER MAINS SHALL BE TESTED AND CHLORINATED IN ACCORDANCE WITH PROVIDENCE WATER STANDARDS AND AS DIRECTED BY PROVIDENCE WATER.
- PROVIDENCE WATER MUST BE NOTIFIED A MINIMUM OF 72 HOURS IN ADVANCE OF ANY SERVICE INTERRUPTION.
- ALL MATERIALS USED IN CONSTRUCTION, REPAIR OR MAINTENANCE OF THE WATER SYSTEM SHALL MEET THE APPROVAL OF PROVIDENCE WATER. AN APPROVED LIST OF MATERIALS AND MANUFACTURERS IS PROVIDED IN THE SPECIFICATIONS.
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- ALL RESTRAINING RODS & BOLTS, WHEN USED, MUST BE COATED WITH SPRAY BITUMINOUS COATING.
- UNLESS OTHERWISE NOTED, EARTH COVER OVER PIPE SHALL NOT BE LESS THAN 4.5 FEET.
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- UTILITY SERVICE CONNECTIONS SHALL BE MAINTAINED TO ALL EXISTING FACILITIES.
- FIRE HYDRANTS SHALL NOT BE REMOVED FROM SERVICE WITHOUT EXPRESSED CONSENT FROM THE FIRE DEPARTMENT AND PROVIDENCE WATER.
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- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ROADWAYS FREE OF DEBRIS RESULTING FROM THEIR CONSTRUCTION OPERATIONS. ALL DEBRIS SHALL BE REMOVED TO THE SATISFACTION OF THE ENGINEER AT THE END OF EACH WORK DAY.
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- ALL VALVES AND COUPLING CONNECTIONS AT WORK LIMIT TERMINATIONS SHALL BE RESTRAINED TO THE NEW PIPING FOR FUTURE WORK IN ADJACENT AREAS.



VICINITY MAP
NOT TO SCALE
MAP SOURCE: GOOGLE, 2019

COVER SHEET
WATER MAIN REHABILITATION
AUBURN
CRANSTON, RI

100% BID DOCUMENT

NO.	DATE	REVISION	APPROVED BY
1	12/12/19	ENGINEERING STAMP ADDED	GG

KD DRAWN BY	NCR/AP CHECKED BY
N/A SCALE	11/13/2019 DATE

SHEET

1 OF 9



Peter R. Lepage
PETER R. LEPAGE
DIRECTOR OF ENGINEERING

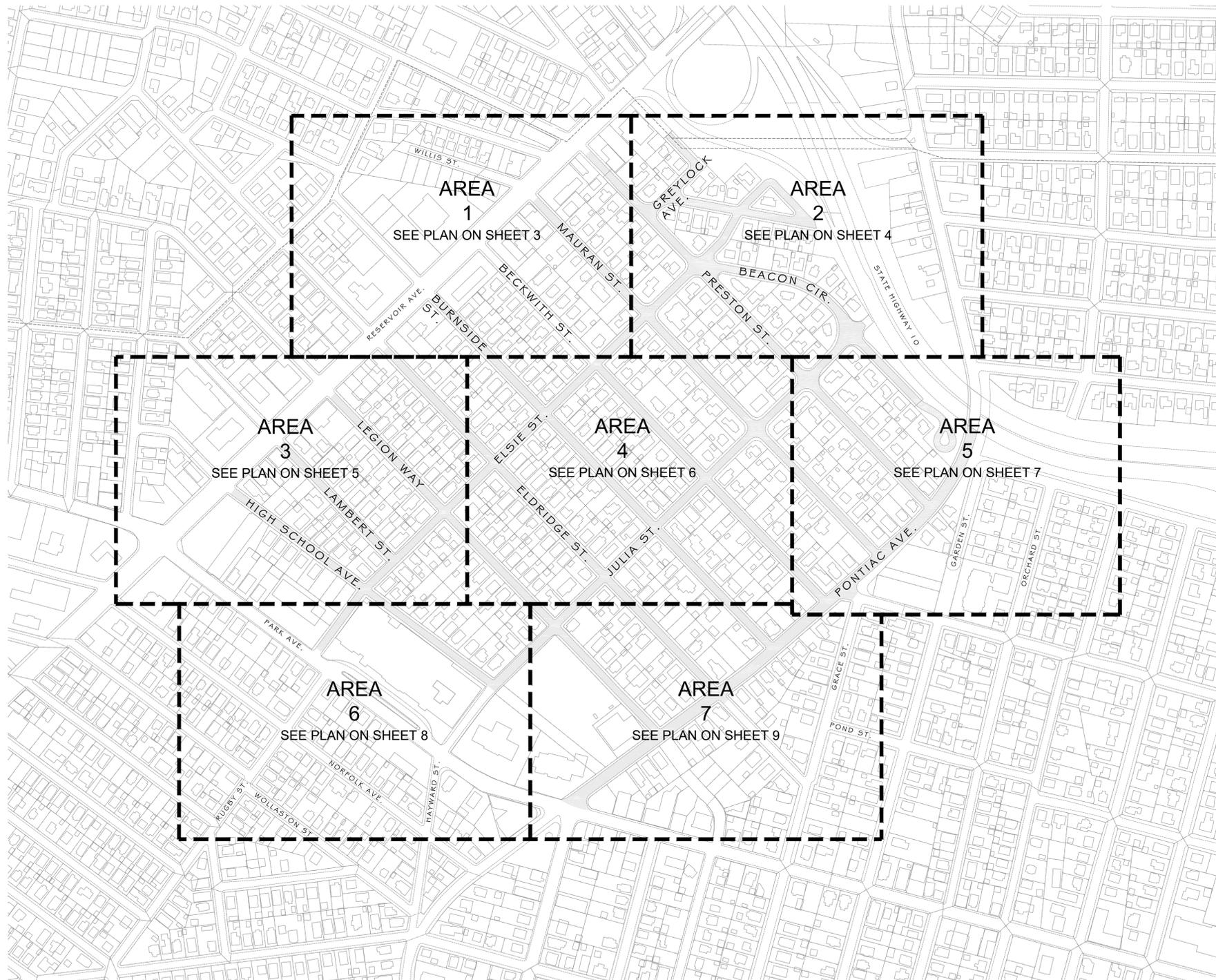
CONTRACT STREETS

KEY



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ELSIE STREET	3, 4, 5, 6, 8	2020-028
GREYLOCK AVENUE	4	2020-027
HIGH SCHOOL AVENUE	5, 8	2020-026
JULIA STREET	4, 6, 7, 8	2020-029
LAMBERT STREET	5	2020-025
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PONTIAC AVENUE	4, 7, 9	2020-030
PRESTON DRIVE	3, 4, 6, 7	2020-019



KEY MAP
WATER MAIN REHABILITATION
AUBURN
CRANSTON, RI

100% BID
DOCUMENT

NO.	DATE	REVISION	APPROVED BY
1	12/12/19	ENGINEERING STAMP ADDED	GG

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DRAWN BY _____ CHECKED BY _____

1"=200' _____ 11/13/2019 _____
SCALE _____ DATE _____

SHEET



AREA 1 PLAN

WATER MAIN REHABILITATION
AUBURN
CRANSTON, RI

100% BID
DOCUMENT

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11/13/2019
DATE

SHEET



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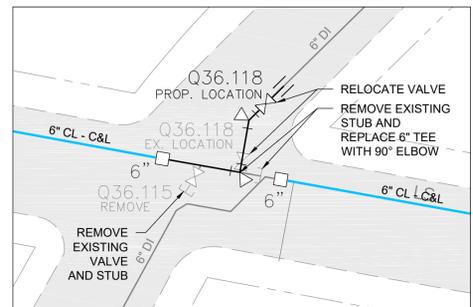
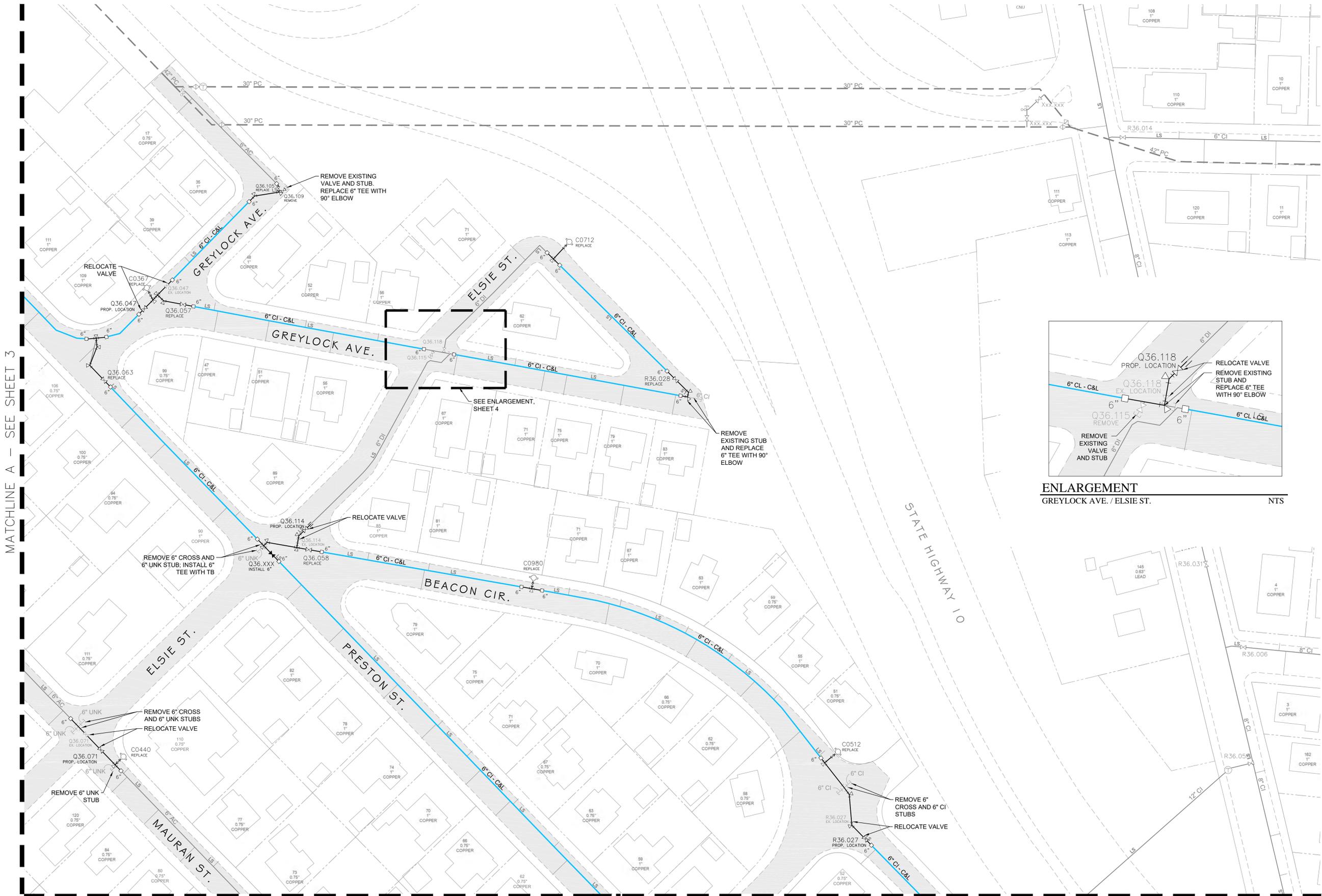
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MATCHLINE B - SEE SHEET 6

MATCHLINE A - SEE SHEET 4



MATCHLINE A - SEE SHEET 3



ENLARGEMENT
GREYLOCK AVE. / ELSIE ST. NTS

MATCHLINE C - SEE SHEET 6

MATCHLINE C - SEE SHEET 7

MATCHLINE E



AREA 2 PLAN
WATER MAIN REHABILITATION
AUBURN
CRANSTON, RI

100% BID
DOCUMENT

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KD DRAWN BY	NCR/AP CHECKED BY
1"=40'-0" SCALE	11/13/2019 DATE

SHEET

AREA 3 PLAN

WATER MAIN REHABILITATION
AUBURN
CRANSTON, RI

100% BID
DOCUMENT

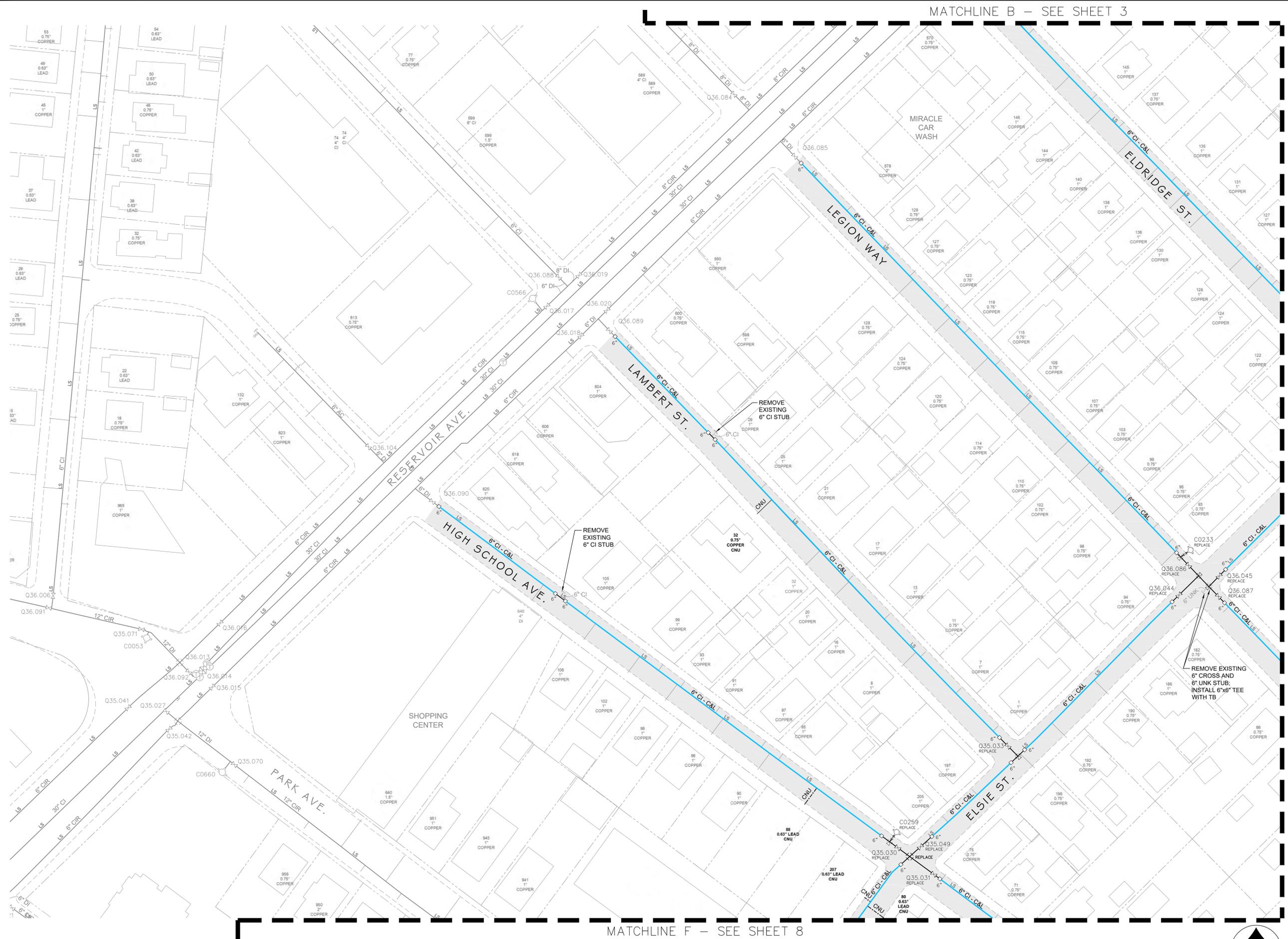
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1	12/12/19	ENGINEERING STAMP ADDED	GG

KD NCR/AP
DRAWN BY CHECKED BY

1"=40'-0" 11/13/2019
SCALE DATE

SHEET

5 OF 9



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AREA 4 PLAN

WATER MAIN REHABILITATION
AUBURN
CRANSTON, RI

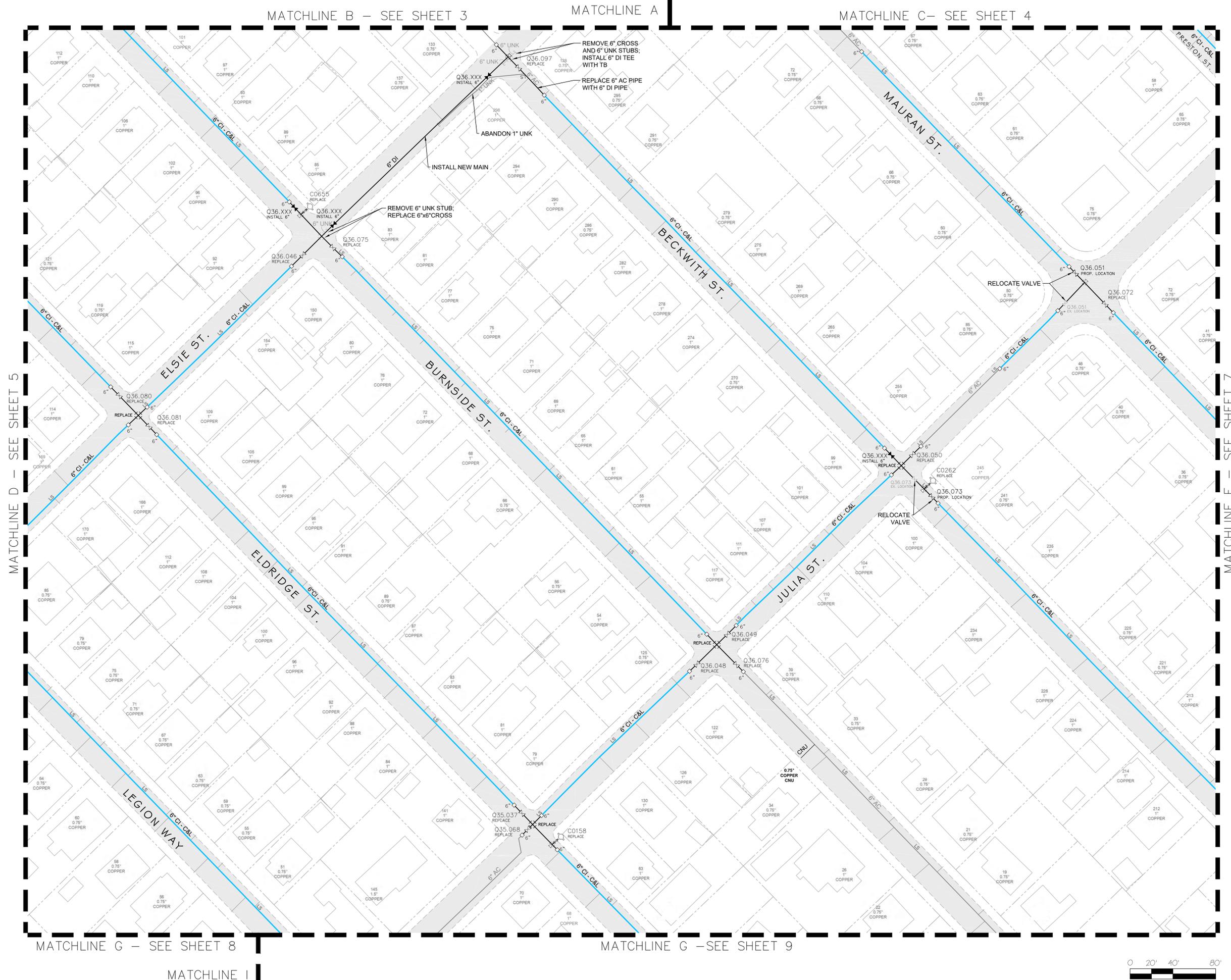
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1"=40'-0" SCALE	11/13/2019 DATE

SHEET

6 OF 9



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AREA 5 PLAN
WATER MAIN REHABILITATION
AUBURN
CRANSTON, RI

100% BID
DOCUMENT

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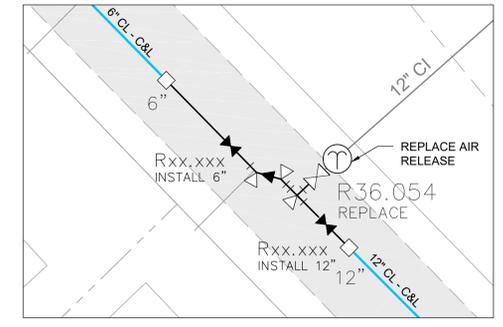
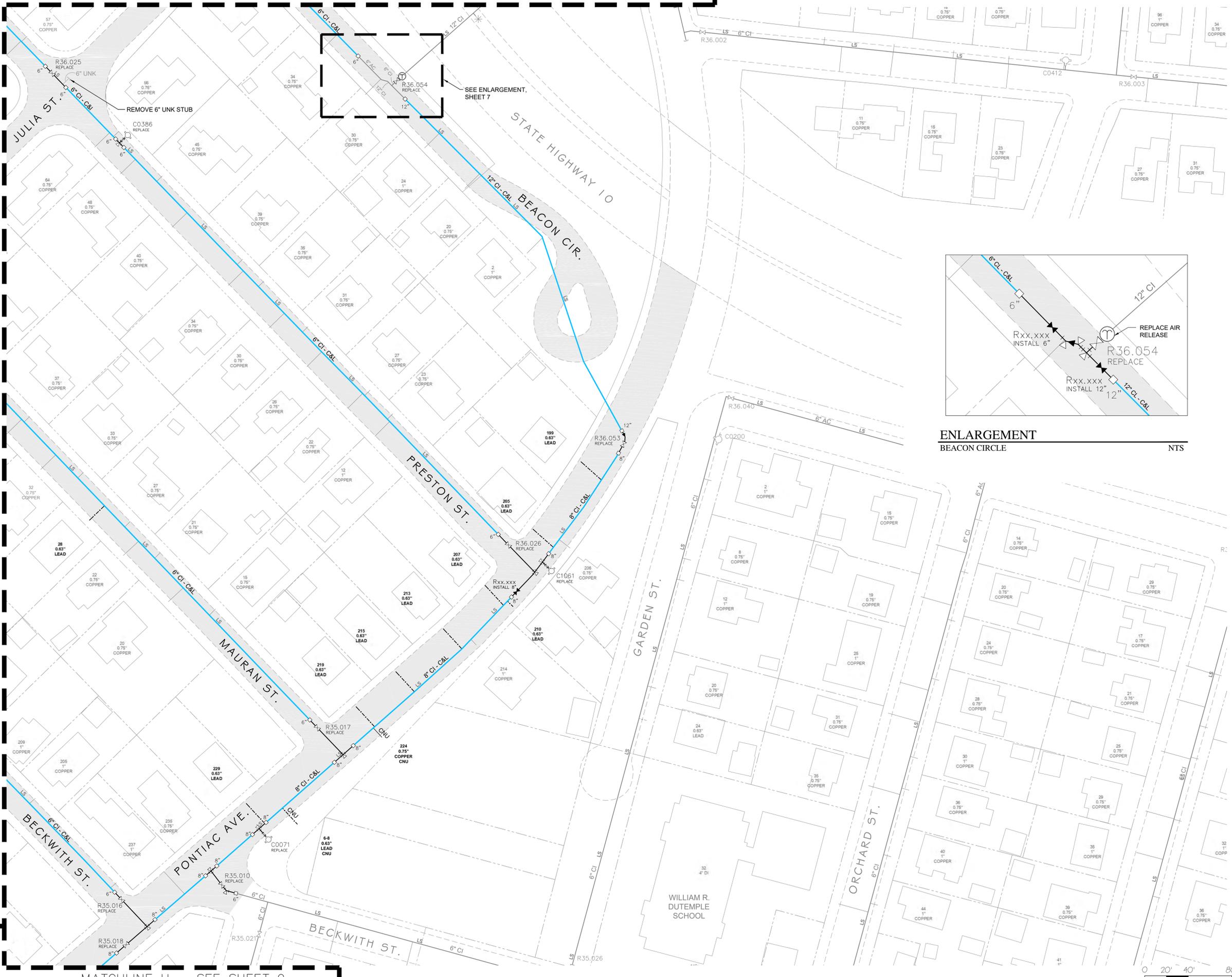
11/13/2019
DATE

SHEET

MATCHLINE C - SEE SHEET 4

MATCHLINE E - SEE SHEET 6

MATCHLINE H - SEE SHEET 9



ENLARGEMENT
BEACON CIRCLE
NTS



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AREA 6 PLAN

WATER MAIN REHABILITATION
AUBURN
CRANSTON, RI

100% BID
DOCUMENT

NO.	DATE	REVISION	APPROVED BY
1	12/12/19	ENGINEERING STAMP ADDED	GG

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DRAWN BY

NCR/AP
CHECKED BY

1"=40'-0"
SCALE

11/13/2019
DATE

SHEET

MATCHLINE F - SEE SHEET 5

MATCHLINE D

MATCHLINE G - SEE SHEET 6



MATCHLINE I - SEE SHEET 9



AREA 7 PLAN
WATER MAIN REHABILITATION
AUBURN
CRANSTON, RI

100% BID
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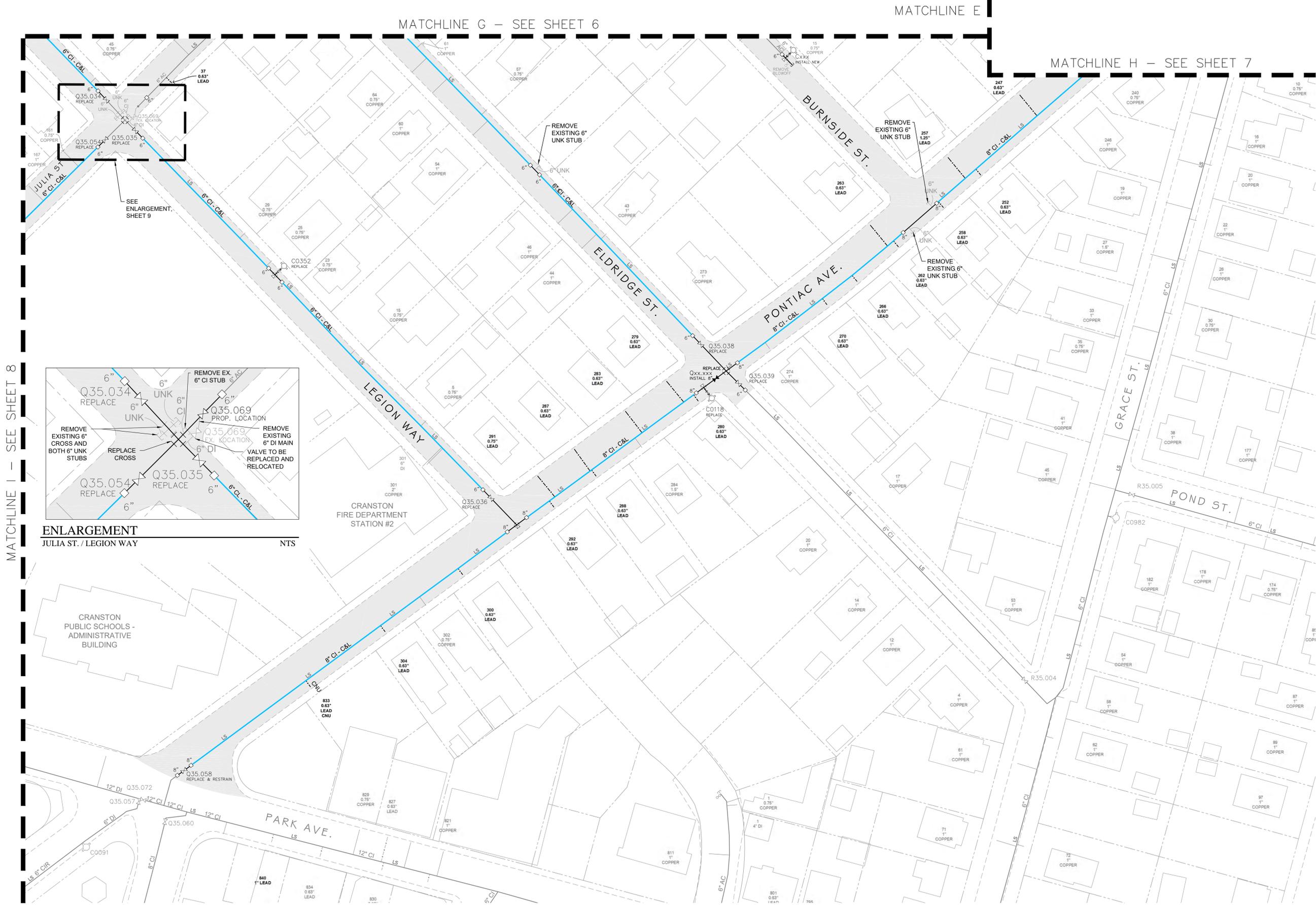
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SCALE

11/13/2019
DATE

SHEET

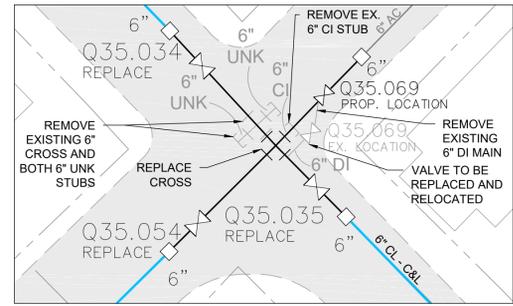


MATCHLINE I - SEE SHEET 8

MATCHLINE G - SEE SHEET 6

MATCHLINE E

MATCHLINE H - SEE SHEET 7



ENLARGEMENT
JULIA ST. / LEGION WAY
NTS





CITY OF PROVIDENCE
WATER SUPPLY BOARD

XAYKHAM KHAMSVORAVONG
CHAIRPERSON

JOSEPH D. CATALDI
VICE CHAIRPERSON

MICHAEL J. CORREIA
COUNCIL PRESIDENT PRO TEMPORE

JO-ANN RYAN
COUNCILPERSON

SARA SILVERIA
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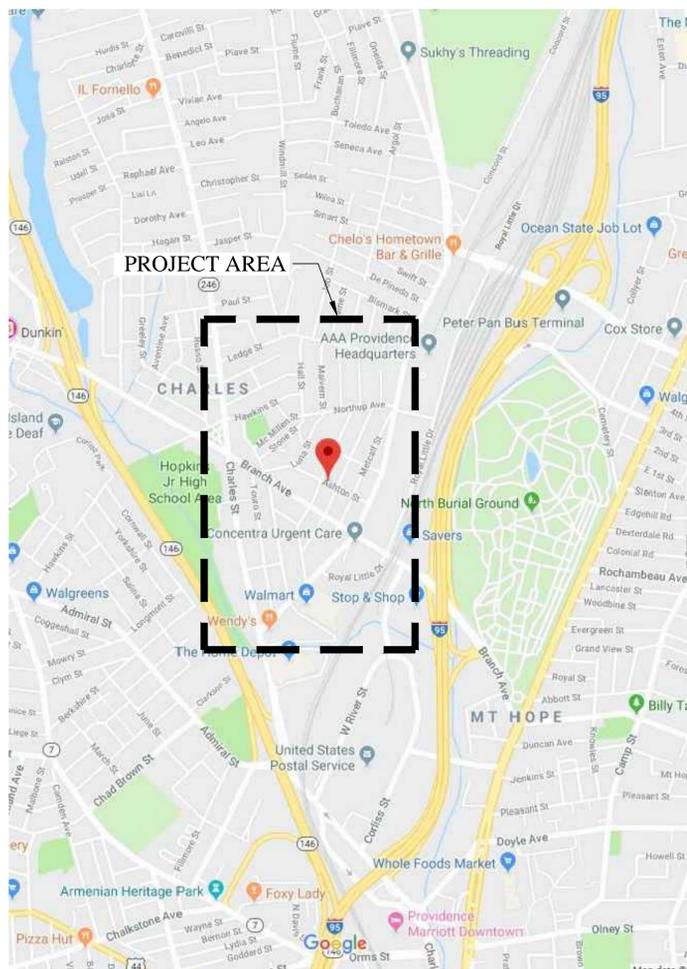
RICKY CARUOLO
GENERAL MANAGER

CRISTEN L. RAUCCI, ESQ.
MEMBER

KERI LYNN THURBER
MEMBER

CARISSA R. RICHARD
SECRETARY

WILLIAM E. O'GARA, ESQ.
LEGAL ADVISOR



VICINITY MAP

NOT TO SCALE
MAP SOURCE: GOOGLE, 2019

WATER MAIN REHABILITATION

CHARLES

PROVIDENCE, RI

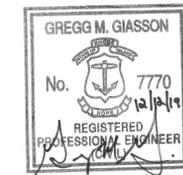
CONTRACT NUMBER:
CONTRACT 3-20

ISSUED FOR BID:
DECEMBER 12, 2019

DRAWING TYPE:
100% BID DOCUMENT



CONTRACT
3-20



Peter R. Lepage
DIRECTOR OF ENGINEERING

CONTRACT NOTES

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SHEET INDEX

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2	KEY MAP	10	AREA 8 PLAN
3	AREA 1 PLAN	11	AREA 9 PLAN
4	AREA 2 PLAN	12	AREA 10 PLAN
5	AREA 3 PLAN	13	AREA 11 PLAN
6	AREA 4 PLAN	14	AREA 12 PLAN
7	AREA 5 PLAN	15	AREA 13 PLAN
8	AREA 6 PLAN		

LEGEND

EXISTING CONDITIONS	ABBREVIATIONS
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	CI CAST IRON
	CNU CLOSED - NON USE
	DI DUCTILE IRON
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	UNK UNKNOWN
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CONTRACT WORK	
	LEAD SERVICE LINE TO BE REMOVED, REPLACE PER SPEC
	OTHER SERVICE LINE TO BE REMOVED
	HYDRANT ASSEMBLY TO BE REPLACED
	GATE VALVE TO BE REPLACED
	BUTTERFLY VALVE TO BE REPLACED
	DIVISIONAL VALVE TO BE REPLACED
	BLOWOFF WITH CAP TO BE REPLACED, SIZE PER PLAN
	MAIN LINE TO BE ABANDONED
	DUCTILE IRON WATER MAIN, SIZE TO MATCH EX. CONDITIONS
	GATE VALVE, SIZE PER PLAN
	MECHANICAL COUPLING, SIZE PER PLAN
	TEE, SIZE TO MATCH EXISTING CONDITIONS
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	SOLID SLEEVE
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- ALL EXCAVATIONS SHALL BE TEMPORARILY PAVED AT THE CLOSE OF EACH DAYS WORK IN ACCORDANCE WITH EACH RESPECTIVE CITY OR TOWN PERMIT, AS REQUIRED PER SPECIFICATIONS.
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- ALL VALVES AND COUPLING CONNECTIONS AT WORK LIMIT TERMINATIONS SHALL BE RESTRAINED TO THE NEW PIPING FOR FUTURE WORK IN ADJACENT AREAS.

COVER SHEET
WATER MAIN REHABILITATION
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DIRECTOR OF ENGINEERING

KEY MAP
WATER MAIN REHABILITATION
CHARLES
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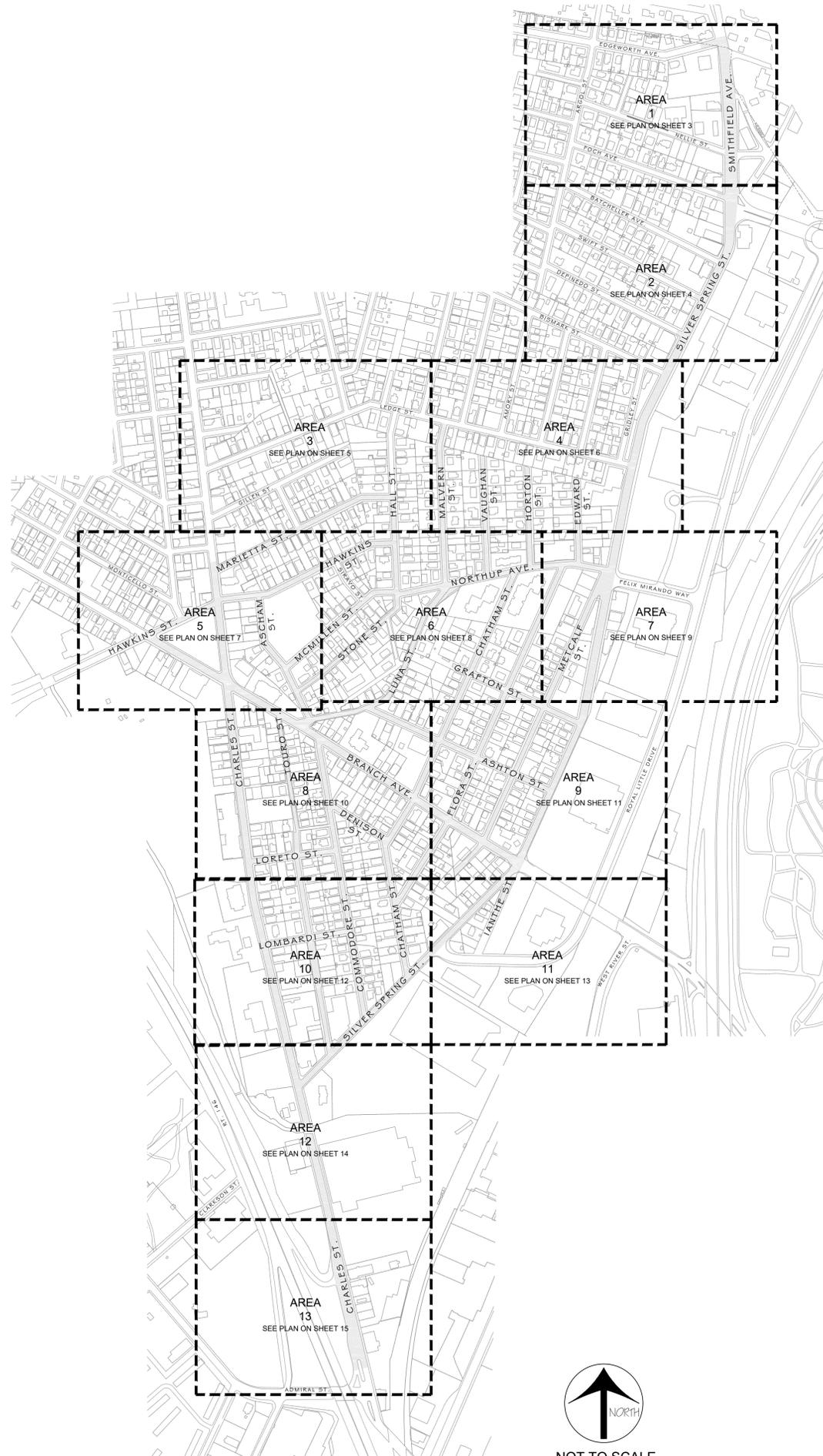
CONTRACT STREETS

KEY



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3-20



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AREA 2 PLAN
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MATCHLINE C - SEE SHEET 6

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AREA 3 PLAN

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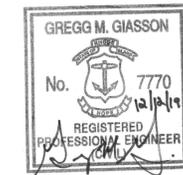
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AREA 4 PLAN

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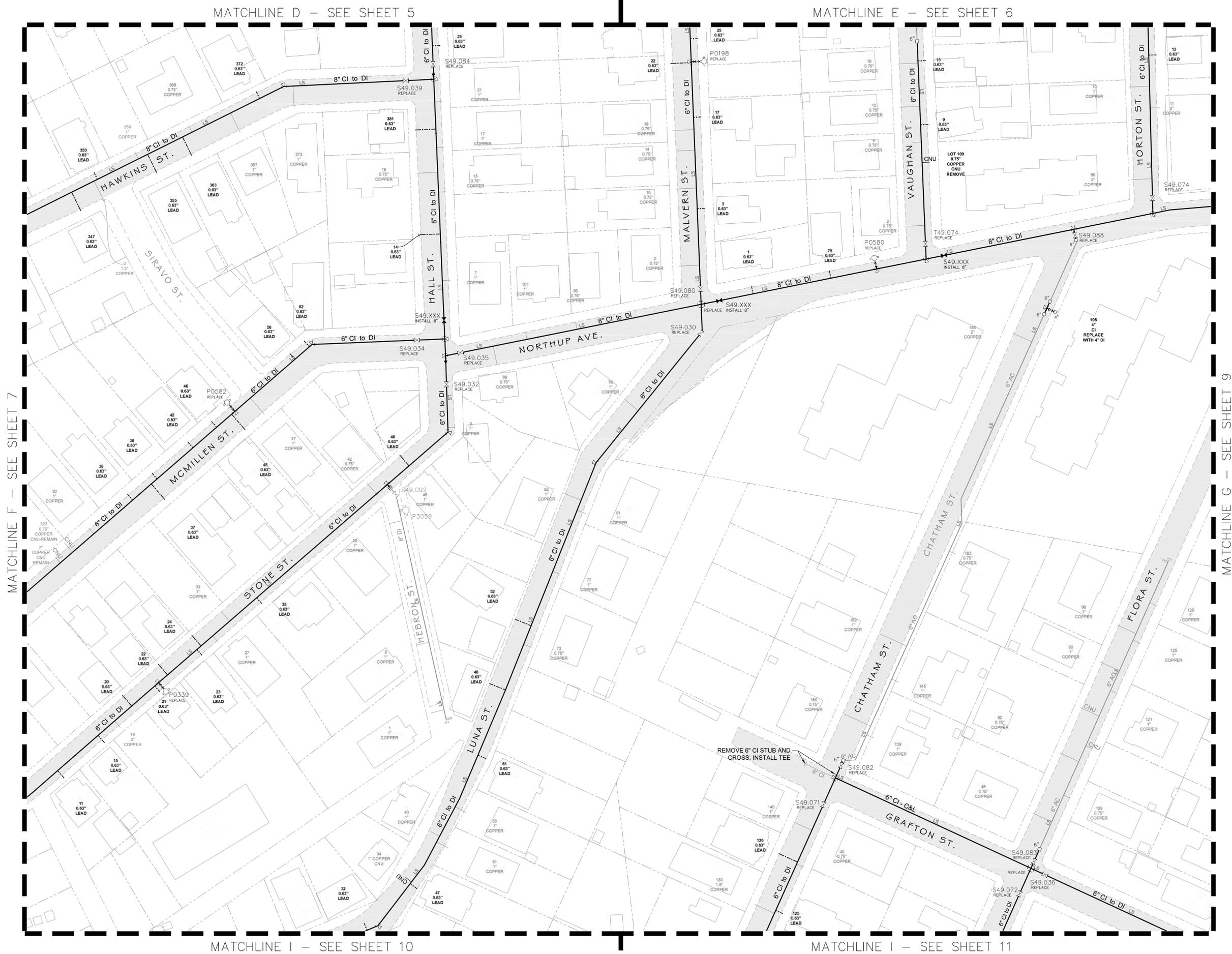
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AREA 7 PLAN
WATER MAIN REHABILITATION
CHARLES
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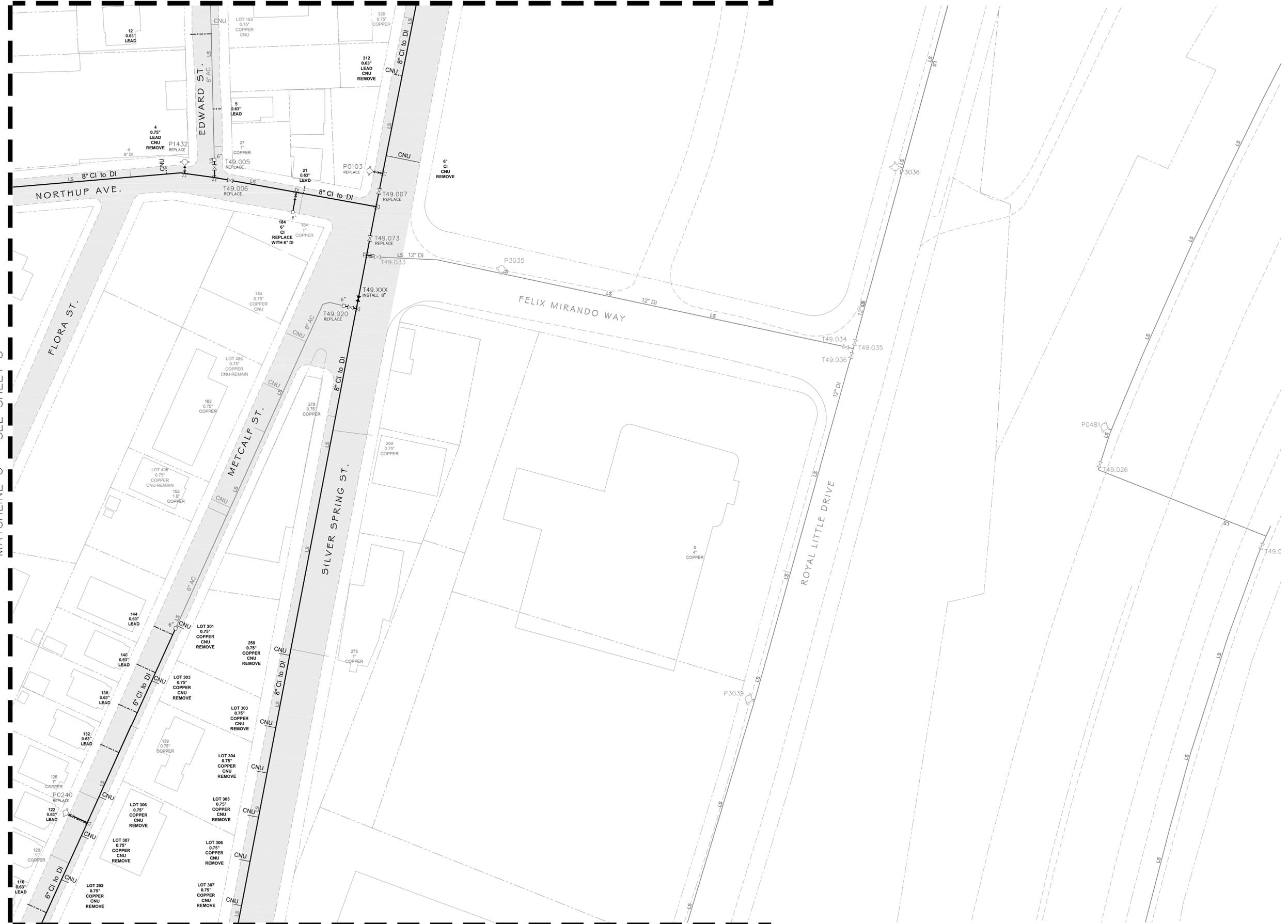
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AREA 8 PLAN

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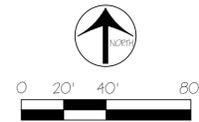


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MATCHLINE K - SEE SHEET 11

MATCHLINE L - SEE SHEET 12



MATCHLINE I - SEE SHEET 8

MATCHLINE J - SEE SHEET 9



CONTRACT
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Peter R. Lepage
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DIRECTOR OF ENGINEERING

AREA 9 PLAN

WATER MAIN REHABILITATION
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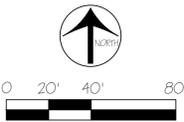
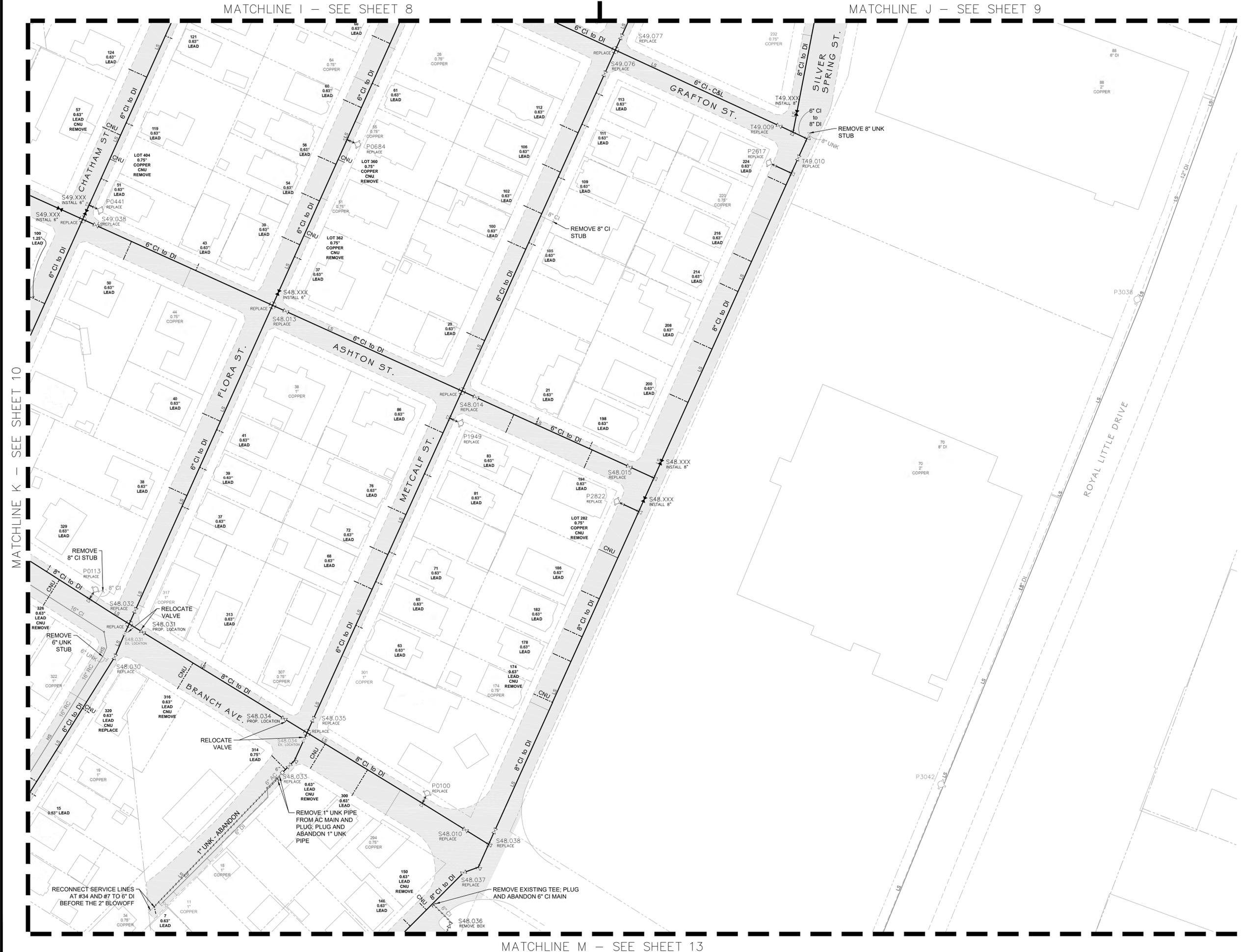
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AREA 10 PLAN

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MATCHLINE L - SEE SHEET 10

MATCHLINE O - SEE SHEET 14

MATCHLINE N - SEE SHEET 13

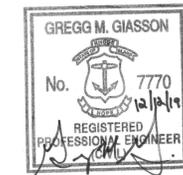


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Peter R. Lepage
DIRECTOR OF ENGINEERING

AREA 12 PLAN

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AREA 13 PLAN
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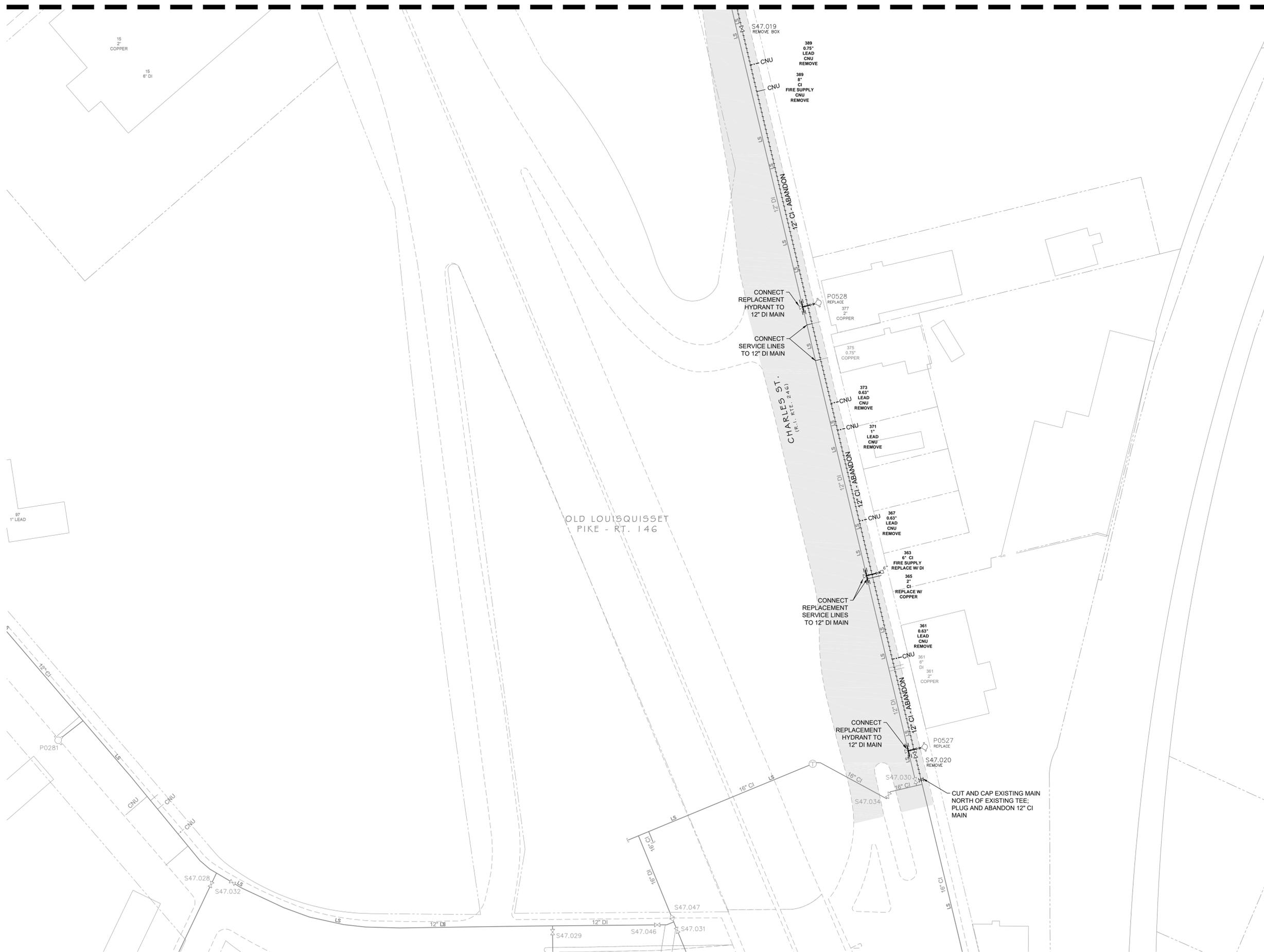
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APPENDIX F

EPA SRF Regulations - Debarment & Suspension

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- Appendix F - Debarment & Suspension Special Notes
- Executive Order 12549 - Debarment and Suspension
- Certification Form Regarding Debarment& Suspension and Other Responsibility Matters

APPENDIX F
EPA REGULATIONS - DEBARMENT & SUSPENSION
SPECIAL NOTES

- 1.1** This contract is subject to the implementation of Executive Order 12549 regarding Debarment and Suspension as it pertains to projects under the USEPA Drinking Water State Revolving Fund program.

- 1.2** Reference is made to Executive Order 12549 and the Certification Form regarding Debarment and Suspension and other responsibility matters, which have been provided within this appendix of the Contract Specifications.

DEBARMENT & SUSPENSION

Executive Order 12549--Debarment and Suspension

Source: The provisions of Executive Order 12549 of Feb. 18, 1986, appear at 51 FR 6370, 3 CFR, 1986 Comp., p. 189, unless otherwise noted.

By the authority vested in me as President by the Constitution and laws of the United States of America, and in order to curb fraud, waste, and abuse in Federal programs, increase agency accountability, and ensure consistency among agency regulations concerning debarment and suspension of participants in Federal programs, it is hereby ordered that:

Section 1. (a) To the extent permitted by law and subject to the limitations in Section 1(c), Executive departments and agencies shall participate in a system for debarment and suspension from programs and activities involving Federal financial and nonfinancial assistance and benefits. Debarment or suspension of a participant in a program by one agency shall have government-wide effect.

(b) Activities covered by this Order include but are not limited to: grants, cooperative agreements, contracts of assistance, loans, and loan guarantees.

(c) This Order does not cover procurement programs and activities, direct Federal statutory entitlements or mandatory awards, direct awards to foreign governments or public international organizations, benefits to an individual as a personal entitlement, or Federal employment.

Sec. 2. To the extent permitted by law, Executive departments and agencies shall:

(a) Follow government-wide criteria and government-wide minimum due process procedures when they act to debar or suspend participants in affected programs.

(b) Send to the agency designated pursuant to Section 5 identifying information concerning debarred and suspended participants in affected programs, participants who have agreed to exclusion from participation, and participants declared ineligible under applicable law, including Executive Orders. This information shall be included in the list to be maintained pursuant to Section 5.

(c) Not allow a party to participate in any affected program if any Executive department or agency has debarred, suspended, or otherwise excluded (to the extent specified in the exclusion agreement) that party from participation in an affected program. An agency may grant an exception permitting a debarred, suspended, or excluded party to participate in a particular transaction upon a written determination by the agency head or authorized designee stating the reason(s) for deviating from this Presidential policy. However, I intend that exceptions to this policy should be granted only infrequently.

Sec. 3. Executive departments and agencies shall issue regulations governing their implementation of this Order that shall be consistent with the guidelines issued under Section 6. Proposed regulations shall be submitted to the Office of Management and Budget for review within four months of the date of the guidelines issued under Section 6. The Director of the Office of Management and Budget may return for reconsideration proposed regulations that the Director believes are inconsistent with the guidelines. Final regulations shall be published within twelve months of the date of the guidelines.

Sec. 4. There is hereby constituted the Interagency Committee on Debarment and Suspension, which shall monitor implementation of this Order. The Committee shall consist of representatives of agencies designated by the Director of the Office of Management and Budget.

Sec. 5. The Director of the Office of Management and Budget shall designate a Federal agency to perform the following functions: maintain a current list of all individuals and organizations excluded from program participation under this Order, periodically distribute the list to Federal agencies, and study the feasibility of automating the list; coordinate with the lead agency responsible for government-wide debarment and suspension of contractors; chair the Interagency Committee established by Section 4; and report periodically to the Director on implementation of this Order, with the first report due within two years of the date of the Order.

Sec. 6. The Director of the Office of Management and Budget is authorized to issue guidelines to Executive departments and agencies that govern which programs and activities are covered by this Order, prescribe government-wide criteria and government-wide minimum due process procedures, and set forth other related details for the effective administration of the guidelines.

Sec. 7. The Director of the Office of Management and Budget shall report to the President within three years of the date of this Order on Federal agency compliance with the Order, including the number of exceptions made under Section 2(c), and shall make recommendations as are appropriate further to curb fraud, waste, and abuse.

Implementation in the SRF Programs

A company or individual who is debarred or suspended cannot participate in primary and lower-tiered covered transactions. These transactions include SRF loans and contracts and subcontracts awarded with SRF loan funds.

Under 40 C.F.R. 32.510, the SRF agency must submit a certification stating that it shall not knowingly enter into any transaction with a person who is proposed for debarment, suspended, declared ineligible, or voluntarily excluded from participation in the SRF program. This certification is reviewed by the EPA regional office before the capitalization grant is awarded.

A recipient of SRF assistance directly made available by capitalization grants must provide a certification that it will not knowingly enter into a contract with anyone who is ineligible under the regulations to participate in the project. Contractors on the project have to provide a similar certification prior to the award of a contract and subcontractors on the project have to provide the general contractor with the certification prior to the award of any subcontract.

In addition to actions taken under 40 C.F.R. Part 32, there are a wide range of other sanctions that can render a party ineligible to participate in the SRF program. Lists of debarred, suspended and otherwise ineligible parties are maintained by the General Services Administration and should be checked by the SRF agency and all recipients of funds directly made available by capitalization grants to ensure the accuracy of certifications.

Additional References

C 40 C.F.R. Part 32: EPA Regulations on Debarment and Suspension.

**CERTIFICATION REGARDING DEBARMENT & SUSPENSION
AND OTHER RESPONSIBILITY MATTERS**

In accordance with the Executive Order 12549, the prospective primary participant certifies to the best of his / her knowledge and belief, that its principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offence in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or contract under a public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state, or local) with commission of any of the offenses enumerated in paragraph (1) (b) of this certification.
- d. Have not within a three-year period preceding this application / proposal had one or more public transactions (federal, state, or local) terminated for cause of default.
- e. Acknowledge that all sub-contractors selected for this project must be in compliance with paragraphs (1) (a – d) of this certification.

Name and Title of Authorized Agent

Date

Signature of Authorized Agent

Company Name

_____ I am unable to certify to the above statements. My explanation is attached.