Maura Healey, Governor
Kimberley Driscoll, Lieutenant Governor
Monica Tibbits-Nutt, Secretary & CEO
Jonathan L. Gulliver, Highway Administrator

MassDOT
Massachusetts Department of Transportation
Highway Division

May 4, 2024

Proposal No. 609054-125644

**ADDENDUM NO. 1**

To Prospective Bidders and Others on:

**LITTLETON**
**Federal Aid Project No. STP/CMQ/TAP-0033(037)X**
**Reconstruction of Foster Street**

**BIDS TO BE OPENED AND READ: TUESDAY, MAY 7, 2024 at 2:00 P.M.**

Transmitting changes to the Contract Documents as follows:

**RESPONSES TO BIDDERS' QUESTION**
10 pages

**BORING LOG**
1 page

**DOCUMENT 00010**
Revised page 2

**DOCUMENT 00104**
Revised page 3

**DOCUMENT 00813**
Deleted Document indicated and inserted new document – 4 pages.

**DOCUMENT A00801**
Revised pages 14, 122 & 148. Inserted pages 148.1 & 148.2.

**DOCUMENT A00802**
Replaced document in its' entirety – 26 pages.

**DOCUMENT A00809**
Inserted new document – 102 pages

**DOCUMENT B00420**
Revised pages 14, 16 & 20 thru 22.

**PLAN SHEET REVISION**
Revised Plan Sheet 62 of 128

Ten Park Plaza, Suite 4160, Boston, MA 02116
Tel: 857-368-4636, TTY: 857-368-0655
mass.gov/massdot

Please take note of the above, substitute the revised pages for the originals, delete the document indicated and insert the new documents in the proper order and acknowledge Addendum No. 1 in your Expedite Proposal file before submitting your bid.

Very truly yours,

Eric M. Cardone Digitally signed by Eric M. Cardone
Date: 2024.05.04 09:56:20 -04'00'

Eric M. Cardone, P.E.
Construction Contracts Engineer

jb
cc A. Campbell, Project Manager

# RESPONSES TO BIDDERS' QUESTION

## LITTLETON
**Federal Aid Project No. STP/CMQ/TAP-0033(037)X**
**Reconstruction of Foster Street**
**(609054-125644)**

**Question from Advanced Drainage Systems, Inc. Dated 4/22/2024 @ 3:12 PM**

**Question 1.)** The Project is currently specified with 12- and 15-inch Reinforced Concrete Pipe Class III. Item Number and quantities are as follow:

241.12 = 12-Inch Reinforced Concrete Pipe Class III (1,520 LF)
241.15 = 15-Inch Reinforced Concrete Pipe Class III (150 LF)

We would like to respectfully request that corrugated plastic pipe (both polyethylene and polypropylene; per AASHTO M294 and AASHTO M330) be allowed under the pipe option for the above referenced items. Both pipe materials are included within the Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highways and Bridges (2024 Edition) Division III-Materials Specifications, Section M5.03.10 Corrugated Plastic Pipe. If allowed, the installation of corrugated plastic pipe would follow MassDOT Installation Guidelines.

**Response 1.) The pipe will remain RCP Class III as designed.**

**Questions from J.H. Lynch & Sons, Inc. Dated 4/30/2024 @ 4:57 PM**

**Question 2.)** Spec page A00801-14 references MBTA substitute bus transportation for MBTA Commuter Rail shutdowns. Page A00801-22 states "the plans do NOT call for work located directly on or within the MBTA Commuter Rail tracks…". Is there coordination with MBTA bussing expected as it does not seem to apply to this scope of work around the grade crossing and installing the 2 conduits?

**Response 2.) No. Coordination with MBTA Busing is not expected to be required. See revised page A00801-14 issued via this addendum.**

**Question 3.)** As a follow up to the previous question, will the contractor be required to attend the MBTA weekly Track Outage Schedule Coordination meetings held each Wednesday as required on page A00801-14? Is this required for the entire contract duration or just when work may affect MBTA rail lines?

**Response 3.) No, the Contractor is not required to attend MBTA weekly Track Outage Schedule Coordination meetings.**

## RESPONSES TO BIDDERS' QUESTION

**LITTLETON**
**Federal Aid Project No. STP/CMQ/TAP-0033(037)X**
**Reconstruction of Foster Street**
**(609054-125644)**

**Question 4.)** Regarding Item 153.01-Controlled Density Fill for Water Main, numerous access pits will need to be performed to ensure filling of the line with CDF. Confirm that Item 182.2-Removal of Asbestos will be used to compensate the contractor for removing sections of pipe to gain access to install the CDF.

**Response 4.) Yes, Item 182.2, Removal of Asbestos shall be used to perform filling of the abandoned water line with CDF.**

**Question 5.)** Page A00801-64 states that abandonment of pipe 2" and smaller shall not be measured for payment and the cost shall be considered incidental to other items of work. Is filling lines of 2" and smaller with CDF required?

**Response 5.) No, filling of lines 2" diameter or smaller is not required.**

**Question 6.)** CDF has been difficult to install in long pipe sections of small diameters without numerous access points/pits. Has lightweight cellular concrete (LWCC) or other pressurized grouts been considered to abandon the existing water pipe? This material can be pumped much larger distances thereby decreasing access points and associated asbestos removal. Can this material be used to abandon the water pipe and a new pay item and specification established in lieu of the CDF?

**Response 6.) The Contractor shall assume CDF shall be used as the filling material during bid stage. During construction, the Contractor may submit alternate fill material to complete the work subject to approval of the Resident Engineer.**

**Question 7.)** Item 655.03 – Timber Fence – Three Rail has a bid unit of $ on Bidx, the special provisions state to be paid by FOOT. Can the unit shown on Bidx be FT?

**Response 7.) See revised page B00420-14 issued via this addendum.**

**Question 8.)** Under DBE Participation page of the CDSP the goal percentage is missing, what is the DBE goal for this project?

**Response 8.) DBE Goal to be issued in a later addendum.**

## RESPONSES TO BIDDERS' QUESTION

**LITTLETON**
**Federal Aid Project No. STP/CMQ/TAP-0033(037)X**
**Reconstruction of Foster Street**
**(609054-125644)**

**Question 9.)** Page A00801-3 states that "This contract has an agreement with the Town of LITTLETON; whereas when the construction costs for the contract scope exceed the total participating contract bid price by more than 10%, the Town shall be responsible for the amount over 110% of the total participating contract bid price." Does the town have a line item in its budget for this possible amount exceeding 110% and if so, what is that amount?

**Response 9.) Any work exceeding 110% of the total participating contract bid price shall be approved during construction and negotiated separately. The Town is not required to hold a line-item amount in their municipal budget for potential overage. MassDOT, at its' discretion, may hold the Town responsible for an amount over 110% through the withholding of future disbursements in lieu of a direct payment from the Town.**

**Question 10.)** Can the intermediate course for the shared use path be changed from SIC-19.0 to SIC-12.5 to match the same pavement detail as the sidewalks/driveways?

**Response 10.) The intermediate course for the shared-use path shall remain SIC-19 as shown in the plans.**

**Question 11.)** Page 609054-6, Item 129.2 states the item is for roadway surface reconstruction at Wisdom Way. The special provision states it is for Foster St. and all other paved areas. Can this discrepancy be addressed?

**Response 11.) The reference to Wisdom Way on page 609054-6 is incorrect. See revised page A00802-6 issued via this addendum.**

**Question 12.)** Can the drainage table info (rim and invert) be provided for structure PR-LB-05 on page 62 of the plans, it seems to be missing from the table.

**Response 12.) Yes. See revised Plan Sheet #62 of 128 issued via this addendum.**

**Question 13.)** Confirm there are no borings available to indicate trench rock.

**Response 13.) Please see attached BORING LOG sampled at location B-1 as shown on Plan Sheet #3. The boring log indicates the presence of bedrock at 5' below ground surface. This is the only boring log available for the project.**

## RESPONSES TO BIDDERS' QUESTION

**LITTLETON**
**Federal Aid Project No. STP/CMQ/TAP-0033(037)X**
**Reconstruction of Foster Street**
**(609054-125644)**

**Question 14.)** Page A00801-93 discusses dewatering of trenches in detail. Please confirm there are no borings or test pit data available to indicate the presence of groundwater with the project limits and depths of designed underground utilities or provide borings or test pit data.

**Response 14.) There are no available soil borings that indicate the elevation of the groundwater.**

**Question 15.)** If no data is available regarding the presence of groundwater, or the chemical makeup of expected groundwater, how will the contractor be paid for dewatering? Please consider adding items for dewatering and treatment of water.

**Response 15.) As stated in the compensation section for Items 303.61-376.01, trench dewatering shall be inclusive of the Items. No Items will be added.**

**Question 16.)** Confirm that page A00801-93, Subsection 12.5 that directs contractors to pump groundwater into existing drainage structures is the desired method and will be allowed? This seems to contradict current BMP's per MADEP and the SWPPP's. Page A00801-9 only addresses water to say it "shall be so discharged as to avoid affecting nearby waters." Condition C-15 on page A00861-8 states dewatering may commence only after LCC has been consulted and has approved the location and action in writing and into a stilling basin.

**Response 16.) Condition C-15 applies when dewatering occurs where the Littleton Conservation Commission (LCC) has jurisdiction, inside of the 100-foot Buffer Zone to wetlands. Outside of the LCC jurisdiction, the Contractor shall follow current MassDOT BMPs in accordance with the project SWPP in determining means and methods of dewatering.**

**Question 17.)** The new water main is in close proximity to the existing water main at certain locations and in other locations it crosses new storm drainage infrastructure. If rock is encountered during water line and/or new drainage installation, the rock removal will endanger the integrity of the existing water main during removal of the rock. Given the attention paid to the NGRID facilities and specifications for vibration monitoring, will vibration monitoring of the existing water line be required?

**Response 17.) Vibration monitoring is only required when work in the vicinity of NGRID gas mains meets the guidelines provided by NGRID for required vibration monitoring. This may include work on water mains, but vibration monitoring is not required for work on water mains when the location or nature of the work does not meet the NGRID guidelines for vibration monitoring near NGRID gas mains.**

## RESPONSES TO BIDDERS' QUESTION

## LITTLETON
**Federal Aid Project No. STP/CMQ/TAP-0033(037)X**
**Reconstruction of Foster Street**
**(609054-125644)**

**Question 18.)** Can an item for temporary water bypass piping that is typically used in situations like this be added to the contract to allow for uninterrupted service to water customers during potential rock hammering under/around the existing water mains while they are still active? The specifications and items do not make any provisions for temporary water bypasses to maintain service at these locations.

**Response 18.) The need for a temporary water main bypass is not anticipated. An item for temporary water bypass shall not be included in the contract.**

**Question 19.)** Item 767.121 discusses straw bales, sedimentation fence and compost filter tubes. It also states that if filter tubes are required to be double or triple stacked, that they will be paid for by the foot. Will hay bales (if required) be paid by the foot? Will sedimentation fence (if required) be paid by the foot?

**Response 19.) Straw bales if required will be paid for by the FOOT. As stated in the method of measurement section of Item 767.121, silt fence is incidental to Item 767.121.**

**Question 20.)** Page A00801-148 discusses payment for Items 852.11 & 852.12. Under compensation, it states payment includes the furnishing, installing, removing and resetting, removal and maintaining. How many times is a contractor expected to remove and reset these items to be considered incidental to the original payment?

**Response 20.) A new pay item, Item 852.122, Temporary Pedestrian Management Guidance System Removed and Reset will be added with a unit quantity of FOOT. See revised pages B00420-20 & A00801-148 & new pages 148.1 & 148.2 issued via this addendum. The project quantity is estimated at 300 FT.**

**Question 21.)** Can items for removal and resetting items 852.11 and 852.12 be added to compensate for removal and resetting of each item?

**Response 21.) A new pay item, Item 852.122, Temporary Pedestrian Management Guidance System Removed and Reset will be added with a unit quantity of FOOT. See revised pages B00420-20 & A00801-148 & new pages 148.1 & 148.2 issued via this addendum. The project quantity is estimated at 300 FT.**

## RESPONSES TO BIDDERS' QUESTION

**LITTLETON**
**Federal Aid Project No. STP/CMQ/TAP-0033(037)X**
**Reconstruction of Foster Street**
**(609054-125644)**

**Question 22.)** References are made to reclaimed pavement borrow material on page A00801-60 as being allowed and it is referred to in the Order of Conditions, page A00861-5. Will material meeting M1.09.0 Reclaimed Pavement Borrow Material be permitted to substitute for Item No.'s 151 & 152.

**Response 22.) Material meeting M1.09.0, Reclaimed Pavement Borrow Material, may be substituted for Item 151, Gravel Borrow. No substitution shall be made for Item 152, Processed Gravel.**

**Question 23.)** If material meeting M1.09.0 is permitted, please confirm that item 151. and 152. will be measured and used to pay for M1.09.0.

**Response 23.) Payment for M1.09.0, Reclaimed Pavement Borrow Material, will be made under Item 151, Gravel Borrow only.**

**Question 24.)** Page 609054-16, Item 402. References using dense graded where Item 403. Cannot be used. Where is item 403. being used? Can a pay item be added for Item 403.?

**Response 24.) The references to Item 403 and pavers on page 609054-16 are in error. See revised page A00802-16 issued via this addendum. If the Contractor chooses to use an alternate method of pavement removal and utilize material meeting M1.09.0, Reclaimed Pavement Borrow Material, payment for that item will be made under Item 151 Gravel Borrow.**

**Question 25.)** If a Contractor reclaims the existing pavement, (item 403?), under what item will he be paid for the reclamation and processing of the material?

**Response 25.) Pavement removal regardless of method shall be paid for under Item 129.2, Old Pavement Excavation. If the Contractor chooses to use an alternate method of pavement removal and utilize material meeting M1.09.0, Reclaimed Pavement Borrow Material, payment for that Item will be made under Item 151 Gravel Borrow.**

**Question 26.)** Page 609054-16, Item 402. also contains a reference to using dense graded under concrete pavers. Where are the concrete pavers?

**Response 26.) The references to Item 403 and pavers on page 609054-16 are in error. There are no concrete pavers in the project. See revised page A00802-16 issued via this addendum.**

## RESPONSES TO BIDDERS' QUESTION

**LITTLETON**
**Federal Aid Project No. STP/CMQ/TAP-0033(037)X**
**Reconstruction of Foster Street**
**(609054-125644)**

**Question 27.)** Regarding vibration monitoring, the specifications are very general. Page A00807-4 states "Low levels of vibration must be maintained when working around gas facilities." Spec page A00807-14 sets PPV at 2 in./sec on cast iron and 5 in./sec on non-cast iron. Spec page A00801-122 states the PPV of the soil does not exceed a max. of 5 in./sec. Given that there are no borings showing where trench rock excavation will be occurring, other than rock from Sta. 32+50 to 37+00, LT, it is not possible to predict the duration of vibration monitoring requirements on a competitive basis. Can this item be changed to a unit of measure for a field technician and seismograph equipment to being paid by the HOUR instead of LUMP SUM? Or, perhaps have all bidders include an allowance of an established amount?

**Response 27.) See revised pages A00801-122 & B00420-16 issued via this addendum. The unit of measure shall be changed to hourly with a unit quantity of HOUR. Payment for Item 757 shall be for hours of vibration monitoring for which all incidental costs are included. The estimated quantity of the Item is 40 Hours.**

**Question 28.)** If Lump Sum must remain for vibration monitoring, please show on the plans where the trench rock is expected so that all bidders are on an equal competitive playing field.

**Response 28.) See revised pages A00801-122 & B00420-16 issued via this addendum. The unit of measure shall be changed to hourly with a unit quantity of HOUR. Payment for Item 757 shall be for hours of vibration monitoring for which all incidental costs are included. The estimated quantity of the Item is 40 Hours.**

**Question 29.)** Page A00807-10, Item L. states that vibrating machines are allowed over steel or plastic facilities with 24" or greater cover. Hand held mechanical tamper is acceptable over any facility with 12" or greater cover. If test pitting reveals gas lines are not at the proper depth of burial, will the gas lines be relocated to the proper burial depth even if this work is not shown on the plans and is in addition to the 425 ft of gas main work on the PUC form?

**Response 29.) The Contractor shall submit an RFI to MassDOT during construction if shallow-depth gas mains are discovered during construction that prevent the safe performance of work. The Resident Engineer shall decide at that time on how to resolve the issue with the PUC including the option of gas main reburial or relocation.**

## RESPONSES TO BIDDERS' QUESTION

## LITTLETON
**Federal Aid Project No. STP/CMQ/TAP-0033(037)X**
**Reconstruction of Foster Street**
**(609054-125644)**

**Question 30.)** In addition to the utility work and monitoring for vibration, is it the intent of the vibration monitoring specifications to continue during the full depth roadway construction, gravel, dense graded, and hot mix asphalt paving?

**Response 30.) Vibration monitoring is intended to occur primarily during underground utility work. The Contractor is subject to the NGRID guidelines included in the contract stipulating when vibration monitoring is required during work their near gas mains.**

**Question 31.)** If the vibration monitoring requirements are to be held during compaction of gravel, dense graded, and HMA paving, will MassDOT allow compaction only using static rollers and waive typical compaction requirements?

**Response 31.) Vibration monitoring is intended to occur primarily during underground utility work. The Contractor is subject to the NGRID guidelines included in the contract stipulating when vibration monitoring is required during work their near gas mains. If the performance of work during gravel compaction meets NGRID guidelines for vibration monitoring near gas mains resulting in the Contractor's inability to compact gravel using typical means and methods, the Contractor shall submit an RFI to MassDOT. The Resident Engineer shall decide as to the allowance and extent of the use of static rollers.**

**Question 32.)** Page A00861-7, condition C-7 in the order of conditions states that during construction, dust control shall be limited to water; no salts or other wetting agents shall be used. The bid items include #440-Calcium Chloride for roadway dust control. Can you confirm that the use of calcium is permitted and will be used or can the item be eliminated?

**Response 32.) The Order of Conditions issued by the Littleton Conservation Commission supersedes the contract only in jurisdictional areas to the Commission, which are the 100 ft. buffer zones from wetlands as shown in the plans. No salts shall be used or shall enter inside the Commissions jurisdictional area per the Order.**

**Question 33.)** Engineering policy directive P-22-002 is included in the contract regarding staging areas. As it is challenging to get MassDOT permission to use staging areas, we are asking prior to the bid-are any of the 3 areas circled in red in the attached sketch allowed as Staging areas? See attached sketch.

**Response 33.) It is not possible to grant permission for use of MassDOT property for staging at the bid stage. This project has not designated staging areas in the plans. Staging areas are to be determined during construction and coordinated with the MassDOT Resident Engineer in accordance with P-22-002.**

## RESPONSES TO BIDDERS' QUESTION

## LITTLETON
**Federal Aid Project No. STP/CMQ/TAP-0033(037)X**
**Reconstruction of Foster Street**
**(609054-125644)**

**Question 34.)** Engineering policy directive P-22-001 is included in the contract regarding off-site stockpiling of soils from MassDOT construction projects, can the contractor use the areas on the attached sketch to stockpile 7000 CY of material for characterization, prior to off-site disposal?

**Response 34.) It is not possible to grant permission for use of MassDOT property for stockpiling at the bid stage. This project has not designated stockpiling areas in the plans. Stockpiling areas are to be determined during construction and coordinated with the MassDOT resident engineer in accordance with P-22-001.**

**Question 35.)** The quantities of unregulated and regulated soil disposal do not seem to account for the offsite disposal of 7,000 CY. Confirm that all soils (other than pavements) leaving this project, including utility trench spoils, will be disposed of using items 180.11 through 181.14 and consider updating quantities to reflect the earth excavation.

**Response 35.) All disposal of earth excavation shall be paid for under Item 120 unless otherwise specified in the contract.**

**Question 36.)** Engineering policy directive P-22-002 is included in the contract regarding staging areas. As it is challenging to get MassDOT permission to use staging areas, we are asking prior to the bid-are any of the 3 areas circled in red in the attached sketch allowed as Staging areas? See attached sketch.

**Response 36.) It is not possible to grant permission for use of MassDOT property for staging at the bid stage. Staging areas are to be determined during construction and coordinated with the MassDOT resident engineer in accordance with P-22-002.**

**Questions from J.H. Lynch & Sons, Inc. Dated 5/01/2024 @ 8:22 AM**

**Question 37.)** Under special provisions for the water items (Spec page A00801-86) both links to the Town of Littleton Water Specifications, lead to a broken link. Could this be corrected, and the water specifications be provided?

**Response 37.) See attached new Document A00809 – LITTLETON Water Department Rules and Regulations issued via this addendum.**

## RESPONSES TO BIDDERS' QUESTION

**LITTLETON**
**Federal Aid Project No. STP/CMQ/TAP-0033(037)X**
**Reconstruction of Foster Street**
**(609054-125644)**

**Question 38.)** Bid items 303.061-303.101 for the water main materials, the bid items are for Mechanical Joint. Under specification page A00801-87 under Ductile Iron Water Mains Materials 2.2.1 it says all DIP shall be Class 52 CLDI with Zinc Coating and shall have push-on joints. Please clarify as to which type the town is looking for Mechanical or Push-On

**Response 38.) Push-on joints for water main pipe are the Littleton Water Department's standard.**

**Question from J.H. Lynch & Sons, Inc. Dated 5/01/2024 @ 11:21 AM**

**Question 39.)** Special provisions for bid item 874.85 – Private Sign Removed and Reset mention removing and resetting both the private sign at 265 Foster St as well as Littleton/Rte. 495 Commuter Rail Parking Lot Entrance Sign. Construction plan sheet 14 says Retain PRIVATE SIGN "STONEYARD.COM" "NEW ENGLAND STONE VENEER" "BMS CAT for the sign at 265 Foster St and R&R PRIVATE SIGN (By Others.) "COMMUTER RAIL PARKING ONLY". Please clarify if the construction plans are correct and what item 874.85 is being used for.

**Response 39.) The disposition of the private signs at 265 Foster St (Retain), the MBTA parking lot (R&R By Others), and 295 Foster St (Relocated by Owner) are correct in the construction plans. Item 874.85 shall therefore be used as a contingency should the private signs fail to be relocated by others.**

Addendum #1 May 4, 2024

1

FUSS & O'NEILL

# BORING LOG

Project Name: Foster St Corridor Improvements

Project Location: Littleton, MA

Location ID: B-1
Sheet #: 1 of 1
Project #:
Weather: Partly Cloudy ~35

Contractor: Seaboard
Operator: Dale Griffin
F&O Representative: Matthew Kissane
Drilling Method: Auger
Sampling Method: Split-Spoon
Hammer Weight: Hammer Fall (inches):

Location Description:
Date Started: 2/14/19
Date/Time Completed: 2/14/19 / 1005
Depth to Saturated Zone: N/A

Sample # Prefix:

| DRILLING DETAILS | | | MATERIAL DESCRIPTION | | | | ANALYTICAL SAMPLES | | |
|---|---|---|---|---|---|---|---|---|---|
| START DEPTH (FT) | BLOWS 6" | REC/ PEN (IN) | DEPTH RANGE (FT) | DESCRIPTION | PID | LITHO-LOGIC CODE | SAMPLE NO. & TIME | DEPTH INTERVAL (FT) | JARS & PRESERV. |
| 0 | 10, 17<br>7, 3 | | 0-2 | TILL, Fn-Md Silty Sand, some ¼ - ½" Gravel, poorly sorted, light-dark gray, moist. | N/A | SM | | | |
| 2 | N/A | | 2-4 | No recovery, Split-Spoon unable to drive past 2' bgs | N/A | N/A | | | |
| 4 | N/A | | 4-5 | No recovery, Split-Spoon unable to drive past 2' bgs<br>Bedrock at 5' bgs - End of Boring | N/A | N/A | | | |

1 BORING LOG PROVIDED IN RESPONSE TO CONTRACTOR QUESTION #13. MAY 3, 2024. MASSDOT PROJECT 609054

| BORING DIAMETER | BORING METHOD | BORING DEPTH |
|---|---|---|
| | | |
| | | |
| | | |

**REMARKS**
Field Instrument = PID/OVM

If refusal is encountered, describe all efforts used to confirm.

Field Decon: Yes / No / Dedicated Device

**PROPORTIONS USED:**

| | | | |
|---|---|---|---|
| Trace (tr) | 0 to 10% | Some (sm) | 20 to 35% |
| Little (ltl) | 10 to 20% | And | 35 to 50% |

**EXAMPLE DESCRIPTION:**
SAND, F-M; sm F angular gravel; ltl silt; tr clay; (10R 5/4), wet at 7 ft. Loose. No odor.

Reviewed by Staff:

**BACKFILL**

| | | | | |
|---|---|---|---|---|
| Asphalt / Concrete | | To | | See Monitoring Well |
| Bentonite Grout/Chips | | To | | Completion Report |
| Cuttings/Native Material | 0 | To | 5 | |
| Other | | To | | |

①ADDENDUM NO. 1, MAY 4, 2024

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①ADDENDUM NO. 1, MAY 4, 2024

**NOTICE TO CONTRACTORS** (Continued)

① PRICE ADJUSTMENTS

This Contract contains price adjustments for hot mix asphalt and Portland cement mixtures, diesel fuel, and gasoline. For reference the base prices are as follows: liquid asphalt $637.50 per ton, Portland cement $425.53 per ton, diesel fuel **$3.097** per gallon, and gasoline **$2.906** per gallon, and Steel Base Price Index **420.3**. MassDOT posts the **Price Adjustments** on their Highway Division's website at
https://www.mass.gov/massdot-contract-price-adjustments

This Contract contains Price Adjustments for steel. See Document 00813 - PRICE ADJUSTMENT FOR STRUCTURAL STEEL AND REINFORCING STEEL for their application and base prices.

MassDOT projects are subject to the rules and regulations of the Architectural Access Board (521 CMR 1.00 et seq.)

Prospective bidders and interested parties can access this information and more via the internet at WWW.COMMBUYS.COM.

BY: Monica G. Tibbits-Nutt, Secretary and CEO, MassDOT
Jonathan L. Gulliver, Administrator, MassDOT Highway Division
SATURDAY, MARCH 30, 2024

DOCUMENT 00813

# SPECIAL PROVISIONS
# PRICE ADJUSTMENTS FOR STRUCTURAL STEEL AND REINFORCING STEEL
April 18, 2024

This special provision applies to all projects containing the use of structural steel and/or reinforcing steel as specified elsewhere in the Contract work. It applies to all structural steel and all reinforcing steel, as defined below, on the project. Compliance with this provision is mandatory, i.e., there are no "opt-in" or "opt-out" clauses. Price adjustments will be handled as described below and shall only apply to unfabricated reinforcing steel bars and unfabricated structural steel material, consisting of rolled shapes, plate steel, sheet piling, pipe piles, steel castings and steel forgings.

Price adjustments will be variances between Base Prices and Period Prices. Base Prices and Period Prices are defined below.

Price adjustments will only be made if the variances between Base Prices and Period Prices are 5% or more. A variance can result in the Period Price being either higher or lower than the Base Price. Once the 5% threshold has been achieved, the adjustment will apply to the full variance between the Base Price and the Period Price.

Price adjustments will be calculated by multiplying the number of pounds of unfabricated structural steel material or unfabricated reinforcing steel bars on a project by the index factor calculated as shown below under Example of a Period Price Calculation.

Price adjustments will *not* include guardrail panels or the costs of shop drawing preparation, handling, fabrication, coatings, transportation, storage, installation, profit, overhead, fuel costs, fuel surcharges, or other such charges not related to the cost of the unfabricated structural steel and unfabricated reinforcing steel.

The weight of steel subject to a price adjustment shall not exceed the final shipping weight of the fabricated part by more than 10%.

Base Prices and Period Prices are defined as follows:

*Base Prices* of unfabricated structural steel and unfabricated reinforcing steel on a project are fixed prices determined by the Department and found in the table below. While it is the intention of the Department to make this table comprehensive, some of a project's unfabricated structural steel and/or unfabricated reinforcing steel may be inadvertently omitted. Should this occur, the Contractor shall bring the omission to the Department's attention so that a contract alteration may be processed that adds the missing steel to the table and its price adjustments to the Contract.

The Base Price Date is the month and year of the most recent finalized period price index at the time that MassDOT opened bids for the project. The Base Price Index for this contract is the Steel PPI listed in the Notice to Contractors.

*Period Prices* of unfabricated structural steel and unfabricated reinforcing steel on a project are variable prices that have been calculated using the Period Price Date and an index of steel prices to adjust the Base Price.

The Period Price Date is the date the steel was delivered to the fabricator as evidenced by an official bill of lading submitted to the Department containing a description of the shipped materials, weights of the shipped materials and the date of shipment. This date is used to select the Period Price Index.

The index used for the calculation of Period Prices is the U.S. Department of Labor Bureau of Labor Statistics Producer Price Index (PPI) Series ID WPU101702 (Not Seasonally Adjusted, Group: Metals and Metal Products, Item: Semi-finished Steel Mill Products.) As this index is subject to revision for a period of up to four (4) months after its original publication, no price adjustments will be made until the index for the period is finalized, i.e., the index is no longer suffixed with a "(P)".

Period Prices are determined as follows:

Period Price = Base Price X Index Factor
Index Factor = Period Price Index / Base Price Index

Example of a Period Price Calculation:

Calculate the Period Price for December 2009 using a Base Price from March 2009 of $0.82/Pound for 1,000 Pounds of ASTM A709 (AASHTO M270) Grade A36 Structural Steel Plate.

The Period Price Date is December 2009. From the PPI website*, the Period Price Index = 218.0.

The Base Price Date is March 2009. From the PPI website*, the Base Price Index = 229.4.

Index Factor = Period Price Index / Base Price Index = 218.0 / 229.4 = 0.950
Period Price = Base Price X Index Factor = $0.82/Pound X 0.950 = $0.78/Pound

Since $0.82 - $0.78 = $0.04 is less than 5% of $0.82, no price adjustment is required.

If the $0.04 difference shown above was greater than 5% of the Base Price, then the price adjustment would be 1,000 Pounds X $0.04/Pound = $40.00. Since the Period Price of $0.78/Pound is less than the Base Price of $0.82/Pound, indicating a drop in the price of steel between the bid and the delivery of material, a credit of $40.00 would be owed to MassDOT. When the Period Price is higher than the Base Price, the price adjustment is owed to the Contractor.

* To access the PPI website and obtain a Base Price Index or a Period Price Index, go to http://data.bls.gov/cgi-bin/srgate

End of example.

The Contractor will be paid for unfabricated structural steel and unfabricated reinforcing steel under the respective contract pay items for all components constructed of either structural steel or reinforced Portland cement concrete under their respective Contract Pay Items.

Price adjustments, as herein provided for, will be paid separately as follows:

Structural Steel
Pay Item Number 999.449 for positive (+) pay adjustments (payments to the Contractor)

Pay Item Number 999.457 for negative (-) pay adjustments (credits to MassDOT Highway Division)

Reinforcing Steel
Pay Item Number 999.466 for positive (+) pay adjustments (payments to the Contractor)

Pay Item Number 999.467 for negative (-) pay adjustments (credits to MassDOT Highway Division)

No price adjustment will be made for price changes after the Contract Completion Date, unless the MassDOT Highway Division has approved an extension of Contract Time for the Contract.

TABLE

| Steel Type | | Price per Pound |
|---|---|---|
| 1 | ASTM A615/A615M Grade 60 (AASHTO M31 Grade 60 or 420) Reinforcing Steel | $0.65 |
| 2 | ASTM A27 (AASHTO M103) Steel Castings, H-Pile Points & Pipe Pile Shoes (See Note below.) | $0.90 |
| 3 | ASTM A668 / A668M (AASHTO M102) Steel Forgings | $0.90 |
| 4 | ASTM A108 (AASHTO M169) Steel Forgings for Shear Studs | $0.93 |
| 5 | ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Plate | $0.99 |
| 6 | ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Shapes | $0.92 |
| 7 | ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Plate | $0.99 |
| 8 | ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Shapes | $0.92 |
| 9 | ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Plate | $1.03 |
| 10 | ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Shapes | $0.93 |
| 11 | ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W 345W Structural Steel Plate | $1.03 |
| 12 | ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W or 345W Structural Steel Shapes | $0.93 |
| 13 | ASTM A709/A709M Grade HPS 50W / AASHTO M270M/M270 Grade HPS 50W or 345W Structural Steel Plate | $1.08 |
| 14 | ASTM A709/A709M Grade HPS 70W / AASHTO M270M/M270 Grade HPS 70W or 485W Structural Steel Plate | $1.15 |
| 15 | ASTM A514/A514M-05 Grade HPS 100W / AASHTO M270M/M270 Grade HPS 100W or 690W Structural Steel Plate | $1.75 |
| 16 | ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Plate | $1.03 |
| 17 | ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Shapes | $0.93 |
| 18 | ASTM A276 Type 316 Stainless Steel | $5.23 |
| 19 | ASTM A240 Type 316 Stainless Steel | $5.23 |
| 20 | ASTM A148 Grade 80/50 Steel Castings (See Note below.) | $1.80 |
| 21 | ASTM A53 Grade B Structural Steel Pipe | $1.15 |
| 22 | ASTM A500 Grades A, B, 36 & 50 Structural Steel Pipe | $1.15 |
| 23 | ASTM A252, Grades 240 (36 KSI) & 414 (60 KSI) Pipe Pile | $0.91 |
| 24 | ASTM 252, Grade 2 Permanent Steel Casing | $0.91 |
| 25 | ASTM A36 (AASHTO M183) for H-piles, steel supports and sign supports | $0.98 |
| 26 | ASTM A328 / A328M, Grade 50 (AASHTO M202) Steel Sheetpiling | $1.72 |
| 27 | ASTM A572 / A572M, Grade 50 Sheetpiling | $1.72 |
| 28 | ASTM A36/36M, Grade 50 | $0.99 |
| 29 | ASTM A570, Grade 50 | $0.98 |
| 30 | ASTM A572 (AASHTO M223), Grade 50 H-Piles | $0.99 |
| 31 | ASTM A1085 Grade A (50 KSI) Steel Hollow Structural Sections (HSS), heat-treated per ASTM A1085 Supplement S1 | $1.15 |
| 32 | AREA 140 LB Rail and Track Accessories | $0.59 |

NOTE: Steel Castings are generally used only on moveable bridges. Cast iron frames, grates and pipe are not “steel” castings and will not be considered for price adjustments.

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①ADDENDUM NO. 1, MAY 4, 2024

## MBTA RAILROAD COORDINATION / ACCESS TO MBTA PROPERTY

The Contractor shall be required to coordinate the work of this Contract with the MBTA and Keolis Commuter Services Co. ("KCS") through the MassDOT Resident Engineer and MassDOT designated Field Staff. A majority of the prerequisites for the Contractor to perform work on or adjacent to MBTA transit lines may be found in the "MBTA Special Instructions" provided herein. The Contractor shall be required to comply with the all applicable requirements of the latest edition of the MBTA Special Instructions available at the time of Contract Award.

The Contractor will have to perform construction related activities on, over, under, within or adjacent to railroad property owned or controlled by the MBTA. Any work that will affect Commuter Rail operations, involve work on, over, under, within or adjacent to the commuter rail right of way must be coordinated with MBTA Railroad Operations and KCS and shall comply with the latest version of the MBTA Railroad Operations Directorate.

An owner or Contractor who wishes permission to enter upon or perform work over, on, under or adjacent to MBTA property shall submit to the offices of the MBTA's designated representative, a request in writing, a minimum of forty-two (42) days prior to the owner or the Contractor's planned commencement of any of the above stated activities.

①

①ADDENDUM NO. 1, MAY 4, 2024

## ① ITEM 757. VIBRATION MONITORING HOUR

The Work under this Item shall conform to the requirements of the following documents appended to this contract: "DAM01011: Excavation and Excavation Notification Requirements for Underground Facilities," "DAM01003: Vibrational and Impact Forces in the Vicinity of Underground Gas Facilities," & "General Guidelines for Working Around Gas Utilities" as issued by National Grid – see Document A00807.

The Item addresses the need for vibration monitoring regarding construction activities that include blasting, hammering, and excavating in the vicinity of underground facilities required by National Grid.

SUBMITTALS

The Contractor shall submit a vibration monitoring plan document detailing proposed vibration monitoring for applicable work around National Grid utilities. The vibration monitoring plan document will be reviewed by the Engineer, MassDOT and National Grid for approval.

METHODS

The vibration monitoring shall conform to the relevant National Grid guidelines appended to this contract and shall include the use of one or more seismographs to ensure that measured peak particle velocity (PPV) of the soil does not exceed a maximum of 5 in./sec. Real time monitoring of the seismograph(s) is required during work activity is required per National Grid's guidelines.

## ① METHOD OF MEASUREMENT

The method of measurement shall be in the unit of HOURs for field crew of one technician. The length of time shall be measured as HOURs during which the Contractor is actively monitoring ground vibration in support of the performance of other construction work observable by the Resident engineer. The length of time measured shall not include time spent preparing for vibration monitoring, disassembling vibration monitoring equipment, or transporting vibration monitoring equipment.

## ① BASIS OF PAYMENT

Payment for all work under Item 757 shall be made at the contract unit price, HOUR, which price shall include all labor, equipment, correspondence, and meetings required to plan and perform the Vibration Monitoring including all required revisions/addenda during construction.

**ITEMS 852.11 & 852.12** (Continued)

Turning areas shall be 60 inches by 60 inches minimum.

Lateral joints between any surfaces shall not exceed 0.5 inches. Lateral edges may be vertical up to 0.25 inches high and shall be beveled at 1V:2H between 0.25 inches and 0.5 inches.

The TPAR shall be kept clear of debris, snow, and ice and the Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall not obstruct drainage.

Removal and/or resetting of Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall be considered incidental.

**COMPENSATION**

Payment for Temporary Pedestrian Barricade will be made at the contract price per FOOT installed in place, including all incidental Items. This price shall include the cost of furnishing, installing, removing and resetting, removal, and maintaining in good working condition.

Payment for Temporary Pedestrian Curb Ramp will be made at the contract price per EACH unit installed in place, including all incidental Items. This price shall include the cost of furnishing, installing, removing and resetting, removal, and maintaining in good working condition.

① **ITEM 852.122 TEMPORARY PEDESTRIAN MANAGEMENT GUIDANCE SYSTEM REMOVED AND RESET** **FOOT**

Work under this item shall consist of removing and resetting the temporary pedestrian guidance system placed at specific work locations as directed by the Engineer. The temporary pedestrian guidance system refers to temporary items installed and measured under both Items 852.11 and Item 852.12.

It is the intent of this item to reuse the placed pedestrian guidance system items in many locations.

The Contractor shall maintain the integrity of the guidance system items throughout the project duration. Special care shall be taken by the Contractor removing and resetting the guidance system items not to damage any piece of the system. The system shall remain in working order throughout the construction. There shall be no compensation made for any damaged section that occurred while performing Item 852.122.

**METHOD OF MEASUREMENT**

Item 852.122, Temporary Pedestrian Management Guidance System Removed and Reset shall be measured for payment per FOOT completely removed and reset as determined by the Engineer.

**ITEM 852.122** (Continued)

**BASIS OF PAYMENT**

Item 852.122 Temporary Pedestrian Management Guidance System Removed and Reset shall be paid for at the Contract unit price per FOOT as measured by the Engineer. The price shall include full compensation for removing and resetting items installed under Items 852.11 and Item 852.12. Item 852.122 is inclusive of all incidental labor, materials, transportation, and storage required to complete the work.

**ITEM 861.044 4 INCH REFLECTORIZED YELLOW LINE (PAINTED) FOOT**

The Work under this Item shall conform to the relevant provisions of Subsection 860 of the Standard Specifications and the following:

This Item shall be for placement of 4" wide painted yellow lines (dashed and solid) on the shared- use path portion of the project as shown on the plans.

MATERIALS

The material shall be water-borne reflective paint intended for outdoor use as pavement marking and recommended by the manufacturer as being adherent to HMA surfaces. The material shall be included on the MassDOT Qualified Construction Materials List for Water- Borne Traffic Paint.

The MassDOT QCML can be found at the website below. https://www.mass.gov/service-details/qualified-construction-materials-list

**METHOD OF MEASUREMENT**

Item 861.044, 4 Inch Reflectorized Yellow Line (Painted) will be measured for payment per FOOT of line painted and approved by the Engineer.

**BASIS OF PAYMENT**

Item 861.044, 4 Inch Reflectorized Yellow Line (Painted) will be paid per FOOT of line painted not including the space between broken or dashed lines, which price shall be full compensation for all material, labor, tools and incidentals required to complete the work.

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ADDENDUM NO. 1, MAY 4, 2024

HED-618

EWO NO. SHEET 1 OF 26 SHEETS
PROJECT NO. 609054

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TRANSPORATATION – HIGHWAY DIVISION
TEN PARK PLAZA, BOSTON, MA

# -ESTIMATE OF QUANTITIES - DETAIL SHEET-

TOWN-CITY Littleton ROAD Foster Street
YEAR 2024 CLASS N/A
Sta 0+00 to Sta 39+36 DATE March 1st

| **Excavation** | | | **Gravel Fill** | |
|---|---|---|---|---|
| Earth Excavation | 7000 Cu Yards | | Gravel for Roadway | 3346 Cu Yards |
| Class "A Rock Excavation | 170 Cu Yards | | Gravel for Driveways | 58 Cu Yards |
| Class "B" Rock Excavation | 120 Cu Yards | | Gravel for Sidewalks & Ramps | 171 Cu Yards |
| Class "A" Trench Excavation | 170 Cu Yards | + | 25% Swell | 895 Cu Yards |
| Class "B" Trench Excavation | 1570 Cu Yards | | | |
| Embankment + 15% | 1212 Cu Yards | | | |

## PAVEMENT NOTES:

PROPOSED PAVEMENT MILLING AND OVERLAY – FOSTER STREET
1-1/2" PAVEMENT FINE MILLING
1-1/2" SUPERPAVE SURFACE COURSE – 9.5

MILLING TO BE VARIABLE DEPTH (INCREASING) AT PROJECT LIMITS TO MEET PROPOSED GRADE ON TAYLOR STREET

MILLING TO BE VARIABLE DEPTH (DECREASING) AT SAWCUT TRANSITION ON FOSTER STREET EAST OF BALSAM LN

PROPOSED FULL DEPTH PAVEMENT RECONSTRUCTION

| | |
|---|---|
| SURFACE: | 1-1/2" SUPERPAVE SURFACE COURSE – 9.5 OVER |
| INTERMEDIATE: | 1-3/4" SUPERPAVE INTERMEDIATE COURSE – 12.5 OVER |
| | 3-1/2" SUPERPAVE INTERMEDIATE COURSE – 19.0 OVER |
| SUBBASE: | 4" DENSE GRADED CRUSHED STONE |
| | 8" GRAVEL BORROW, TYPE b. |

PROPOSED SHARED-USE PATH FULL DEPTH PAVEMENT

| | |
|---|---|
| SURFACE: | 1-1/2" SUPERPAVE SURFACE COURSE – 9.5 (SSC – 9.5) OVER |
| INTERMEDIATE: | 2-1/2" SUPERPAVE INTERMEDIATE COURSE – 19.0 OVER |
| SUBBASE: | 8" GRAVEL BORROW, TYPE b. |

PROPOSED HOT MIX ASPHALT SIDEWALK OR DRIVEWAY

SURFACE: 1-1/2" SUPERPAVE SURFACE COURSE – 9.5 (SSC - 9.5) OVER
2-1/2" SUPERPAVE INTERMEDIATE COURSE – 12.5 (SIC – 12.5)

FOUNDATION: 8" GRAVEL BORROW, TYPE b.

PROPOSED CEMENT CONCRETE SIDEWALK

SURFACE: 4" CEMENT CONCRETE
AIR ENTRAINED 4000psi, ¾", 610

FOUNDATION: 8" GRAVEL BORROW, TYPE b.

PROPOSED CEMENT PEDESTRIAN CURB RAMP

SURFACE: 6" CEMENT CONCRETE
AIR ENTRAINED 4000psi, ¾", 610

FOUNDATION: 8" GRAVEL BORROW, TYPE b.

NOTES: ASPHALT EMULSION FOR TACK COAT AND HMA JOINT SEALANT SHALL BE APLLIED PER SECTION 450 QA OF THE SPECIAL PROVISIONS.

HMA FOR PATCHING SHALL BE USED FOR ALL PERMANENT PARTIAL, AND FULL DEPTH PAVEMENT REPAIRS OF UNSOUND PAVEMENT PER SECTION 450 IN AREAS OUTSIDE OF PROPOSED FULL DEPTH EXCAVATION OR RECONSTRUCTION ROADWAY AREAS.

HMA FOR MISCELLANEOUS WORK SHALL BE USED FOR ALL TEMPORARY CONSTRUCTION, TAPER RAMPS, CURB CUT RAMPS, TEMPORARY TRENCH REPAIR, ETC.

Plan No.'s _____ Estimated by _____

Profile No.'s _____ Reviewed by _____

Calc. Book No. _____ Submitted by _____

District Highway Director

## 101. CLEARING AND GRUBBING

At the following locations and any locations called out on the construction plans and/or as directed by the Engineer.

| | From | | To | |
|---|---|---|---|---|
| **Street Name** | **Station** | **Side** | **Station** | **Side** |
| Foster St | 4+35 | RT | 6+23 | RT |
| Foster St | 7+62 | LT | 10+93 | LT |
| Foster St | 7+10 | RT | 9+90 | RT |
| Foster St | 12+00.00 | LT | 14+80.00 | LT |
| Foster St | 10+61.09 | RT | 13+11.79 | RT |
| Foster St | 12+82.08 | RT | 14+08.50 | RT |
| Foster St | 19+10.18 | RT | 19+94.87 | RT |
| Foster St | 24+23.72 | RT | 24+66.44 | RT |
| Foster St | 32+40 | LT | 38+75 | LT |

## 102. SELECTIVE CLEARING AND THINNING

At the following locations and any locations called out on the construction plans and/or as directed by the Engineer.

| | From | | To | |
|---|---|---|---|---|
| **Street Name** | **Station** | **Side** | **Station** | **Side** |
| Foster Street | 1+15 | LT | 13+32 | LT |
| Foster Street | 14+25 | RT | 25+80 | RT |
| Foster Street | 18+15 | LT | 18+35 | LT |
| Foster Street | 31+00 | RT | 31+20 | RT |
| Foster Street | 32+25 | LT | 37+20 | LT |
| Foster Street | 38+40 | RT | 39+30 | RT |
| Taylor Street | 203+00 | LT | 203+20 | LT |

## 102.001 TREE TRIMMING CREW

For trimming of trees/limbs over the project limits and any locations called out on the construction plans and/or as specified by the Engineer, including as directed at overhead wires.

## 102.511 INDIVIDUAL TREE PROTECTION – ARMORING AND PRUNING

For protection and trimming of trees/limbs over the shared use path at the following locations and any locations called out on the construction plans and/or as specified by the Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Taylor Street | 203+86 | 39' | RT |
| Taylor Street | 203+86 | 38' | RT |
| Foster Street | 7+96 | 34' | LT |
| Foster Street | 10+59 | 20' | RT |
| Foster Street | 11+08 | 20' | RT |
| Foster Street | 11+90 | 34' | LT |
| Foster Street | 12+17 | 35' | LT |
| Foster Street | 12+32 | 20' | RT |
| Foster Street | 12+45 | 17' | RT |
| Foster Street | 13+07 | 19' | RT |
| Foster Street | 13+72 | 39' | LT |
| Foster Street | 14+50 | 39' | LT |
| Foster Street | 14+76 | 39' | LT |
| Foster Street | 15+19 | 33' | LT |
| Foster Street | 15+66 | 38' | LT |
| Foster Street | 15+91 | 32' | LT |
| Foster Street | 15+96 | 20' | RT |
| Foster Street | 18+61 | 28' | RT |
| Foster Street | 18+66 | 25' | RT |
| Foster Street | 18+86 | 32' | RT |
| Foster Street | 18+89 | 25' | RT |
| Foster Street | 19+75 | 36' | LT |
| Foster Street | 19+85 | 35' | LT |
| Foster Street | 19+92 | 35' | LT |
| Foster Street | 20+26 | 33' | LT |
| Foster Street | 33+24 | 20' | RT |

## 102.513 AIR EXCAVATION AND ROOT PRUNING

For excavating soil with an air pressure tool in order to expose tree roots, and for associated services and materials necessary to complete the work of pruning, backfilling with existing soil, watering, mulching, and fertilizing as called out on the construction plans and/or as specified by the Engineer.

## 102.55 ARBORIST

The Arborist's responsibilities include protecting high priority trees within and adjacent to the project limits, stating areas, and access routes; recommending removal of diseased, damaged or otherwise unhealthy trees that pose a potential safety hazard; evaluating effects of construction on future health of trees close to proposed work; and recommending and/or overseeing tree work amd care.

## 103. TREE REMOVED - DIAMETER UNDER 24 INCHES

As shown on Construction Plan Sheets at the following stations and/or where directed by the Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster St | 17+04 | 18 | RT |

Trees Removed on private property outside of the limits of clearing and grubbing

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster St | 12+17 | 35 | LT |
| Grimes Lane | 300+94 | 20 | LT |

## 104. TREE REMOVED - DIAMETER 24 INCHES AND OVER

As shown on Construction Plan Sheets at the following stations and/or where directed by the Engineer.

Trees Removed within the public layout outside of the limits of clearing and grubbing

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster St | 16+79 | 20 | RT |
| Foster St | 34+50 | 35 | LT |

Trees Removed on private property outside of the limits of clearing and grubbing

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 3+38 | 38' | LT |
| Foster Street | 3+69 | 40' | LT |
| Foster Street | 3+94 | 39' | LT |

**129.2 OLD PAVEMENT EXCAVATION**

For roadway surface reconstruction within the project area at the limits shown on the plans.

**141. CLASS A TRENCH EXCAVATION**

To be used for removal of culverts, paved waterways, masonry headwalls, and drainage pipe removals if they are outside the limits of new proposed pipe trench, and as directed by the Engineer.

**141.101 TEST PIT FOR EXPLORATION-VACUUM TRUCK**

To be used at various locations near gas mains for locating existing utilities, and as directed by the Engineer.

**141.2 TEST PIT FOR GROUNDWATER**

To be used at various locations near proposed leaching basins for locating groundwater level, and as directed by the Engineer.

**142. CLASS B TRENCH EXCAVATION**

To be used for trench excavation for drainage and water pipe installation with depths greater than 5 feet from the bottom of pavement box (or existing ground if lower) to the bottom barrel of pipe.

**144. CLASS B ROCK EXCAVATION**

For all rock removed when encountered during Class B trench excavation required for construction of, drainage structure and pipes, water pipes, retaining structures, walls, slopes, electrical conduit and/or as directed by the Engineer.

## 146. DRAINAGE STRUCTURE REMOVED

For removal of CB's at the following locations, as needed for old existing structures to be replaced, and as directed by the Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 7+10 | 7' | RT |
| Foster Street | 7+08 | 14' | LT |
| Foster Street | 14+10 | 16' | RT |
| Foster Street | 16+83 | 20' | LT |
| Foster Street | 23+76 | 7' | RT |
| Foster Street | 23+77 | 25' | LT |
| Foster Street | 31+44 | 24' | LT |
| Foster Street | 31+73 | 24' | LT |
| Foster Street | 31+74 | 13' | LT |

## 151. GRAVEL BORROW

To be used with the following:

- Proposed full depth reconstruction
- Proposed hot mix asphalt driveway
- Proposed cement concrete walk/wheel chair ramp
- Proposed hot mix asphalt walk surface
- Subbase for permanent and temporary utility trenches
- Subbase for two foot shoulders along shared-use path
- As needed for backfill and/or where directed by the Engineer.

All gravel borrow is to be Type b.

## 152. PROCESSED GRAVEL

To be used to restore driveway at 285 Foster Street as shown on plans and/or as directed by the Engineer.

## 153.01 CONTROLLED DENSITY FILL FOR WATER MAIN

To be used for filling abandoned AC water main.

| | From | | To | |
|---|---|---|---|---|
| Street Name | Station | Side | Station | Side |
| Foster Street | 0+00 | | 39+30 | |

**156. CRUSHED STONE**

Shall be used as needed for drainage manholes, catch basins, drainage pipes, water pipes, and as needed for misceleanous drainage work during realignment, and/or as directed by the Engineer.

**170. FINE GRADING AND COMPACTING**

To be used with the following:

- Proposed full depth reconstruction
- Proposed hot mix asphalt driveway
- Proposed cement concrete walk/wheel chair ramp
- Proposed hot mix asphalt walk surface
- Subbase for permanent and temporary utility trenches
- As directed by the Engineer

**201. CATCH BASIN**

New catch basin as specified at the following locations on the Drainage and Utility Plan Sheets, and as directed by the Engineer.

| From Plans | Station | Offset | Side |
|---|---|---|---|
| PR-CB-01 | 202+70 | 22 | RT |
| PR-CB-02 | 202+43 | 29 | RT |
| PR-CB-03 | 3+30 | 11 | RT |
| PR-CB-04 | 6+81 | 11 | RT |
| PR-CB-05 | 13+99 | 11 | RT |
| PR-CB-06 | 14+05 | 11 | LT |
| PR-CB-07 | 16+89 | 11 | LT |
| PR-CB-10 | 24+05 | 11 | LT |
| PR-CB-12 | 25+89 | 11 | RT |
| PR-CB-13 | 25+89 | 11 | LT |
| PR-CB-15 | 31+73 | 30 | LT |
| PR-CB-16 | 31+69 | 15 | LT |
| PR-CB-17 | 35+95 | 11 | RT |
| PR-CB-18 | 0+37 | 25 | LT |

## 201.3 SPECIAL CATCH BASIN

New double grate catch basin as specified at the following locations on the Drainage and Utility Plan Sheets, and as directed by the Engineer.

| From Plans | Station | Offset | Side |
|---|---|---|---|
| CBDB-1 | 6+81.53 | 11.01 | LT |

## 202. MANHOLE

As needed for existing CB's that are unable to be CIT to DMH and as directed by the Engineer.

| From Plans | Station | Offset | Side |
|---|---|---|---|
| PR-DMH-01 | 3+29 | 2.8 | LT |
| PR-DMH-02 | 4+80 | 11.3 | LT |
| PR-DMH-03 | 6+82 | 2.5 | LT |
| PR-DMH-04 | 7+17 | 7.8 | LT |
| PR-DMH-05 | 14+12 | 6.8 | LT |
| PR-DMH-06 | 16+82 | 11.0 | LT |
| PR-DMH-07 | 22+69 | 9.1 | LT |
| PR-DMH-08 | 23+79 | 9.0 | LT |
| PR-DMH-09 | 24+39 | 9.3 | LT |
| PR-DMH-10 | 25+80 | 9.4 | LT |
| PR-DMH-11 | 0+27 | 2.7 | LT |

## 202.2 MANHOLE (9 TO 14 FOOT DEPTH)

As needed for existing CB's that are unable to be CIT to DMH and as directed by the Engineer.

| From Plans | Station | Offset | Side |
|---|---|---|---|
| DMH-12 | 31+62 | 4.6 | RT |

## 204. GUTTER INLET

New gutter inlet as specified at the following locations on the Drainage and Utility Plan Sheets, and as directed by the Engineer.

| From Plans | Station | Offset | Side |
|---|---|---|---|
| GI-01 | 3+29 | 11.01 | LT |
| GI-02 | 24+05 | 11.00 | RT |
| GI-04 | 35+98 | 13.74 | LT |

**205.01 LEACHING BASIN.**

New leaching basin as specified at the following locations on the Drainage and Utility Plan Sheets, and as directed by the Engineer.

| From Plans | Station | Offset | Side |
|---|---|---|---|
| LB-01 | 6+80 | 21 | LT |
| LB-02 | 14+05 | 11 | LT |
| LB-03 | 16+90 | 11 | LT |
| LB-04 | 22+60 | 11 | LT |
| LB-05 | 25+89 | 11 | LT |

**220. DRAINAGE STRUCTURE ADJUSTED**

For CBs and MHS requiring 6" or less of elevation change at the following locations and as directed by the Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 8+70.3 | 5.8 | LT |
| Foster Street | 10+28.5 | 5.4 | LT |
| Foster Street | 10+39.6 | 11 | LT |
| Foster Street | 10+39.8 | 11 | RT |
| Foster Street | 29+69 | 41.5 | LT |
| Foster Street | 31+72 | 10.9 | RT |
| Foster Street | 33+60 | 2.5 | RT |
| Foster Street | 35+89.7 | 4.2 | RT |
| Foster Street | 38+78.7 | 2.2 | RT |

**220.3 DRAINAGE STRUCTURE CHANGE IN TYPE**

Convert CB to DMH at the following locations and/or as directed by the Engineer:

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 23+76.50 | 24.57 | LT |

## 220.5 DRAINAGE STRUCTURE REMODELED

Included as contingency. To be used if utility conflicts necessitate or as directed by Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 10+28 | 3.4' | LT |
| Foster Street | 10+38 | 11.2' | RT |
| Foster Street | 10+38 | 11.6' | LT |
| Foster Street | 14+10 | 9.6' | RT |
| Foster Street | 16+81 | 10.6' | RT |
| Foster Street | 31+61 | 4.7' | RT |
| Foster Street | 31+71 | 13.1' | RT |
| Foster Street | 33+59 | 5.56' | RT |
| Foster Street | 35+94 | 10.5' | RT |
| Foster Street | 35+89 | 5.0' | RT |
| Foster Street | 35+98 | 11' | LT |
| Foster Street | 38+90 | 2.1' | RT |
| Taylor Street | 202+90 | 23.91' | RT |

## 222.1 FRAME AND GRATE – MASSDOT CASCADE TYPE

To be installed with all proposed drainage structures, drainage structures change in type, and as indicated on Drainage and Utility Plans and/or as directed by the Engineer.

## 223.1 FRAME AND GRATE (OR COVER) REMOVED AND STACKED

Remove and stack all existing grates and covers to be replaced with Items #221 and 222.1, as called out on the Drainage & Utility Plans and/or as directed by the Engineer.

## 227.3 REMOVAL OF DRAINAGE STRUCTURE SEDIMENT

For cleaning of existing catch basins and manholes. Assume standard 4’ diameter catch basin with 2.5’ standard sump depth. Assume standard 4’ diameter manhole with 1’ sump depth.

## 227.31 REMOVAL OF DRAINAGE PIPE SEDIMENT

Shall be used for cleaning blocked existing drainage pipes being retained and/or as directed by the Engineer.

**227.4 MASONRY PLUG**

For pipes shown to be abandoned as shown on the Drainage and Utility Plans and/or as directed by the Engineer.

**241.12 12 INCH REINFORCED CONCRETE PIPE**

As shown on the Drainage and Utility Plans and as directed by the Engineer. If Existing pipes shown to be removed are within the limits of new pipe trench excavation than the removal cost of the old pipes shall be included in the unit cost of the new pipe. If pipes shown to be removed are outside the limits of new pipe trench (as determined by the Engineer) than removal cost shall be paid under Item 141. Class A Trench Excavation

**241.15 15 INCH REINFORCED CONCRETE PIPE**

As shown on the Drainage and Utility Plans and as directed by the Engineer. If Existing pipes shown to be removed are within the limits of new pipe trench excavation then the removal cost of the old pipes shall be included in the unit cost of the new pipe. If pipes shown to be removed are outside the limits of new pipe trench (as determined by the Engineer) than removal cost shall be paid under Item 141. Class A Trench Excavation.

**303.061 6 INCH DUCTILE IRON WATER PIPE (MECHANICAL JOINT)**

As needed for proposed hydrants or hydrants designated to be Removed and Reset and as directed by the Engineer.

**303.081 8 INCH DUCTILE IRON WATER PIPE (MECHANICAL JOINT)**

As needed for water main systems that will be connecting to existing water main systems and as directed by the Engineer.

**303.101 10 INCH DUCTILE IRON WATER PIPE (MECHANICAL JOINT)**

As needed for the water main replacement and as directed by the Engineer.

## 309.01 DUCTILE IRON FITTINGS FOR WATER PIPE

To be installed with Item #303.06 and 303.08 as well as capping of any abandoned water services or lines as part of hydrant R&R operations, and/or as directed by the Engineer.

| Street Name | Station | Offset | Side | Type |
|---|---|---|---|---|
| Foster Street | 0+25.63 | 9.23 | LT | 10" 22.5° Bend |
| Foster Street | 0+37.49 | 3.77 | LT | 10" 22.5° Bend |
| Foster Street | 3+65 | 7.7 | LT | 10" x 8" Tee |
| Foster Street | 3+65 | 23 | RT | 8" Sleeve |
| Foster Street | 5+02.02 | 5.09 | LT | 10" x 6" Tee |
| Foster Street | 9+03.93 | 2.98 | RT | 10" x 6" Tee |
| Foster Street | 11+05.14 | 3.66 | RT | 10" x 6" Tee |
| Foster Street | 13+31.33 | 2.51 | RT | 10" 11.25° Bend |
| Foster Street | 14+49.28 | 2.89 | RT | 10" 11.25° Bend |
| Foster Street | 15+23.05 | 2.5 | RT | 10" 11.25° Bend |
| Foster Street | 19+16.19 | 6.14 | LT | 10' x 6" Tee |
| Foster Street | 21+05.11 | 4.31 | LT | 10' x 8" Tee |
| Foster Street | 24+53+87 | 7.21 | LT | 10" 22.5 Bend |
| Foster Street | 24+64.03 | 3.06 | LT | 10" 22.5 Bend |
| Foster Street | 25+02.22 | 3.69 | LT | 10" 22.5 Bend |
| Foster Street | 25+10.60 | 7.07 | LT | 10" 22.5 Bend |
| Foster Street | 25+68.26 | 5.28 | LT | 10" 7° Bend |
| Foster Street | 26+30.00 | 3.12 | RT | 10" X10" Tee |
| Foster Street | 26+37.01 | 29 | LT | 10" X10" Tee |
| Foster Street | 26+98.58 | 22.01 | RT | 10" 11.5° Bend |
| Foster Street | 27+73.46 | 13.97 | RT | 10' x 8" Tee |
| Foster Street | 27+78.29 | 7.2 | RT | 10" 11.25° Bend |
| Foster Street | 28+09+14 | 3.04 | RT | 10" 11.25° Bend |
| Foster Street | 28+23.09 | 1.85 | RT | 10" x 6" Tee |
| Foster Street | 33+38.44 | 5.31 | LT | 10" x 6" Tee |
| Foster Street | 38+66.59 | 7.91 | LT | 10" 22.5° Bend |
| Foster Street | 39+27.81 | 7.79 | RT | 10" 11.25° Bend |
| Foster Street | 39+09.67 | 3 | RT | 10" x 6" Tee |

**350.061 6 INCH GATE AND GATE BOX**

As shown on the Drainage and Utility Plans and as directed by the Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 5+02.11 | 6.65 | LT |
| Foster Street | 9+03.94 | 2.96 | RT |
| Foster Street | 11+05.11 | 1.69 | LT |
| Foster Street | 19+16.20 | 6.11 | LT |
| Foster Street | 23+00.00 | 6.79 | LT |
| Foster Street | 28+26.5 | 3.66 | RT |
| Foster Street | 33+38.44 | 5.30 | LT |
| Foster Street | 39+08.00 | 17.00 | RT |

**350.081 8 INCH GATE AND GATE BOX**

As shown on the Drainage and Utility Plans and as directed by the Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 3+64 | 6.13 | LT |
| Foster Street | 21+04 | 1.00 | LT |
| Foster Street | 37+98 | 3.00 | LT |

**350.101 10 INCH GATE AND GATE BOX**

As shown on the Drainage and Utility Plans and as directed by the Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 26+32 | 2.0 | LT |
| Foster Street | 26+35 | 23.0 | LT |
| Foster Street | 27+78 | 8.0 | RT |
| Foster Street | 39+28 | 7.5 | RT |
| Foster Street | 9+05 | 3.5 | RT |
| Foster Street | 19+18 | 6.3 | LT |
| Foster Street | 28+25 | 2.0 | LT |
| Foster Street | 33+42 | 8.0 | LT |
| Foster Street | 39+11 | 3.8 | RT |

**358. GATE BOX ADJUSTED**

As shown on the Drainage and Utility Plans and as directed by the Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 0+25 | 9.3 | LT |
| Foster Street | 24+69 | 3.1 | LT |
| Foster Street | 24+97 | 3.7 | LT |
| Foster Street | 27+73 | 19.3 | RT |

**358.1 GATE BOX REMOVED AND STACKED**

As shown on the Drainage and Utility Plans and as directed by the Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 3+59 | 11 | LT |
| Foster Street | 5+02 | 18 | LT |
| Foster Street | 11+05 | 16 | LT |
| Foster Street | 28+21 | 6.6 | RT |
| Foster Street | 33+34 | 12.4 | RT |
| Foster Street | 37+99 | 7.8 | RT |

**363.101 1 INCH CORPORATION COCK**

As needed for any service connections impacted by curbing and sidewalk construction activities and/or as directed by the Engineer.

**363.102 2 INCH CORPORATION COCK**

As needed for any service connections impacted by curbing and sidewalk construction activities and/or as directed by the Engineer.

**371.08 8 INCH COUPLING**

As shown on the Drainage and Utility Plans and as directed by the Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 21+04.56 | 1.49 | RT |
| Foster Street | 39+33.79 | 7.84 | LT |

## 376.01 HYDRANT – TOWN STANDARD

As shown on Utility Plans at the following location, as needed, and as directed by the Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 9+03.94 | 28.69 | LT |
| Foster Street | 19+16.20 | 31.34 | LT |
| Foster Street | 23+00.00 | 29.5 | LT |
| Foster Street | 28+24.91 | 24.55 | RT |
| Foster Street | 33+38.44 | 19.62 | RT |
| Foster Street | 39+18.84 | 18.98 | RT |

## 376.3 HYDRANT - REMOVED AND STACKED

As shown on Utility Plans at the following location, as needed, and as directed by the Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 9+57 | 23 | LT |
| Foster Street | 19+15 | 31 | LT |
| Foster Street | 28+21 | 16 | RT |
| Foster Street | 33+36 | 20 | RT |
| Foster Street | 39+14 | 19 | RT |

## 384. CURB STOP

As shown on Utility Plans at the following location, as needed, and as directed by the Engineer.

| Street Name | Station | Offset | Side |
|---|---|---|---|
| Foster Street | 14+94 | 14.2 | RT |
| Foster Street | 16+20 | 20.6 | RT |
| Foster Street | 17+94 | 13.5 | RT |
| Foster Street | 28+29 | 31.2 | LT |
| Foster Street | 35+23 | 23.6 | RT |
| Foster Street | 39+25 | 19.5 | RT |

## 402. DENSE GRADED CRUSHED STONE FOR SUB-BASE

For full depth roadway reconstruction areas greater than 4’ in width and/or as directed by the Engineer.

## 402.12 DENSE GRADED CRUSHED STONE FOR SHOULDERS

For full depth roadway/shared use path shoulder (2' on left side per typical sections, 4" depth) construction areas as shown on Construction Plans and/or as directed by the Engineer.

## 451. HMA FOR PATCHING

For pavement repair in pavement overlay areas that need patching prior to the overlay as well as for permanent trench repair during underground utility work and as directed by the Engineer.

## 452. ASPHALT EMULSION FOR TACK COAT

Place over base course for full depth reconstruction areas coverage at the rate of 0.05 gal/sy as well as over milled areas at a rate of 0.07 gal/sy and/or as directed by the Engineer.

## 453. HMA JOINT SEALANT

To be applied at to the entire vertical face of all transverse joints, all vertical faces during patching, and along vertical longitudinal joints in the surface course of pavement and/or as directed by the Engineer.

## 470.2 HOT MIX ASPHALT BERM, TYPE A – MODIFIED

To be used for roadside waterway construction and other misc work as directed the Engineer.

| | From | | To | |
|---|---|---|---|---|
| **Street Name** | **Station** | **Side** | **Station** | **Side** |
| Foster Street | 4+20 | RT | 14+76 | RT |
| Foster Street | 14+91 | RT | 16+05 | RT |
| Foster Street | 16+19 | RT | 17+82 | RT |
| Foster Street | 17+98 | RT | 18+93 | RT |
| Foster Street | 19+07 | RT | 20+66 | RT |
| Foster Street | 20+87 | RT | 20+96 | RT |
| Foster Street | 21+22 | RT | 22+51 | RT |
| Foster Street | 25+00 | RT | 27+26 | RT |
| Foster Street | 31+78 | RT | 33+84 | RT |
| Foster Street | 34+17 | RT | 37+68 | RT |
| Foster Street | 38+79 | RT | 39+76 | RT |

## 472. TEMPORARY ASPHALT PATCHING

To be used for temp. pavement, temporary access to driveways and walkways, temporary patching utility trenches, temporary WCR's, temporary ramps from the milled roadway surface to the smooth roadway surface, and other misc work as directed the Engineer.

## 594. CURB REMOVED AND STACKED

Remove and stack all existing granite curb that is to be replaced. See construction plans, grading, and tie plans for locations and/or as directed by the Engineer.

## 620.12 GUARDRAIL, TL-2 (SINGLE FACED)

To be installed at the following locations and as shown on the Construction Plans and/or as directed by the Engineer.

| | From | | To | |
|---|---|---|---|---|
| **Street Name** | **Station** | **Side** | **Station** | **Side** |
| Foster Street | 9+46 | LT | 10+84 | LT |
| Foster Street | 11+94 | LT | 17+28 | LT |
| Foster Street | 23+26 | LT | 26+04 | LT |
| Foster Street | 35+90 | RT | 37+20 | RT |
| Foster Street | 28+49 | RT | 32+83 | RT |
| Foster Street | 21+22 | RT | 23+34 | RT |
| Foster Street | 24+52 | RT | 25+62 | RT |
| Grimes Lane | 300+48 | RT | 301+41 | RT |

## 620.32 GUARDRAIL CURVED, TL-2 (SINGLE FACED)

To be installed where curve radius is 60' or less at the following locations and as shown on the Construction Plans and/or as directed by the Engineer.

| | From | | To | |
|---|---|---|---|---|
| **Street Name** | **Station** | **Side** | **Station** | **Side** |
| Foster Street | 21+13.37 | RT | 21+28.25 | RT |

## 627.82 GUARDRAIL TANGENT END TREATMENT, TL-2

To be installed at the following locations and as shown on the Construction Plans and/or as directed by the Engineer.

| Street Name | Station | Side |
|---|---|---|
| Foster Street | 9+46 | LT |
| Foster Street | 10+84 | LT |
| Foster Street | 11+94 | LT |
| Foster Street | 17+28 | LT |
| Foster Street | 21+22 | RT |
| Foster Street | 23+26 | LT |
| Foster Street | 24+52 | RT |
| Foster Street | 25+62 | RT |
| Foster Street | 26+04 | LT |
| Foster Street | 26+71 | LT |
| Foster Street | 27+44 | LT |
| Foster Street | 28+49 | RT |
| Foster Street | 35+91 | RT |
| Grimes Lane | 300+48 | LT |
| Grimes Lane | 301+41 | LT |

## 627.92 GUARDRAIL FLARE END TREATMENT, TL-2

To be installed at the following locations and as shown on the Construction Plans and/or as directed by the Engineer.

| Street Name | Station | Side | Quantity |
|---|---|---|---|
| Foster Street | 21+08.81 | RT | 1 |
| Grimes Lane | 300+48.1 | LT | 1 |
| Foster Street | 32+82.80 | RT | 1 |

## 628.21 TRANSITION TO NCHRP 350 GUARDRAIL

To be installed at the following locations and as shown on the Construction Plans and/or as directed by the Engineer.

| Street Name | Station | Side | Station | Side |
|---|---|---|---|---|
| Foster Street | 36+86 | RT | 37+19 | LT |

## 628.22 TRANSITION TO RIGID BARRIER (SINGLE FACED)

To be installed at the following locations and as shown on the Construction Plans and/or as directed by the Engineer.

| Street Name | Station | Side | Quantity |
|---|---|---|---|
| Foster Street | 22+94.53 | RT | 1 |

## 630. HIGHWAY GUARD REMOVED AND RESET

For removal and resetting of existing guardrail at the following locations and/or as directed by the Engineer.

| | From | | To | |
|---|---|---|---|---|
| Street Name | Station | Side | Station | Side |
| Foster Street | 37+19.57 | RT | 37+83.54 | RT |

## 630.2 HIGHWAY GUARD REMOVED AND DISCARDED

For removal and stacking of existing guardrail at the following locations and/or as directed by the Engineer.

## 655. TIMBER FENCE – THREE RAIL

To be installed at the following locations and as shown on the Construction Plans and/or as directed by the Engineer.

| | From | | To | |
|---|---|---|---|---|
| Street Name | Station | Side | Station | Side |
| Foster Street | 11+78.00 | LT | 14+60.26 | LT |
| Foster Street | 16+40.65 | LT | 17+10.00 | LT |
| Foster Street | 18+01.00 | LT | 18+46.00 | LT |
| Foster Street | 24+48.11 | LT | 25+22.47 | LT |
| Foster Street | 28+00.00 | LT | 28+52.26 | LT |

## 669 FENCE REMOVED AND STACKED

For removal and stacking of existing guardrail at the following locations and/or as directed by the Engineer.

| Street Name | Station | Side | Station | Side |
|---|---|---|---|---|
| Foster Street | 24+77.0 | RT | 14+60.26 | LT |

## 675.2 LANDSCAPE BOULDER BARRIER REMOVED AND DISCARDED

To be installed at the following locations and as shown on the Construction Plans and/or as directed by the Engineer.

| Street Name | Station | Side |
|---|---|---|
| Foster Street | 14+08.0 | LT |
| Foster Street | 17+15.0 | RT |
| Foster Street | 29+98.0 | LT |

## 675.201 LANDSCAPE BOULDER BARRIER REMOVED AND RESET

To be installed at the following locations and as shown on the Construction Plans and/or as directed by the Engineer.

| | From | | To | |
|---|---|---|---|---|
| Street Name | Station | Side | Station | Side |
| Foster Street | 26+07.0 | RT | 27+05.0 | RT |

## 685. STONE MASONRY WALL IN CEMENT MORTAR

To be installed at the following locations and as shown on the Construction Plans and/or as directed by the Engineer.

| Streetname | From STA | To STA |
|---|---|---|
| Foster Street | 17+94 | 18+94 |

## 691.01 BALANCE STONE WALL REMOVED AND REBUILT

For removal and resetting of existing stone masonry wall at the following locations and/or as directed by the Engineer.

| | To | | From | |
|---|---|---|---|---|
| **Street Name** | **Station** | **Side** | **Station** | **Side** |
| Foster Street | 0+47 | LT | 4+49 | LT |
| Foster Street | 5+10 | RT | 6+34 | RT |
| Foster Street | 6+54 | RT | 6+86 | RT |
| Foster Street | 6+83 | LT | 9+22 | LT |
| Foster Street | 10+86 | RT | 12+53 | RT |
| Foster Street | 11+92 | LT | 14+08 | LT |
| Foster Street | 14+58 | LT | 16+19 | LT |
| Foster Street | 17+13 | LT | 18+00 | LT |
| Foster Street | 35+18 | RT | 35+48 | RT |
| Foster Street | 37+28 | RT | 37+40 | RT |

## 710.4 BOUND - PLAIN GRANITE

As needed for damaged or destroyed bounds and/or as directed by the Engineer.

## 711. BOUND REMOVED AND RESET

For any bounds that need to be removed during construction and reset after completion and/or as directed by the Engineer.

## 715. RURAL MAIL BOX REMOVED AND RESET

As needed for sideslope grading during construction and as directed by the Engineer.

## 751. LOAM FOR ROADSIDES

For misc. cleanup adjacent to construction, and as shown on the Construction Plans, Planting Plans, Landscape Details, and/or as directed by the Engineer.

## 751.1 LOAM FOR LAWNS

For existing disturbed lawn areas, proposed lawn areas, and as shown on the Construction Plans, Planting Plans, Landscape Details, and/or as directed by the Engineer.

## 755.86 SEASONAL TREE MONITORING REPORT

For submission of seasonal tree monitoring report by contractor and/or as directed by the Engineer

## 756. NPDES STORM WATER POLLUTION PREVENTION PLAN

For submission of SWPP permit by contractor and/or as directed by the Engineer.

## 757. VIBRATION MONITORING

For vibration monitoring regarding construction activities that include excavating in the vicinity of underground facilities required by National Grid.

## 767.78 COMPOSTED MULCH OVER MODIFIED ROCK

Includes providing composted mulch for mixing with seed, to be placed on designated rip rap slopes in areas where establishment of vegetation in the rock slope is desired, and/or as directed by the Engineer.

## 769. PAVEMENT MILLING MULCH UNDER GUARDRAIL

As shown on the Construction Plans, Landscape Details, and/or as directed by the Engineer.

| | From | | To | |
|---|---|---|---|---|
| **Street Name** | **Station** | **Side** | **Station** | **Side** |
| Foster Street | 9+45.75 | LT | 10+84.01 | LT |
| Foster Street | 11+93.72 | LT | 17+27.63 | LT |
| Foster Street | 19+72.51 | LT | 20+31.39 | LT |
| Foster Street | 23+25.80 | LT | 26+03.87 | LT |
| Foster Street | 21+22.68 | RT | 23+34.48 | RT |
| Foster Street | 24+52.20 | RT | 25+62.14 | LT |
| Foster Street | 26+70.62 | LT | 27+44.29 | LT |
| Foster Street | 28+49.08 | RT | 32+82.88 | RT |
| Foster Street | 35+90.33 | LT | 37+83.47 | LT |

## 824.221 PEDESTRIAN ACTIVATED FLASHING BEACON (SOLAR) LOC. 1

As specified at the following locations, Sign and Marking Plans, Sign Summary Sheet, and/or as directed by the Engineer.

| Street Name | Station | Side |
|---|---|---|
| Taylor Street | 203+82.19 | LT |
| Taylor Street | 203+93.23 | RT |

## 824.222 PEDESTRIAN ACTIVATED FLASHING BEACON (SOLAR) LOC. 2

As specified at the following locations, Sign and Marking Plans, Sign Summary Sheet, and/or as directed by the Engineer.

| Street Name | Station | Side |
|---|---|---|
| Foster Street | 38+45.66 | RT |
| Foster Street | 38+45.52 | LT |

## 824.223 PEDESTRIAN ACTIVATED FLASHING BEACON (SOLAR) LOC. 3

As specified at the following locations, Sign and Marking Plans, Sign Summary Sheet, and/or as directed by the Engineer.

| Street Name | Station | Side |
|---|---|---|
| Foster Street | 21+15 | RT |
| Foster Street | 21+15 | LT |

**847.11 SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY POST ASSEMBLY – WOOD**

As specified on Pavement marking and Signing plans/Sign Summary Sheet for proposed signs and where existing signs are to be removed and reset using new posts and/or as directed by the Engineer.

**847.12 SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY POST ASSEMBLY – STEEL**

As specified on Pavement marking and Signing plans/Sign Summary Sheet for proposed signs and where existing signs are to be removed and reset using new posts and/or as directed by the Engineer.

**854.1 PAVEMENT MARKING REMOVAL – PAINT**

For removal of existing pavement markings outside the limits of paving as shown on the Pavement Marking and Signing Plans and/or as directed by the Engineer.

**903. 3000 PSI, 1.5 INCH, 470 CEMENT CONCRETE**

As specified for the proposed water main encasement in the vicinity of the Bridge No. L-13-017 and/or as directed by the Engineer.

**986. MODIFIED ROCK FILL**

As needed at existing swale, and/or as specified by the Engineer.

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DOCUMENT A00809

Littleton Water Department
WATER USE RULES AND REGULATIONS
Adopted April 26, 2023

# TOWN OF LITTLETON

# WATER USE RULES AND REGULATIONS

Pursuant to the provisions of Chapter 617 of the Acts of 1911, the Town of Littleton hereby establishes the following water use rules and regulations (Regulations) governing the use of the water system of the Town of Littleton.

Be it enacted by the Board of Water Commissioners of the Town of Littleton, Commonwealth of Massachusetts as follows:

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# Article 1 – General Provisions

## 1.1 – Purpose

The purposes of these Rules and Regulations are:

1. To establish the technical and administrative procedures for making connections to the water distribution system including standards of materials and design;
2. To establish requirements, restrictions, and controls on the metering of water;
3. To provide for equitable distribution to all users, all costs associated with water supply, treatment, transmission, storage, distribution, and metering, and to provide for the collection of such costs.

## 1.2 - Authority

These Rules and Regulations are adopted pursuant to the provisions of Chapter 617 of the Acts of 1911 (Appendix E). Under this Act, the Littleton Board of Water Commissioners ("Board" or "Board of Commissioners") is granted the authority to regulate the use of water and to establish rates for water service.

## 1.3 – Applicability and Severability

All Littleton Water Department ("LWD") rate and fee schedules and regulations or portions thereof that conflict with these Rules and Regulations are hereby repealed.

The following Rules and Regulations shall be deemed a part of every rate and fee schedule or contract for service, except as may be expressly modified by a particular rate schedule or contract. No representative of the LWD has the authority to vary or modify any provision of these Rules and Regulations. The provisions of these Rules and Regulations shall apply to all persons applying for or receiving service from the LWD ("Customer"), regardless of whether the Customer has notice of them. Compliance with these Rules and Regulations by the Customer is a condition precedent to the initial and/or continuing supply of water by the LWD to the Customer.

These Rules and Regulations may be revised, amended, supplemented, or otherwise changed from time to time only by a duly authorized vote of the Board of Commissioners. Such changes, when effective, shall supersede the applicable provisions hereof and shall be binding on all Customers.

In the event that any one or more provisions of these Rules and Regulations are, for any reason, held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect the remaining provisions of these Rules and Regulations, and the invalid, illegal or unenforceable provision(s) shall be deemed invalidated, if in the opinion of the Board of Commissioners, operation of the remaining provisions can be given effect without such invalidated provision(s).

## 1.4 – Limitation of Liability

The LWD endeavors to furnish adequate and reliable water service but does not guarantee continuous supply or service, and, to the extent authorized by applicable law, it shall not be liable for direct or consequential losses or damages of any kind resulting from any stoppage, interruption, variations or diminution of service due to any cause, including Customer's acts or omissions, acts of the public enemy, a state of war, requirements of Federal, State or Municipal authorities, strikes or labor difficulties, operation of a State of Water Supply Emergency in accordance with Massachusetts Department of Environmental Protection ("DEP") requirements, acts of God, or the elements, accidents, operating conditions, curtailments, or contingencies or other causes.

When a part or parts of the interconnected treatment or distribution system is threatened by a condition affecting the integrity of the supply of water or when a condition of actual or threatened shortage of available water resources exists, the LWD may, in its sole judgment, curtail, allocate, or interrupt service to any Customer or Customers. Such curtailment, allocation or interruption shall, where possible or practicable, be in accordance with the terms and conditions of any applicable water conservation plan defined in the LWD's Water Management Act Permit.

The LWD does not undertake regulating the delivery pressure of its water service more closely than is standard commercial practice. If a Customer requires delivery pressure regulation that is more refined, he/she shall furnish, install, maintain and operate the necessary apparatus at his/her own expense.

The LWD shall not be liable for damages to any person or property of the Customer or any other persons resulting from the use of water or due to the presence of the LWD's appliances and equipment on the Customer's premises.

In addition, the LWD shall not be liable in contract, in tort (including under G.L. c.258 and G.L. c.93A) strict liability or otherwise for any special, indirect, or consequential damages whatsoever including, but not limited to loss of profits or revenue, loss of use of equipment, cost of temporary equipment, overtime, business interruption, claims of the Customer or other economic harm.

Neither by inspection, nor by non-rejection, nor in any other way does the LWD give any warranty, expressed or implied, as to the adequacy, safety or other characteristic of any equipment or devices installed on the Customer's premises.

The Customer assumes full responsibility for the proper use of water furnished by the LWD. The Customer shall indemnify and save harmless LWD from and against any and all claims, expenses, legal fees, losses, suits, awards, or judgments for injuries to or deaths of persons or damage of any kind, whether to property or otherwise, arising directly or indirectly by reason of (1) the use of water furnished by LWD or equipment or devices installed on Customer premises; (2) the failure of the Customer to perform any of his or her duties and obligations as set forth in these Rules and Regulations or (3) the Customer's improper use of the services or equipment and devices. Except as otherwise provided by law, the LWD shall be liable for damages claimed to have resulted from

the conduct of its business only to the extent that the LWD has acted in a grossly negligent, or intentionally wrongful manner.

## 1.5 – Definitions

Unless the context specifically indicates otherwise, the meaning of terms used in these Rules and Regulations shall be as follows:

"Applicant" shall mean any person or entity, applying to the LWD for water service, as described in these Rules and Regulations.

"AWWA" shall mean the American Water Works Association.

"Backflow" shall mean the flow of water or other liquids, mixtures or substances into the water distribution mains or water service connections from any source other than the intended public water system source.

"Backflow prevention device" shall mean a mechanical piping assembly, which provides a method to prevent backflow. Such device shall be approved by the Massachusetts Department of Environmental Protection (DEP). A categorization of the type of such devices is given in DEP regulations 310 CMR 22.22.

"Collector" shall mean the Collector of the Town of Littleton.

"Customer" shall mean any individual or business whose name appears on the current assessor's records for the subject property and who applies for or uses the water service of the Littleton Water Department (LWD). All Customers and the service received shall be governed by these Rules and Regulations, as may be amended from time to time.

"Cross-connection" shall mean any actual or potential connection between potable water from the public water system and any other source of liquids, mixtures or substances.

"Fire Service" shall mean the pipe serving a building's fire suppression system.

"General Manager" shall mean the General Manager of the Littleton Water Department or a person appointed by the General Manager who is vested with the authority and responsibility for the implementation and enforcement of these rules and regulations or any other authorized agent or representative of the General Manager.

"Irrigation systems" shall mean any equipment that conveys water for irrigation purposes and that is permanently connected to the public water supply.

"Licensed Utility Installer" or "LUI" shall mean a person who, upon submitting a license and permit bond, certificate of insurance, license fee, and receiving approval by the LWD, is permitted to perform the installation of water Mains or Services.

"Main" shall mean the water supply pipe laid in the public property from which service connections are made.

"Meter" shall mean a device installed for the measurement of water quantities to be used as a basis for determining charges for water service.

"Moisture sensing device" shall mean a sensor that automatically shuts off irrigation system controllers in response to rainfall.

"Pressure Vacuum Breaker (PVB)" shall mean an approved backflow prevention device designed to prevent only back siphonage and which is designed for use under static line pressure.

"Public Way" shall mean roadways owned or controlled by the Town, the Commonwealth of Massachusetts or any department, district or political subdivision thereof, or the United States.

"Reduced Pressure Backflow Preventer (RPBP)" shall mean an approved testable backflow prevention device incorporating: (a) two or more check valves, (b) an automatically operating differential relief valve located between the two checks, (c) two shut-off valves, and (d) necessary appurtenances for testing; as defined in DEP regulations at 310 CMR 22.22.

"Rules and Regulations" shall mean the latest edition of the Town of Littleton Water Use Rules and Regulations.

"Service" shall mean the pipe running from the Main to the Meter which shall include the Meter and all valves, fittings, devices, and appurtenances along the service line.

"Shut off of Service" shall mean the turning of a valve in the service line so that water no longer flows to the Customer.

"Tapping" shall mean to make a connection with a Main.

"Timing Device", also known as an irrigation controller, or a clock, shall mean a piece of equipment that turns the irrigation system on and off at desired times and operates the in-ground irrigation system for a period of time.

"Town" shall mean the Town of Littleton, Massachusetts.

"Water Rate and Fee Schedule" shall mean all charges for water use and for water services as described herein. Rates and fees shall be computed in accordance with the schedule of rates on file with the LWD. This schedule of rates shall be approved by the Board of Commissioners in accordance with the laws of the Commonwealth and shall be revised periodically as appropriate.

"Water Service Connection Agreement" shall mean a contract signed by the General Manager and a property owner stating conditions required for connection to the LWD system prior to any connections being made.

# Article 2 – Use of the Water System

## 2.1 – Conditions of Service

### 2.1.1 General

The LWD does not guarantee constant pressure or uninterrupted service, nor does it assure the Customer either a full volume of water or the required pressure necessary to effectively operate hydraulic elevators, sprinkler systems or other appliances.

No Customers shall operate apparatus on their water lines, Meter or other equipment on their premises that will adversely affect the operating conditions of the LWD's system or its equipment or its ability to serve other Customers.

Customers are responsible for notifying the LWD if a building becomes vacant and requesting that the water service be shut off.

### 2.1.2 Pressure

Significant variations in the distribution system water pressure due to Customer's use is considered a violation of these Rules and Regulations. It is the Customer's responsibility to install suitable equipment to protect piping, equipment and property from variations in water pressure.

### 2.1.3 Temporary Interruption of Service

The LWD reserves the right to interrupt water service temporarily in order to perform maintenance or repairs on the water system. Whenever possible, the LWD will notify Customers of scheduled interruptions. However, in case of an emergency, the LWD reserves the right to interrupt service without first giving notice of such action if, in its opinion, it is necessary to do so in order to facilitate the making of repairs or alterations, or other necessary purposes. In such cases, no Customer or any other person shall be entitled to receive damages or refunds of payments because of any such interruption or any consequent conditions.

## 2.2 – Right of Entry

The Customers, owners or occupants of any premises served by the LWD's water system shall, upon presentation by LWD personnel or LWD agents of their credentials, authorize entry to their premises during LWD's normal business hours, as provided for under M.G.L. c. 40, § 39D; and M.G.L. c. 111, §173B; and, M.G.L. c. 165, § 11D, for the purpose of inspecting and surveying their water system for new installations or cross-connections, or to remove, repair or replace any Meter, or to conduct observations, measurements, water quality sampling or testing. When such access is refused, the water shall be shut off after proper notice has been provided until such access has been allowed and fees have been paid for shutting off and turning on the water.

### 2.2.1 Accessibility of Easements

Duly authorized employees or agents of the LWD, bearing proper credentials and identification, shall be permitted to enter all private properties through which the LWD holds an easement for the purposes of, but not limited to, operation, inspection, observation, measurement, sampling,

repair, and maintenance of any portion of the water works lying within said easement, in accordance with the terms thereof. All entry and subsequent work, if any, on said easement shall be performed in accordance with the terms of the easement pertaining to the private property involved. New easements shall be granted following the Water Easement Template (Appendix C).

## 2.3 – Supplying Water to Other Premises Prohibited

A Customer shall not be permitted to supply another property with water, except in emergencies, and then only with the permission of the LWD.

## 2.4 – Final Readings

In the case of the sale of property, the Customer is responsible for notifying the LWD of the date of the sale and the name of the new Owner, if known to the Customer. The LWD may, at its option, accept such notice verbally. Failure of a seller to notify the LWD of a change of ownership does not relieve the Customer of responsibility for the payment of any charges due to the LWD. Final bill charges shall be made in accordance with the Water Rate and Fee Schedule (Appendix A).

## 2.5 – Shut Off of Service

The LWD has the right to shut off the service without notice, for the purpose of making emergency repairs or alterations, or to prevent possible contamination through cross-connections or to prevent negligent or willful waste of water by the Customer.

Requests by the Customer for turning on or shutting off a water service shall be made in writing, signed by the Customer at least 24 hours in advance, except in the case of an emergency. Only LWD personnel shall open or close outlets or gate valves. Charges for such service shall be in accordance with the Water Rate and Fee Schedule (Appendix A).

## 2.6 – Delinquent Accounts

Amounts overdue on any accounts for service will be certified to the Town for the placement of liens on the real estate for which the service is provided. The LWD also reserves the right to shut off its service to the premises of any delinquent account. Before such service can be restored, the Customer shall arrange with the Collector for the payment of overdue amounts together with the appropriate turn on or shut off fee in accordance with the Water Rate and Fee Schedule (Appendix A).

## 2.7 – Use of Hydrants

The primary use of hydrants is to fight fires and to maintain or improve the distribution system. Any person proposing to use a hydrant as a temporary source of water shall file a Temporary Hydrant Connection Application (Appendix B.1) with the LWD. Approval of the application is required in order to use a hydrant as a temporary source of water. The LWD will supply approved Customers with a hydrant Meter and backflow prevention device for which the Customer will be required to pay a deposit and rental cost in accordance with the Water Rate and Fee Schedule (Appendix A).

As a condition to providing water service pursuant to these regulations, the Applicant agrees that fire hydrants, valves, water mains, pipes, conduits, manholes, and other necessary appurtenances for the transmission of water services located on private property may be inspected and/or operated periodically by the LWD; provided however, any repairs necessary for proper operation and functioning of hydrants, valves, water main, pipes, conduits, manholes, and other necessary appurtenances for the transmission of water services on private property shall be the responsibility of the Applicant/Customer. Such repairs shall be completed within sixty (60) days after due notice has been given in writing to the Customer by the LWD. If the Customer fails to comply within 60 days, the LWD will conduct the necessary repairs and charge the cost to repair to the Customer's water bill.

## 2.8 – Testing Private Fire Systems

No water shall be taken or used through private fire systems for testing unless the General Manager issues written permission. Such test must be conducted in the presence of a representative of the LWD.

## 2.9 – Cross-Connection Control

No water service connection to any premises will be installed or maintained by the LWD unless the water supply is protected as required by Massachusetts State Law, drinking water regulations 310 CMR 22.22 and this regulation. Where cross-connections exist, an approved backflow prevention device must be installed at the Customer's expense and tested in accordance with the drinking water regulations of Massachusetts and the requirements of this regulation.

The design and installation of backflow prevention devices shall be approved by the LWD and, if testable, shall be tested by the method prescribed in DEP Regulations (310 CMR 22.22).

The Customer shall be responsible for applying for, paying for, and obtaining all necessary approvals and permits for the maintenance of cross-connections and for installation and testing of the backflow prevention devices. The Customer shall inform the LWD of any proposed or modified cross-connection and any existing cross-connection of which the Customer is aware.

Any existing backflow prevention devices shall be allowed by the LWD to continue in service unless the degree of hazard is such as to exceed the effectiveness of the present backflow prevention device or result in an unreasonable risk to the public health. Where a change in use increases the degree of hazard, any existing backflow prevention device must be upgraded.

Backflow prevention devices must be installed on the Customer's side of the Meter within any premises where, in the judgment of the General Manager, the nature of the activities on the premises or the materials used or stored on the premises present a hazard or potential hazard should a cross-connection occur, or where it is impractical to determine whether or not dangerous cross-connections exist because of intricate piping arrangements, or because entry into all portions of the premises for inspection of piping is not practical.

## 2.9.1 Non-Residential Cross Connection Control Requirements

The following apply to all buildings classified by the Town as "Non-Residential" including all commercial, industrial, institutional, and municipal premises served by the LWD distribution system:

- At minimum, a reduced pressure zone assembly (RPZ) device must be installed after the Meter on the domestic service, and a dual check valve assembly (DCVA) must be installed on the fire sprinkler line. If any chemical is used in the fire sprinkler line, an RPZ device must be installed.
- All hose bibs, and exterior/interior faucets are required to have a hose bib vacuum breaker.
- All water shutoff valves must be accessible, both on the domestic and fire line.
- As per 310 CMR 22.22(13)(d): Each reduced pressure zone backflow preventer will be inspected semiannually in accordance with the public water system's approved cross-connection program plan, as provided for in 310 CMR 22.22(3)(b). If the supply is used less than six months of the year, these devices shall be inspected and tested once each year. Each double check valve assembly shall be tested annually. Pressure type vacuum breakers should be tested at least annually by the owner of the device. Each test shall be conducted by a Certified Backflow Prevention Device Tester.
- All fees related to the testing of backflow prevention devices and cross-connection surveys shall be paid in accordance with the Water Rate and Fee Schedule (Appendix A).
- For new non-residential buildings applying for potable water service, the following must be completed for the LWD to sign off on the building permit:
    - Approved as-built drawings must be submitted for LWD review.
    - A Backflow Prevention Device Design Data Sheet (Appendix B.2) and plumbing diagram (with required details) must be provided to the LWD by the applicant's plumber or fire sprinkler fitter prior to each backflow device installation.
    - A cross-connection survey and testing of the installed backflow devices must be scheduled and completed with LWD.
    - All installed backflow devices must be tested and passed.
    - All fees must be paid in full.
- All other requirements for non-residential buildings served by the LWD distribution system can be found in the cross-connection control distribution system protection program plan (CCCPP) approved by the DEP, or in 310 CMR 22.22: Cross Connections Distribution System Protection.

# 2.10 – Irrigation Systems

## 2.10.1 Notice

Any Customers who have an irrigation system supplied by the LWD's water distribution system, or who intend to install one, must notify the LWD of the existence of said system, or of their intention to install a new system, prior to the actual installation. All systems currently in existence as well as any installed in the future must comply with these Rules and Regulations.

## 2.10.2 Moisture Sensing Devices

Irrigation systems shall be equipped with a moisture sensor tied directly into a timing device or controller so that irrigation will be automatically prevented in response to rainfall. All irrigation systems existing as of the adoption date of these Rules and Regulations by the Board of Commissioners shall include a moisture sensing device capable of complying with this requirement within eighteen (18) months of said adoption date.

## 2.10.3 Timing Devices

Irrigation systems shall be equipped with an automatic timing device acceptable to the LWD so that the system can be programmed to automatically limit operation to prescribed schedules and restrictions including irrigation on odd or even numbered days, day-of-the-week scheduling including no watering on Mondays, and time of day scheduling. All irrigation systems existing as of the adoption date of these Rules and Regulations by the Board of Commissioners shall include a timing device capable of complying with this requirement within eighteen (18) months of said adoption date.

## 2.10.4 Backflow Prevention Devices

In order to protect the public water supply from contamination from lawn chemicals (pesticides, herbicides and fertilizers) which can be drawn into the distribution system through irrigation pipelines, all Customers installing new irrigation systems or replacing a backflow prevention device on an existing irrigation system are required to have in place a Reduced Pressure Backflow Preventer (RPBP) type backflow prevention device on their irrigation system.

All irrigation systems with Pressure Vacuum Breaker (PVB) type devices installed prior to the adoption date of these Rules and Regulations by the Board of Commissioners, shall be allowed to continue to utilize the PVB until it fails, provided that these devices are mounted at a minimum of one (1) foot above the highest sprinkler head elevation. In the event that this requirement is not met, or that a PVB device fails, then a new RPBP type device will be required to replace it.

For all new irrigation systems, or those where a backflow prevention device is replaced, a Backflow Prevention Device Design Data Sheet (Appendix B.2) must be submitted to the LWD for review and approval before the installation of a backflow prevention device. The irrigation system will not be allowed to go into service until approval of the Design Data Sheet and Plumbing Plan has been granted and the initial testing of the backflow prevention device has been completed.

Backflow prevention devices on irrigation systems must be inspected by a licensed inspector annually, at the Customer's expense. LWD has the right to request a copy of the latest inspection report from the Customer at any time.

## 2.11 – Damage

No person shall maliciously, willfully, or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenance, or equipment which is a part of the LWD water system. Any person violating this provision shall pay the LWD three times the amount of damages assessed therefore and shall be punished by a fine or be subject to appropriate criminal proceedings in accordance with M.G.L. c. 165, § 11..

# Article 3 – Connections to and Work on the Water

## 3.1 – Application for Water Service

Any person requesting water service shall submit an application, available on the LWD's website (https://www.lelwd.com/customer-service-2-2-2/new-service-application/). If the property does not have an existing Meter or water hook-up, the person seeking service shall file a New Water Service Application (Appendix B.3) with the LWD. All fees associated with providing water service shall be assessed and collected before service is provided. No person shall connect, or cause to be connected, any pipes to the water system, or take any water therefrom, without permission of the LWD.

Approval of applications shall be valid for six (6) months, unless extended in writing by the General Manager. If an Applicant's service connection is not made within six months of the date of approval of the application, then the approval shall be revoked, unless the deadline for making a service connection is extended by the General Manager in writing.

## 3.2– Availability of Service

### 3.2.1 General

The approval of an application for a water service account will be contingent upon the existence of a water main in the public or private way. The proposed new service must come directly off of the main adjacent to the property to be served. Furthermore, the pressure and carrying capacity of the water main must be sufficient to serve the Applicant without adversely affecting the service to existing Customers.

### 3.2.2 New, Large Water Users

Any person making application to: a) extend mains or b) create service connections to provide water use having a design demand for water of 30 gallons per minute or more (except for fire protection purposes) shall submit a water use impact report and conservation plan developed by a registered professional engineer to the LWD ("Water Use Impact Report"). This report shall define the proposed water use impact on the LWD's current and future demand for water and set down actions the applicant will take to mitigate the effects of this impact. Approval of an application to provide water service to large users may be conditional, requiring periodic review of measures taken by such Customers to mitigate the impact of their demand for water on the public water supply.

All reasonable costs associated with reviewing the report will be borne by the Applicant.

#### 3.2.2.1 Guidelines for Water Use Impact Report

The Water Use Impact Report shall include the following information, as applicable.

- Property owner, contractor and any other applicable party contact information including names, addresses, telephone numbers, email addresses, etc.

- A brief description of the type of project (new, tear down, rehabilitation, change of use, etc.) and what type(s) and quantity of activities will take place (offices, exam room, bathrooms, industrial, function/meeting area, etc.) on the property. If the property is a previously developed parcel, provide a summary of project changes that may impact water consumption.
- A brief description of the type of water, wastewater and drainage infrastructure that will be installed as a result of this project.
- A short 1-2 sentence narrative to describe general water conservation goals and measures to be implemented, if applicable. Use industry standard assumptions to help quantify the water demand reduction efforts when compared to fixtures that just meet plumbing code.
- A brief description of outdoor water use and water reduction measures proposed to minimize the impact on the LWD water system. If an irrigation system is planned, provide an approximation of the water demand for outdoor irrigation and how the outdoor water use will be minimized.
- Characterize any industrial water demands (like water treatment/water softeners, HVAC, cooling towers) by describing operating producers, time frame, average operating daily water demands, peak day water demand for each unit, what water efficiency measures are being implemented and the percent water demand reduction efficiency measures have allowed.
- Characterize any recreational water demands (like swimming pools, fountains etc.) by describing operating months, average operating day water demands, make up water demand, what water efficiency measures are being implemented (splash trough, temperature control, dehumidifier, cover, etc.) and the percent water demand reduction efficiency measures have allowed.
- Characterizes fire flow protection needs in terms of flow needed and system testing frequency (sprinkler system testing, pump tests, flow tests, etc).

# 3.3 – Extensions of Water Mains

## 3.3.1 General

Requests for the extension of water mains must be made in writing to the General Manager. All such water main extensions shall be constructed by Applicants at their sole expense under the supervision and oversight of the LWD and in accordance with its specifications. The main must be extended (including necessary hydrants and appurtenances) to the farthest limit of the property to be served by water. Water line extensions are to be looped whenever possible, to avoid dead ends.

## 3.3.2 In Private Ways

An Applicant requesting extension of water mains in a private right of way must convey to the LWD any easements necessary to maintain the pipe and appurtenances, along with ownership of the main itself.

### 3.3.3 Assessments

The LWD may levy assessments, under M.G.L. c.80, to cover costs incurred by laying water pipes in public or private ways, and the whole cost of laying such pipes shall be assessed according to the method determined by the Board of Commissioners.

## 3.4 – Multi-Unit Developments

In all Multi-Unit Developments and Projects approved by the Littleton Planning Board and/or Zoning Board of Appeals the Customer or developer shall furnish and install, as specified by the LWD, all water pipes, gates, hydrants, service connections, and necessary fittings to make a complete system.

A Water Service Connection Agreement (Appendix B.4) stating conditions required for the connection and conveyance of title of water infrastructure and appurtenances to the LWD must be agreed upon and signed by the General Manager and the Customer or the developer.

As-Built drawings shall be in accordance with the standards established by the LWD and shall show complete details of the installation of the main and appurtenances as required by the LWD, including but not limited to:

- Size and material of mains and service connections,
- The location of the main with respect to property lines,
- The locations with respect to street corners and other permanent features of all valves, fittings, curb stops, and fire hydrants,
- The limits and location of any and all special encasements or backfill materials including average depth of cover at such location,
- A detailed diagram of all special installations at utility, drainage, and roadway crossings,
- Location of other utilities encountered,
- Tie cards for service connections, and
- Location and size of easements.

The developer shall provide the LWD with full size, reduced, and digital copies of the final set of as-built plans within ninety (90) days of completed installation. Failure to comply with this requirement shall be considered a violation of the Rules and Regulations and subject to penalties and enforcement procedures set forth in Article 6 “Penalties”.

## 3.5 – Installation of Water Service

### 3.5.1 General

The LWD shall furnish and install the service tap from the water main to the property line, unless the LWD has specifically authorized another party to do so. It is the responsibility of Customers or their contractors to install, at their expense, the Service from the property line to the building,

according to the LWD Specifications (Appendix F). The Customer shall be charged fees pertaining to the installation of Service in accordance with the Water Rate and Fee Schedule (Appendix A).

Installation of Services extending beyond the end of an existing water main shall not be allowed. The LWD shall approve all Service materials and installation activities.

The size of the Service shall be subject to approval of the LWD. The LWD may restrict the maximum length of Service based on specific, local conditions. For Services longer than 100 feet, the Applicant shall present an analysis prepared by a registered professional engineer or licensed plumber demonstrating that the selected Service diameter is large enough to provide a minimum pressure of 35 psi at the Service's entrance to the building. LWD will provide information on the anticipated Service pressure in its main at the point of connection.

Any request for a Service greater than 1-inch in size must be accompanied by an analysis performed by a registered professional engineer demonstrating the need for a Service connection of the size requested, and stating that there is no other, reasonable method for meeting such need.

That portion of a Service connection installed within a public way and terminating at a shut off valve shall be considered the property of the LWD upon its construction and acceptance by LWD. The LWD shall be responsible for its maintenance. That portion of a Service connection not lying within the public way shall remain the property of the Customer, who shall be responsible for its maintenance and all costs thereof.

No existing Service connections shall be altered without the written permission of the LWD.

A new Meter shall be installed for each new service connection as discussed in Article 4.3 "Meter Sizing and Installation". The Meter shall remain the property of the LWD.

All Services must connect from the building to the water main. No Services can connect to a hydrant lateral.

All new Services shall connect to a LWD main that has a diameter of at least 8 inches unless otherwise approved by LWD.

### 3.5.2 Proximity to Other Utilities

Services shall meet minimum horizontal and vertical separation distances with other utilities as discussed in the LWD Specifications (Appendix F).

### 3.5.3 Installation During Winter Months

No new Services shall be installed from November 15th to April 15th of the following year except in such cases deemed appropriate in writing by the LWD

### 3.5.4 One Service Connection Per Premises (Developments)

Only one Service connection shall be made to each building except for a service intended to provide fire protection (see Article 3.9 "Fire Services") or under special conditions and with the prior written approval of the LWD. Each Service connection shall be provided with an individual shut off valve.

If a property is subdivided, as is the case for developments, then each of the resulting properties must have its own Service connection. This may require replacing an existing Service connection with a main.

### 3.5.5 Multi-Family Buildings

For all new Services, in the case of buildings containing two or more dwelling units, one Service connection with a shut off valve is to be installed from the main to Service all dwelling units. Water use shall be metered for the entire building and will not be separated by individual dwelling units.

### 3.5.6 Work in State Road

Any Service connection or water main extension in a state-owned road must be installed by a Licensed Utility Installer (LUI) that meets Massachusetts Department of Transportation (MassDOT) requirements. The LUI must adhere to all project-specific permit requirements and will be responsible for coordination with MassDOT. The LUI shall furnish a copy of the MassDOT permit to the LWD before beginning construction.

### 3.5.7 Mobile Home Parks

Service connections to mobile home parks shall extend from the LWD main to a Meter near the property line. Water service piping extending from the Meter to the individual mobile homes shall be the responsibility of the park owner. Water bills will be based on the Meter in the vault. Submeters on the individual homes, if desired by the park owner, must comply with the requirements set forth in Section 4.9 of these Rules and Regulations. The park owner may install fire hydrants at his or her own discretion, but they will remain the park owner's responsibility and will not be maintained by the LWD.

The application for approval of the Service shall include a design package of the Service connection and Meter vault, prepared and stamped by a registered professional engineer. The design package shall include projections of water demand for the mobile home park, covering the range in expected demand from low winter nighttime use, to high summer use plus fire flow. The methodology of these projections shall be fully explained. The Applicant shall consult with the Littleton Fire Department to determine needed fire flows. The design package shall recommend a Meter and Meter reading equipment which is consistent with the LWD standards and addresses the full range of flow rates projected. The design shall provide for long-term periodic testing of the Meter accuracy.

All mobile home parks existing as of the adoption date of these Rules and Regulations by the Board of Commissioners shall comply with these requirements within twelve (12) months of said adoption date.

## 3.6 – Tie Cards

After completion of any Service repair or new connection to the water distribution system, the LUI shall fill out an LWD-standard template water Service connection tie card (Appendix B.5) for each Service on which the LUI has performed work. The tie card shall be completed and submitted to the LWD before the final inspection and prior to any backfilling of the connection to the water distribution system.

## 3.7 – LWD Inspection of Water Main and Service Installation

All water main extensions, Service installations and repairs shall require inspection by an inspector designated by the LWD to act on behalf of the LWD before backfilling the associated trench. An LUI listed on the approved Service connection permit shall notify the LWD a minimum of seventy-two (72) hours before the water main extension, Service installation or repair is ready for connection to the water distribution system. The LWD will schedule the time and date when an inspector will be available to perform the required inspection, as such connection can only be made under the supervision of said inspector or other LWD designated representative.

The LWD may determine that a water main extension, Service installation or repair will require full-time inspection by a qualified inspector who will monitor and inspect ongoing progress of the work. The costs for the services of a full-time inspector designated by the General Manager shall be paid by the Customer to the LWD.

The water main extension, Service installation or repair will not be permitted to be in use until a certificate of compliance is submitted by the designated inspector.

## 3.8 – Customer Responsibility for Water Service

Customers must keep their Service and appurtenant fixtures in good repair and protected from frost at their own expense. They shall be responsible for any damage resulting from their failure to do so.

In case of a leak in the Customer's Service connection or water system, such leak must be repaired as soon as possible upon discovery by the Customer or upon report to the Customer by the LWD, as a condition of continued service. The Customer shall be billed for the estimated water use if repairs are not made within a reasonable period of time to be designated by the General Manager or their authorized representative.

Services that are connected with the mains of the LWD will not under any circumstances be connected to any other sources of supply.

All Services between the street right-of-way and the Meter may be repaired or re-laid by the LWD when the General Manager deems it necessary for the protection of the water supply. The cost of such work may be charged to the Customer.

## 3.9 – Fire Services

Written applications for water for fire protection Service shall be made by the customer for the real estate for which the public supply of water is sought.

Services for fire protection shall be separate, dedicated Service connections to the water main, unless the LWD specifically authorizes otherwise. Services and appurtenances that are to be used for fire protection shall have appropriate backflow prevention devices and may not be physically connected to Services used for domestic and sanitary purposes unless approved by the LWD. All pipes and equipment must be arranged so that LWD personnel can easily inspect them.

## 3.10 – Licensed Utility Installer (LUI)

Persons seeking licenses as Water Distribution System or Water Service installers shall annually obtain a license from the LWD via the Licensed Utility Installer Application (Appendix B.6), shall post a construction bond as defined in Appendix B.6 and show proof of required insurance. Approved LUIs will renew their licenses by January 1st of each year. All LUI licenses expire at midnight on December 31st of each year.

The LUI shall pay all debts for labor and materials contracted for or by him or her on account of the work and shall assume the defense of and indemnify and save harmless the LWD and its officers and agents from any claims relating to labor or alleged infringement of inventions, patents, or from injuries to any person or corporation caused by the acts of negligence of the LUI, any of his agents or employees, or any subcontractor, in doing the work or in consequence of any improper materials, implements, or labor used therein.

The LUI shall be responsible for obtaining any Road Opening Permits and/or MassDOT permits as needed to complete their work.

# Article 4 – Water Meters

## 4.1 – Location and Access to Meters

The locations of all Meters shall require the approval of the LWD. All Meters shall be installed at the nearest point practical to where the Service connection enters the premises.

It shall be the responsibility of every Customer to ensure that Meters on Service connections are readily accessible to LWD personnel, regardless of where located. Failure to remove obstructions which prevent access to the Meter within three (3) days after being notified by the LWD shall be cause for the water to be shut off to the premises. Water shall not be turned on until all obstructions are removed, all regulations are complied with, and all expenses for shutting off and turning on the water are paid.

A shutoff valve at the Meter inlet shall be the first fitting inside a serviced building. A stop valve shall be installed near the outlet of the Meter at the expense of the Customer to permit removal of the Meter without backflow from the premises' internal water system.

All Meter installations on services that cannot be shut off for Meter repairs shall be equipped with a bypass at the expense of the Customer.

## 4.2 – Confined Space Meters

All Meters located in a confined space shall be relocated to a fully accessible, non-confined space at the Customer's cost, no later than one (1) year after the Customer's receipt of a notice from the LWD.

## 4.3 – Meter Sizing and Installation

The LWD shall approve the size, type and manufacture of the Meter and Meter data transmission device required for any service. New services will have LWD-standard radio-read devices.

Residential Meters (meaning 1-inch Service or smaller) will be furnished and installed by the LWD. The Customer shall provide a shut-off valve adjacent to and on the house side of the Meter. The water must be shut off from the Meter in cold weather or the Meter otherwise protected from frost. Any Customer allowing the Meter to be damaged by frost or otherwise will be held responsible for the cost of replacing the Meter and its appurtenances. The applicable fees for residential Meter installation are shown in the Water Rate and Fee Schedule (Appendix A).

Dedicated fire Services do not require Meters.

## 4.4 – Deduct Meters

The LWD prohibits the installation of deduct Meters.

## 4.5 – Remote Meter Reading

If a Customer requests that a device be installed to transfer Meter register information off the premises for the Customer's convenience, it shall require the approval of the LWD and shall be

installed by the Customer. The LWD will not read this remote register nor use it for any other purpose.

## 4.6 – Care of Meters

The Meter and its appurtenances are the property of the LWD and the Customer shall be held responsible for any damage thereto resulting in any way from negligence or willful misconduct on the part of the Customer. All persons are prohibited from damaging the meter or tampering with the Meter including breaking any seal on the meter.

## 4.7 – Seasonal Meters

Requests by the Customer for installation or removal of a seasonal Meter must be made in writing to LWD. All seasonal Meter installations approved by LWD shall be furnished and installed by LWD at the expense of the Customer. The seasonal Meter and its appurtenances shall remain the property of the LWD. The applicable Meter installation fees as shown in the Water Rate and Fee Schedule (Appendix A) apply for all seasonal water Meter installations. Any Customer allowing their seasonal Meter to be damaged by frost or otherwise will be held responsible for the cost of replacing the Meter and its appurtenances.

## 4.8 – Commercial Meters

Customers with commercial Meters (meaning more than 1-inch Service) shall determine the proposed size of the meter and submit their methodology and determination in writing to the LWD for approval. The submittal shall be prepared by a registered professional engineer or licensed plumber. The methodology utilized for the determination shall conform to AWWA Manual M-22, "Sizing Water Service Lines and Meters", latest edition. The LWD-approved Meter shall be furnished and installed by the LWD at the Customer's expense. The applicable fees for commercial water Meter installation are shown in the Water Rate and Fee Schedule (Appendix A).

All commercial Meters existing as of the adoption date of these Rules and Regulations by the Board of Commissioners are subject to replacement by LWD.

## 4.9 – Submeters

Requests by the Customer for installation of submeters, in addition to the master Meter, must be made in writing to LWD. All submeter installations approved by LWD shall be furnished and installed by LWD at the expense of the Customer. The master Meter, submeters and their appurtenances shall remain the property of the LWD. The multi-dwelling water service application fee and applicable meter installation fee as shown in the Water Rate and Fee Schedule (Appendix A) apply for each approved submeter installation. All water service accounts associated with the master meter and submeters shall be in the Customer's name. The submetering fee as shown in the Water Rate and Fee Schedule (Appendix A) applies for any submeter that the Customer requests LWD to read and bill to tenants. The locations of all master Meters and submeters shall be fully accessible in a non-confined space and require the approval of the LWD. In any instances where the sum of all submeter readings does not align with the master Meter reading, the Customer shall be responsible for paying the difference.

# Article 5 – Water Conservation

## 5.1 – Applicability

The Town through its Board of Commissioners may declare a State of Water Supply Conservation as required by LWD's Water Management Act Permit (Appendix D) or for any other reason determined by the Board. Water Supply Conservation measures apply to public water supply users only. DEP may declare a State of Water Supply Emergency under MGL c. 21G, § 15-17, and in accordance with 310 CMR 36.40 through 36.42. Water Supply Emergency measures may apply to public water supply users and private well owners.

## 5.2 – State of Water Supply Conservation

A State of Water Supply Conservation may be declared upon a determination by a majority vote of the Board of Commissioners that a shortage of water exists and/or the demand for water is approaching the capacity of the system. In making this determination, the Board of Commissioners will consider if conservation measures are appropriate to ensure an adequate supply of water to all water consumers. The type and duration of water use restriction will be determined by the Commissioners and may vary based on the declaration state, time of year, well conditions, streamflow data and/or Massachusetts Drought Advisories.

Nonessential outdoor water uses that are subject to restrictions include:

- irrigation of lawns via sprinklers or automatic irrigation systems;
- washing of vehicles, except in a commercial car wash or as necessary for operator safety; and
- washing of exterior building surfaces, parking lots, driveways or sidewalks, except as necessary to apply surface treatments such as paint, preservatives, stucco, pavement or cement.

The applicable restrictions, conditions or requirements shall be included in the public notice required under Article 5.4 "Public Notification of Restrictions".

The Board of Commissioners may extend the State of Water Supply Conservation if it is determined that a shortage of water exists, or may reasonably be determined to be imminent, and that conservation measures are appropriate to ensure the safe and adequate supply of water to all water consumers. A State of Water Supply Conservation may be terminated by a majority vote of the Board of Commissioners, upon the determination that the water supply shortage or excess demand on the system no longer exists. Public notification of the termination of a State of Water Supply Conservation shall be given in the manner provided in Article 5.4 "Public Notification of Restrictions".

## 5.3 – State of Water Supply Emergency

The DEP may declare a State of Water Emergency if it finds that there exists or impends a water supply shortage of a dimension which endangers the public health, safety or welfare. No person shall violate any provision, restriction or condition of any order approved or issued by the LWD intended to bring about an end to the State of Emergency. The applicable restrictions, conditions or requirements shall be included in the public notice required under Article 5.4 "Public Notification of Restrictions".

The LWD may amend the declaration or terminate the State of Water Emergency upon a finding that the public health, safety or welfare is no longer endangered by a water supply shortage in part or all of the area to which the emergency had been made applicable.

## 5.4 – Public Notification of Restrictions

Notification of any provision, restriction, requirement or condition imposed by the Board of Commissioners as part of a State of Water Supply Conservation or Emergency shall be published in a newspaper of general circulation within the Town, on the official LWD website, or by such other means reasonably calculated to reach and inform all Customers. Any restriction imposed shall not be effective until such notification is provided. Notification of the State of Water Supply Conservation shall also be simultaneously provided to the DEP.

Notice to Customers shall include:

- A detailed description of the restrictions and penalties for violating the restrictions
- The need to limit water use, especially nonessential outdoor water use, to ensure a sustainable drinking water supply and to protect natural resources and streamflow for aquatic life; and
- Methods to limit water use, especially nonessential outdoor water use.

## 5.5 – Posting of Notice of Private Irrigation Wells

All persons who have private wells for lawn irrigation must prominently display signs visible to the public that include the following phrase "PRIVATE WELL WATER IN USE." Signs must be a minimum of 11 inches by 17 inches and displayed in a location clearly visible from the street whenever the private well irrigation system is in use. False posting is prohibited.

# Article 6 – Penalties

## 6.1 – Notice

Any Customer found to be violating any provision of these Rules and Regulations may be served by the LWD with written notice, stating the nature of the violation and providing a reasonable time for the satisfactory correction thereof. The offender shall, within the period stated in such notice, permanently cease all violations.

## 6.2 – Payment

All penalties assessed to a Customer will be automatically charged to their water bill. Any unpaid charges shall be subject to the same penalties and fees applicable to unpaid real estate taxes as established by Massachusetts law.

## 6.3 – Shut Off of Water for Violation

Any Customer served by the LWD with a written notice pursuant to Article 6.1 “Notice”, who shall continue any violation beyond the time stated in the notice, may result in the LWD ordering the shutting off of the water to the violator's premises in accordance with M.G.L. c. 165, §§11 and 11D . When the water has been shut off for such violations, it shall not be turned on again until the LWD is satisfied that there shall not be further cause for complaint and all charges have been paid to cover the cost of shutting off and turning back on the water.

If the Customer does not provide LWD operators access to the premises to turn on the water during normal operating hours (Monday through Thursday, 6:30 A.M. to 4:30 P.M.), the Customer will be charged for the operator’s time.

The LWD has the right to shut off service providing notice has been given at least thirty-six (36) hours in advance in person or by registered or certified mail to the last address given to LWD by the Customer. This shall be done for failure to pay bills when due, or for violation of these Rules and Regulations (unless an emergency requires otherwise).

## 6.4 – Interference with Water Meter Operation, LWD Property

Whoever unlawfully and intentionally alters or damages a Meter or prevents such Meter from duly registering the quantity of water supplied through it, or hinders or interferes with its proper action or accurate registration, or breaks the Meter seal, or attaches a pipe to a main or service connection belonging to the LWD, or otherwise uses or causes water to be used without the consent of the LWD, or willfully or wantonly corrupts, pollutes or diverts any of the waters, or injures any structure, work or other property owned, held or used by LWD under the authority and for the purposes of supplying water. shall be punished by a fine in accordance with Massachusetts law, including M.G.L. c. 165, § 11, and M.G.L. c. 40, § 39G as applicable. Fines are listed in the Water Rate and Fee Schedule (Appendix A).

Each day of violation shall constitute a separate offense.

## 6.5 – Violation of Water Use Restrictions

Any person violating the Water Use Restrictions set forth in Article 5 “Water Conservation” shall be liable to the LWD in the amount specified in the Water Rate Schedule (Appendix A) for each violation, orpursuant to M.G.L. c. 40, § 21D..

Each day of violation shall constitute a separate offence.

## 6.6 – Making Changes Without Approval

In addition to the aforementioned penalties, any person making any connections with or opening into, or changing use of LWD’s system, or component or appurtenance thereof, without the approval of the LWD, shall pay twice the amount of all required fees, including the Water User Fee. Any unpaid fees shall be subject to the same penalties and fees applicable to unpaid real estate taxes as established by Massachusetts General Laws.

## 6.7 – Liability

Any person violating any of the provisions of these Rules and Regulations shall become liable to the LWD for any expense, loss, or damage occasioned the LWD by reason of such violation.

# Article 7 – Variance Procedure

## 7.1 – Variance

Any Customer or person who is unable to comply with or disagrees with an interpretation of these Water Use Rules and Regulations may pursue a variance from the LWD by following the steps listed in Article 7.2 "Variance Procedure Steps".

## 7.2 Variance Procedure Steps

Step 1 –The applicant for the variance shall contact the LWD to request a preapplication meeting with the General Manager or their designee to discuss the proposed variance.

Step 2 – The issue shall be submitted to the LWD in writing documenting the time and/or dates of the circumstances and reasons for a variance request or requested relief. The General Manager or their designee will endeavor to issue a reply within thirty (30) days of receipt of the completed form. If no decision is made by the General Manager or their designee within thirty (30) days of receipt of the completed form, the request shall be considered denied.

Step 3 – Should the issue not be resolved with the response from the General Manager or their designee, or if no response is received within thirty (30) days, then the aggrieved person may appeal the issue to the Board of Commissioners. Such appeal shall include copies of all written documentation of the variance request or relief sought, with a description of actions or inactions taken to date and a copy of the General Manager's or their designee's decision, if any. The Board of Commissioners will endeavor to hold a hearing within forty-five (45) days of receipt of a submission and shall render a decision within forty-five (45) days after the hearing. If no decision is rendered within forty-five (45) days after the hearing, the appeal shall be considered denied.

# Article 8 – Rates and Charges

## 8.1 – Charges and Fees

These Rules and Regulations provide for the recovery of costs from Customers and Applicants in order to implement the programs established herein. The LWD may adopt charges and fees including for:

### 8.1.1. User Fees

Only the Customers of record are responsible for payment of all fees for water service. The LWD will not bill tenants or contractors, although they may receive a copy of any bill upon request. Customers shall be charged fees and held responsible for water service until the LWD is notified in writing that they no longer desire to use the water supplied by LWD. The LWD is not responsible for leaks on the Customer's property. Water passing through a meter shall be considered used by the Customer. The rights and obligations of the Customer shall be further subject to the Water Rate and Fee Schedule and the Rules and Regulations of the LWD as duly adopted by the Board from time to time.

### 8.1.2 Base Customer Charge

A minimum charge shall be assessed for water service from the date the water is turned on, regardless of the amount of water used, according to the current Water Rate and Fee Schedule (Appendix A).

### 8.1.3 Turning On or Shutting Off

A charge shall be made for turning water on or shutting water off if it is outside of the LWD's normal operating hours pursuant to Article 6.3 "Shut Off of Water for Violation".

### 8.1.4 Overdue Bills

No Customer who owes an overdue bill for any charges assessed by LWD shall be entitled to the further use of water until such water charges are paid in full, together with costs, including accrued interest.

### 8.1.5 Claims for Adjustments

All claims for adjustments of water bills shall be made to the LWD in writing within thirty (30) days of receipt of the bill.

### 8.1.6 Broken Meters

If a Meter fails to properly register use, the Customer shall be charged for water usage based on the average daily consumption of water as shown by the Meter when it was working properly, for the corresponding billing period of the preceding year, on the basis of then-current rates.

### 8.1.7 Water Service Application Fee

A one-time charge shall be assessed according to the current Water Rate and Fee Schedule (Appendix A) based on the size of the domestic water Service requested by the Customer and

approved by the LWD. This fee shall apply to all new Services and to the renewal of an existing Service when the size of the Service is being increased.

### 8.1.8 Tapping Fee

A one-time charge shall be assessed according to the current Water Rate and Fee Schedule (Appendix A) for the LWD to open the outlet from the Main for a Service connection to a Customer's property.

### 8.1.9 Additional Fees and Charges

Additional fees and charges not explicitly identified in this article are included in the Water Rate and Fee Schedule (Appendix A).

## 8.2 – Assessment of Charges and Fees

The applicable charges or fees for the items enumerated in Article 8.1 "Charges and Fees", shall be set from time to time by the Board of Commissioners and shall be assessed on a fee-for-specific-service basis in accordance with a schedule duly adopted by the LWD and annexed hereto as Appendix A, which may be amended from time to time.

Once the Board of Commissioners adopts the Water Rate and Fee Schedule, the rates and fees shall be in full force upon publication as provided by law. Such publication shall be maintained and available for inspection at the LWD.

## 8.3 – Lien for Overdue Charges

By operation of law, a municipal lien may be placed upon any property or premises for which water use or service charges are due and owing. Notwithstanding such lien, the LWD may also terminate or suspend services until such time as overdue charges are paid in full.

# Article 9 – Regulations in Force

## 9.1 – Effective Date

These Rules and Regulations shall be in full force and effect from and after their approval as provided by law, and as may be amended or revised from time to time.

Adopted by vote of the Littleton Water Department Board of Commissioners on the 26th day of April, 2023.

Board of Commissioners

Revision Dates:

# Appendix A – Water Rate and Fee Schedule

## Section 1 – Purpose

The following rates and fees are applicable as of the date of adoption of these Rules and Regulations. The Board of Commissioners may revise such rates and fees as it deems appropriate.

The fee(s) associated with each required application or inspection, as determined by the Board of Commissioners, shall be paid to the Littleton Water Department at the time the applications are filed in accordance with the most recent recommended fee schedule presented in this Appendix.

Penalties for noncompliance with these Rules and Regulations are summarized herein.

## Section 2 – Water Rates

### 2.1 Base Customer Charge*

| Meter Size | Base Customer Charge |
|---|---|
| 5/8” | $7.00 /month |
| 3/4" | $ 7.00 /month |
| 1” | $17.00 /month |
| 1.5” | $33.00 /month |
| 2” | $53.00 /month |
| 3” | $100.00 /month |
| 4” | $167.00 /month |
| 6” | $334.00 /month |

*Multi-Family Residential customers will be assessed the 5/8” Base Customer Charge per the number of units in the building.

## 2.2 Water Usage Charge*

Water usage is billed in thousands of gallons per month, according to an ascending block rate schedule.

| Level | Usage (gallons) | FY24 Rate (per 1,000 gallons) |
|---|---|---|
| **1** | 0 to 5,000 | $ 5.74 |
| **2** | 5,001 to 10,000 | $ 7.18 |
| **3** | 10,001 to 15,000 | $ 8.97 |
| **4** | 15,001 to 20,000 | $ 11.16 |
| **5** | Greater than 20,000 | $ 13.95 |

*Multi-Family Residential customers will be billed the Water Usage Charge based on a unit averaging methodology. The total consumption for the building will be divided by the number of units in the building, arriving at per unit monthly consumption. The per unit monthly consumption will then be used to calculate a per unit Water Usage Charge bill based on the ascending block rate schedule. The per unit Water Usage Charge bill will then be multiplied by the number of units in the building to arrive at an aggregate Water Usage Charge bill.

## 2.3 Debt Service Charge

| All Rate Classes | |
|---|---|
| **Usage (gallons)** | **FY24 Rate (per 1,000 gallons)** |
| All usage | $ 4.67 |

## 2.4 Final Bill Charge

$25.00

Charge waived for Senior Citizens

# Section 3 – Hydrant Meter Rate

| Charge | 1” Hydrant Meter | 3” Hydrant Meter |
|---|---|---|
| **Deposit** | $500 | $2,000 |
| **Installation** | $ 125 | $ 250 |
| **Base Customer** | $ 25.00 /month | $ 50.00 /month |
| **Water Usage** | $ 13.75 / 1,000 gallons | |
| **Debt Service** | $ 4.67 / 1,000 gallons | |

# Section 4 – Municipal Field Rate

| Charge | Amount |
|---|---|
| **Base Customer** | $ 7.00 /month |
| **Water Usage*** | $ 7.18 / 1,000 gallons |
| **Debt Service*** | $ 4.67 / 1,000 gallons |

# Section 5 – Fees

## 5.1 Backflow Testing

The backflow testing charge is $75.00 for Reduced Pressure Zone (RPZ) and $125.00 for Dual Check Valves and Pressure Vacuum Breakers (PVB). RPZ devices must be tested semi-annually and Dual Check Valves and PVBs annually. There is an additional charge of $75.00 for any backflow device which fails and is not repaired within 10 business days and retested.

### 5.1.1 Violations

Under 310 CMR 22.22(3)(m), each PWS is required to notify the owner of the premises of any violation of 310 CMR 22.22, such as failure to install protection, failure to maintain a device, and failure to meet testing requirements, by sending a written Notification of Violation. Any violation of the measures in Article 2.9 shall be liable to the Littleton Water Department as listed below. Each violation will be assessed in accordance with the requirements of the cross-connection control distribution system protection program plan (CCCPP) approved by the DEP, or in 310 CMR 22.22: Cross Connections Distribution System Protection.

| | |
|---|---|
| 1st Violation | Written Warning |
| 2nd Violation | $50.00 fine and Second Written Warning |
| 3rd Violation | $200.00 fine |
| 4th Violation | $400.00 fine and Termination of Service |

## 5.2 Flow Testing

The flow testing charge is $100.00 per test, plus labor. Flow testing is done, per appointment, Monday through Wednesday between the hours of 10:00 P.M. and 11:00 P.M. only. Appointment requests must be made to LWD with three business days' notice. Hydrants are to be operated by Water Department personnel only.

## 5.3 Turning On or Shutting Off Fee

The fee for the operator's time to turn on a customer's water outside of normal operating hours (Monday through Thursday, 6:30 A.M. to 4:30 P.M.) is $500.00.

## 5.4 Interference with Water Meter Operation

The fee for unlawfully and intentionally altering or damaging a water meter is three times the cost of the meter plus a damage fee of $500.00.

## 5.5 Violation of Water User Restrictions Fee

Any person violating the Water Supply Conservation measures shall be liable to the Littleton Water Department as listed below. Each day of violation shall constitute a separate offence.

| | |
|---|---|
| 1st Violation | Written Warning |
| 2nd Violation | $50.00 fine |
| 3rd Violation | $200.00 fine |
| 4th Violation | $400.00 fine and reduction in water availability to allow for basic water use needs |

## 5.6 Sprinkler Demand Charge

A sprinkler demand charge is billed quarterly or monthly and is based on the fire service size.

| Pipe Size | Fee (Domestic Service Pipe) |
|---|---|
| Up to 2” | $ 862.50 |
| 3” and 4” | $ 1,150 |
| 6” | $ 2,300 |
| 8” | $ 4,600 |
| 10” | $ 5,750 |
| 12” | $ 6,900 |

## 5.7 Tapping Fee

The tapping fee covers all costs associated with the material, labor and equipment, as well as heat sealing as required by the Littleton Highway Department, used for installing the necessary piping from the Littleton Water Department’s distribution system (up to 1") to the applicant(s) property line at the prevailing rates. It is the responsibility of the applicant(s) or the applicant(s) contractor to install the water service from the property line to the applicant(s) structure according to the Littleton Water Department’s Rules and Regulations. It is the responsibility of and at the cost of the applicant and/or contractor to install water mains greater than 1” from the existing main to the building.

## 5.8 Cross Connection Survey Fee

The cross connection survey fee is $250.00.

## 5.9 Research and Service Fee

A $100.00 fee is assessed for file searches and copying of environmental assessments, other large documents and the use of the department’s GIS maps.

## 5.10 Advanced Metering Infrastructure Opt-Out Charges

Should a customer opt-out of advanced metering infrastructure, they shall be liable to the Littleton Water Department for the following fees.

| | |
|---|---|
| Manual Water Read (monthly) | $25.00 |
| Removal of the AMI Meter and Installation of Non-AMI Meter | $100.00 |
| Re-Installation of AMI Meter | $100.00 |

## 5.11 Submetering Fee

A $15.00 fee per submeter per month is assessed for the reading and issuance of water bills “care of” the property owner’s tenant(s).

## 5.10 Water Service Application Fee

The water service application fee is a one-time charge for connecting to the distribution system and must accompany the New Water Service Application (Appendix B.3). The fee is assessed according to the actual size of the service applied for or the number of dwelling units (whichever is higher). The fee includes a one-inch meter. Anything larger than a one-inch meter will be charged to the applicant. Water service installation costs including but not limited to material, labor and equipment are not covered by the water service application fee and are the responsibility of the applicant.

| Pipe Size | Fee (Domestic Service Pipe) |
|---|---|
| 1” | $ 7,565 |
| 1 ½” | $ 17,021 |
| 2” | $ 30,260 |
| 3” | $ 68,086 |
| 4” | $ 121,042 |
| 6” | $ 272,344 |
| Multi-dwelling (per apt. or living unit) | $ 3,783 |

## 5.12 Meter Installation

| Meter Size | Connection Size | Fee |
|---|---|---|
| 5/8” | 3/4” | $ 375.00 |
| 3/4” | 1” | $ 425.00 |
| >3/4” | >1” | $500.00 |

## 5.13 Licensed Utility Installer Annual Permit

The annual permit application fee to become a Licensed Utility Installer (LUI) for the Littleton Water Department: $100

The annual fee must be paid by January 1st of each year.

The annual permit Bond value which must be posted: $5,000

The Certificate of Insurance to be provided must cover:

A) General Liability: $500,000 – Property Damage
$500,000 - $1,000,000 Bodily Injury

B) Automotive: $500,000 – Property Damage
$500,000 - $1,000,000 Bodily Injury

C) Workman's Compensation and Employer's Liability as required under Massachusetts General Laws.

D) Insurance shall include coverage for collapse and underground structures.

E) Insurance shall include coverage for projects completed operations.

All of the above insurance coverage shall remain in full force and effect for a period of one (1) year from the date of acceptance by the Littleton Water Department of the last service connection installed by the LUI. The LUI shall take all responsibility for the work and take all precaution for preventing injuries to persons and property in or around the work.

The permit bond shall be duly executed by the Principal of the LUI and by a Surety Company qualified to do business under the laws of the Commonwealth of Massachusetts and satisfactory to the General Manager.

## Section 6 – Water Rate and Fee Schedule Effective Date

These fees and fines shall be in full force and effect after approval and publication by the Board of Commissioners.

Approved this 12th day of June, 2023

Chair, Board of Commissioners

ATTEST: _____

Schedule of Fees original adoption date: _____, 20____

**Littleton Water Department**
**39 Ayer Road**
**Littleton, MA 01460**
**Telephone (978) 540-2222**
**Fax (978) 742-4903**

## APPLICATION FOR FIRE HYDRANT METER

**Owners Name**: _____

**Address:** _____

**PO Box:** _____

**Town:** _____ **State**: _____ **Zip:** _____

**Telephone Number:** _____

**Daytime Telephone or Cell Phone:** _____

**Location of Hydrant:** _____ **Purpose**: _____

**Hydrant Number:** _____ **Estimated Amount of Usage**: _____

**Date to be Installed**: _____ **Time Needed:** _____

## Hydrant Meter Rate

☐ **Please refer to Water Use Regulations Section 3 of Appendix A.**

## REQUIREMENTS:

☐ **The Littleton Water Department and the Town of Littleton are not liable for any damages to person or property caused by the use of our fire hydrants, water pressure, water quality, or other phenomena associated with high-pressure water main.**

☐ **This permit will be granted only if the use is deemed reasonable and it will not interfere with normal operations of the Littleton Water Department.**

☐ **Requests for hydrant use for pool filling must be discussed in advance with water personal.**

**I have read and agree to the Littleton Water Department's condition as stated above.**

_____ _____
**Signature of Applicant** **Date**

_____ _____
**Signature of Department Personnel** **Date**

DEVICE TAG # (as determined by LELWD):
Remit Paper Work to:
Matthew Silverman, Environmental Manager
msilverman@lelwd.com, 978-540-2260

LITTLETON LWD WATER DEPARTMENT :

**BACKFLOW PREVENTION DEVICE DESIGN DATA SHEET**

1. OWNER'S NAME:
2. ADDRESS:
3. FACILITY:
4. Name:
5. Address: Contact Person/Agent:
6. Telephone # of Facility/Contact Person:

New or Existing Facility:

General description of the type of business or activities carried out at this facility:

## DEVICE DATA

**Manufacturer:** **Make & Model #:** **Size:**
**Device Type (circle one):** RPBP DCVA PVB
**Size of Device:** **Serial Number:**
**Hot or Cold-Water Unit:**
**Location of Device:**
**Containment?:** YES: NO:
**By-Pass Arrangement?:** YES: NO:
**From what type of contamination is the water supply protected?**

**How many other RPBP or DVCA devices are located in this facility:**

**Type of gate valve**
*gate valves for fire systems must be UL or FM approved*

5. DEVICE MAINTENANCE AND TESTING & INSPECTIONS SCHEDULE

Describe the maintenance and testing & inspection schedule of the above device(s).

**Please refer to Massachusetts State Law 310 CMR 22.22**
***Please use one (1) data sheet for each backflow preventer***

## BACKFLOW PREVENTION DEVICE DESIGN DATA SHEET

6. PLUMBING DIAGRAMS REQUIRED

A fully labeled, detailed schematic of the potable and non potable water piping immediately surrounding the backflow prevention device installation showing:

Height above finished floor.
Distance from wall(s).
Type of equipment or system(s) downstream of (after) the backflow preventer. (chemical treatment, operating pressure, etc.)
Make, model, size and alignment of the backflow prevention device.
Location of upstream and downstream shutoff valve.
Any additional information particular to the backflow prevention device installation that should be revised.

*** **Please note that the proposed plumbing diagram(s) of the backflow preventor(s) must be at least 8 1/2" x 11" with the following information: name of facility, address, date, and preparer***

Submitted by:

Company:

Date:

Telephone:

_____
Plumber's Signature

Plumber's License #:

_____
Owner/Agent Signature

**7. (Official Use Only) - Littleton Water Department**

Comments:

Control Number:

Company Name:

## BACKFLOW PREVENTION DEVICE DESIGN DATA SHEET

8. **VIOLATIONS (Official Use Only) - Littleton Water Department)**

1.
2.
3.

**9. INSTALLATION (Approved Yes or No)**

**10. REMARKS**

**Littleton Water Department**
**39 Ayer Road**
**Littleton, MA 01460**
**Telephone (978) 540-2222**
**Fax (978) 742-4903**

## APPLICATION FOR WATER SERVICE

### Residential or Commercial (circle)

**Owners Name:**_____

**Address:**_____

**PO Box:**_____

**Town:**_____ **State:**_____ **Zip:**_____

**Telephone Number: (  )**_____

**Daytime Telephone or Cell Phone: (  )**_____

**Service Location Address**

**(if different from above) with Lot #:**_____

**Number of Buildings:**_____

**Type of Business:**_____

**Size of Main Requested:**_____

**Required Water Main Extension:** ☐ **Yes** ☐ **No**

**Size of Service:**_____ **Proposed Daily Usage:**_____

**Fire Service Requested:** ☐ **Yes** ☐ **No** **Size Requested:**_____

**Number of Hydrants Required:**_____ **Number of Backflows to be Installed:**_____

**Plans Submitted:** ☐ **Yes** ☐ **No**

**Installer's Name:**_____

**Address/ PO Box:**_____

**Town/State/Zip:**_____

**Installer's Telephone Number:**_____

**Connection Fee:**_____ **Date Paid:**_____

_____ _____

**Signature of Applicant** **Date**

_____ _____

**Signature of Department Personnel** **Date**

# TOWN OF LITTLETON

LITTLETON WATER DEPARTMENT

## MULTI-UNIT DEVELOPMENT WATER SERVICE CONNECTION AGREEMENT

***The Littleton Water Department Multi-Unit Development Water Service Agreement, under the authority of the Water Use Regulations, is required for all multi-family residential and commercial new construction or changes in the size or location of a water service in the Town of Littleton.***

**APPLICANT**_____ **DATE**_____

**TYPE OF APPLICANT** (Builder / Property Owner / Other ) CIRCLE ONE ***LWD Account #***

**SERVICE ADDRESS** _____

**BUILDING INFORMATION:**

**TOTAL NUMBER OF BUILDINGS**_____ **TOTAL ESTIMATED WATER USAGE**_____**GPD**

**BUILDING 1**

**NUMBER OF BEDROOMS:** _____ **SERVICE SIZE:**_____**Inch**

**BUILDING 2**

**NUMBER OF BEDROOMS:** _____ **SERVICE SIZE:**_____**Inch**

**BUILDING 3**

**NUMBER OF BEDROOMS:** _____ **SERVICE SIZE:**_____**Inch**

**BUILDING 4**

**NUMBER OF BEDROOMS:** _____ **SERVICE SIZE:**_____**Inch**

**BUILDING 5**

**NUMBER OF BEDROOMS:** _____ **SERVICE SIZE:**_____**Inch**

***IF DEVELOPMENT HAS MORE THAN 5 BUILDINGS, CONTINUE LIST ON ANOTHER SHEET.***

**BLDG. PERMIT #** _____

**FIRE SPRINKLER SERVICE ( YES – NO )** circle one **SIZE OF FIRE SPRINKLER SERVICE** _____

**WATER SERVICE APPLICATION BILLING INFORMATION**

**BILL TO** _____ **TELEPHONE** _____

**HOUSE # / PO BOX** _____

**CITY, STATE, ZIP** _____

# TOWN OF LITTLETON

LITTLETON WATER DEPARTMENT

## MULTI-UNIT DEVELOPMENT WATER SERVICE CONNECTION AGREEMENT

I THE APPLIPLICANT SIGN MY NAME HERE(x)_____AND IN SO SIGNING STATE THAT I HAVE READ AND UNDERSTAND THE FOLLOWING:

- An approved site plan must be on file in the Littleton Planning Department and a copy must be submitted to LWD with the Multi-Unit Development Water Service Connection Agreement. All site plans submitted to LWD for review and approval must be signed and stamped by a Professional Engineer registered in Massachusetts.
- One Multi-Unit Development Water Service Connection Agreement must be obtained for the entire development that will be connected to the Littleton Water Department Distribution System.
- No water meter will be installed until the building(s) is secured with lockable doors and windows.
- No water will be turned on during the months of November through March unless the building(s) has heat necessary to prevent pipes from freezing.
- All pipes, fittings, valves, and water meters that connect the building to the Distribution System must:
  - Meet the Littleton Water Department Specifications
  - Be inspected by the Littleton Water Department
- Once the water service is installed, the property owner shall be responsible for all necessary maintenance of the water service from the curb stop (service isolation valve), to the Water Meter. (Property owners own and are responsible to maintain all materials that are on their property, both inside and outside the building.)
- I grant to the LWD, or its agents, the right to enter this property for the purpose of performing any work related to the installation, inspection, meter reading, testing, cross connection prevention, maintenance, and any other purpose associated with the LWD efforts to provide safe drinking water to its customers. Said right of entry shall be in place until such time as the water service is terminated.
- I am responsible for making the next owner of this property aware of the requirements of this agreement.
- All properties connected to the LWD Distribution System must comply with the Littleton Water Department Water Use Regulations adopted and amended from time to time by Board of Commissioners.
- This agreement must be approved by the LWD and all connection related fees paid before water service is connected.
- I must complete this connection within two years of the agreement or it will become void and I have no rights to a refund of fees paid.
- All water service connections and inspections require a twenty-four (24) hour notice. No exceptions.

LITTLETON WATER DEPARTMENT DATE
GENERAL MANAGER

# Littleton Water DepartmentTie Card

Street Address: _____ Date:

Operators:

New Service ☐ Renewal ☐

## Drawing:

| | |
|---|---|
| Main Material & Size:<br>Corporation Size:<br>Service Material & Size:<br>Depth of Main:<br>Depth of Curb Stop: | Notes: |

## Littleton Water Department

39 Ayer Road, P.O. Box 2406, Littleton MA 01460
(978) 540 - 2222

# LICENSED UTILITY INSTALLER APPLICATION

To the Littleton Water Department,

1. Company Name _____
2. Address _____

   _____
3. Telephone No. _____
4. E-mail _____
5. The following items must be submitted to the General Manager with this application:
   a. List of all communities currently licensed in as a Licensed Utility Installer
   b. Reference list of municipal officials (in licensed communities) familiar with your work. Include name, address and telephone number.
   c. Last ten (10) installations with contact references.
   d. List of construction equipment currently owned.
   e. Number of employees.
   f. Average number of installations performed annually.
   g. Any additional information that may be appropriate for consideration by the General Manager.
6. Applicant previously approved by Littleton Water Department? yes ☐ no ☐
7. Application fee accompanies this application.

**Littleton Water Department**

**LICENSED UTILITY INSTALLER APPLICATION**

IN CONSIDERATION OF THE GRANTING OF THIS LICENSE, THE UNDERSIGNED LICENSED UTILITY INSTALLER AGREES:

1. To accept and abide by all provisions of the Water Use Regulations governing the use of the distribution system of the Littleton Water Department.

2. To notify the General Manager when the water service is ready for inspection and connection to the distributing system, but before any portion of the work is covered.

3. To supervise and be responsible for all work performed under this license.

4. An appropriate deposit amount shall be paid by each licensee to the Littleton Water Department. Upon notification by the General Manager that deficiencies exist for any work undertaken during the immediately preceding 18-month period, failure by the licensee to remedy said deficiencies within twenty-four (24) hours of notification by the General Manager, shall result in the General Manager authorizing others to remedy the deficiencies. The amount incurred to make corrections to address the deficiencies shall be deducted from the deposit and forfeited by the licensee. The remaining balance of any such deposits shall be refunded to the licensee one (1) year from the time of LWD acceptance of the installation.

5. Any violation of the conditions of this license or of the Water Use Regulations governing the use of the distribution system of the Littleton Water Department by the Licensed Utility Installer shall subject the license to a one (1) year license suspension. In addition, general penalties provided for the violation of these regulations may also apply.

Date _____ Signed _____
(Licensed Utility Installer)

Application approved and permit granted
GENERAL MANAGER

Date _____ By _____

Authorized License No. _____

Grant of Easement

**LITTLETON WATER DEPAERTMENT**

1. **Grant of Easement.**

**_____ and _____** of [STREET ADDRESS], Littleton, Massachusetts 01460 (hereinafter "Grantors") owners of the property described in a deed dated ____ __, ____ and recorded in said Registry at Book _____, Page ___, and shown as Lot__ on Exhibit A attached hereto abut or have a fee interest in that certain [NAME OF STREET OR WAY INDICATED ON EXHIBIT A] as "STEET NAME" (hereinafter "STREET NAME") on Exhibit A attached hereto.

For good and valuable consideration and One Dollar ($1.00) paid, the receipt and sufficiency of which are hereby acknowledged, the Grantors grant to the Town of Littleton, a municipal corporation located in Middlesex County, Massachusetts, acting by and through the Littleton Water Department, 39 Ayer Road, Littleton, Middlesex County, Massachusetts (the "Grantee"), which term shall also refer to any successor in title to the easement rights granted hereunder, with quitclaim covenants, the following perpetual rights and easements:

**(a)** to lay, install, construct, reconstruct, alter, relocate, repair, replace, add to, remove, operate, maintain, change the size of, and replace pipes and pipe lines and associated valves, fittings, and appliances appurtenant thereto for the transportation of water by a route in, through, over, under, across and upon STREET NAME from the point beginning at [DESCRIBE BEGINNING POINT ON EXHIBIT A] along STREET NAME to the [GATE VALVE OR OTHER LOCATION] located at the property shown as Lot __ on Exhibit A attached hereto and extending approximately _____feet (___') further to a point in STREET NAME abutting the property shown as Lot _____ on Exhibit A attached hereto with the right of access thereto for such purposes, and as shown on Exhibit A attached hereto (hereinafter referred to as the "Easement Area");

[INSERT THE FOLLOWING INFORMATION IF AVAILABLE OTHERWISE DELETE]

The Easement Area is shown on a plan as follows:

(insert description, attach drawing and exhibit reference)

_____

_____

_____

**(b)** with respect to the pipelines and connections and appurtenances hereof accepted and reserved to Grantee as set forth above (hereinafter collectively referred to as the "System"), the same are and shall be and remain the property of said Grantee and shall become permanent upon the erection or placement thereof with Grantee having all other rights and benefits necessary or convenient for the full enjoyment or use of the rights

Grant of Easement

herein granted, including without limiting the same, the right at any reasonable time or times to enter upon the Easement Area at such point or points as Grantee my deem expedient or necessary for the purpose of construction, inspection, maintenance and repair of the same, and of installing additional pipelines, reconstruction and/or replacement of any or all of the same by other pipes of the same or different size;

[INSERT THE FOLLOWING INFORMATION IF AVAILABLE OTHERWISE DELETE]

The System is further shown on a layout plan showing installation details entitled:

_____

Prepared by _____

And dated _____ on file with Grantee.

**(c)** to from time to time pass and re-pass and to authorize others to pass and re-pass over, across and upon the Easement Area and other land of the Grantors as may be reasonable and necessary in the opinion of Grantee in connection with all of the foregoing purposes including, without limitation, to renew, replace, repair, remove, add to, maintain, operate, patrol and otherwise change said System and each and every part thereof and to make such other excavation or excavations as may be reasonably necessary in the opinion and judgment of the Grantee, its successors and assigns, upon prior notice to Grantors, and provided that in the case of any excavation, Grantee shall restore the surface area of the Easement Area to as reasonably the same condition such area was in prior to such excavation;

**(d)** to make such other installations upon the Easement Area as may be reasonable and necessary in the opinion of Grantee in connection with all of the foregoing purposes;

**(e)** to keep the Easement Area cleared of such trees, shrubs, bushes, structures, objects and surfaces as may in the opinion of Grantee interfere with the safe and efficient operation and maintenance of the System and other related equipment; and

**(f)** to do all other acts incidental and reasonably necessary to said purposes.

**2. Relocation.** If the Easement Area is or becomes unsuitable for the purposes of the Grantee, subject to prior written consent of the Grantors and without unreasonable disruption to the operation of the System determined in Grantee's sole discretion, which consent shall not be unreasonably withheld, then the location of the Easement Area may be changed to areas mutually satisfactory to both Grantors and Grantee. In such event, the newly agreed to locations shall be indicated and shown on Exhibit A by proper amendment or amendments thereto and the parties shall execute and record an amendment to this Grant of Easement fixing the new location of the easements granted hereunder to the locations and dimensions shown on a new or amended plan identifying the revised location of the Easement Area.

Grant of Easement

**3. Grantee Indemnification.** By Grantee's acceptance hereof, such Grantee agrees that it shall indemnify and hold Grantors harmless from any loss, cost, damage or expense sustained by Grantors solely as a result of the exercise by Grantee, (or its employees, agents or contractors), of the rights and easements granted herein, except to the extent that any such loss, cost, damage or expense is attributable to Grantors' or a Grantor's negligence or willful misconduct.

**4. Easement Runs with the Land.** This Grant of Easement shall run with the land and be binding upon and inure to the benefit of the parties hereto and their respective successors in title to the respective property interests identified herein. Upon any conveyance of the parcels currently owned by the Grantors, the rights and obligations of the parties, respectively, shall be deemed to have been assigned to and assumed by the grantee(s) under such conveyance without any further formality. The provisions hereof shall inure to the benefit of and be binding upon Grantors, Grantee, and their respective successors in the title forever.

**5. Access.** Grantors may access Grantee's municipal water service for use pursuant to the rules and regulations and fees as established by the Town of Littleton Water Department.

**6. Counterparts.** This Grant of Easement may be executed in counterparts, and all counterparts so executed shall constitute one agreement binding on each party hereto, and notwithstanding that all parties are not signatory to the original or to the same counterpart.

Grant of Easement

FIRST MORTGAGE HOLDER

_____ Bank having its principal place of business located at _____ (the "Bank"), holder of a first mortgage on said land of Grantors _____ and _____, dated ____ __, ____ recorded with the Middlesex South County Registry of Deeds in Book _____, Page __ for good and valuable consideration paid, the receipt and sufficiency of which are hereby acknowledged, hereby joins in this Grant of Easement and agrees with Grantee that Bank shall hold said mortgage and, in the event of foreclosure thereof, the mortgaged premises, subject to the rights and easements contained herein, however, that the rights of the Bank under said mortgage shall not otherwise be affected.

For Grantors' title see Deed dated _____ __, ____ recorded with the Middlesex South County Registry of Deeds in Book ____, Page ___.

IN WITNESS WHEREOF, said [FULL NAME OF BANK] has caused its corporate seal to be hereto affixed and this instrument to be signed and delivered in its name and behalf by its duly authorized officers this _____ day of _____, 20__.

[FULL NAME OF BANK]

By: _____
(signature)

_____
(print name)

_____
(title)

COMMONWEALTH OF MASSACHUSETTS

_____, ss.
(county)

Then personally appeared the above-named

_____
(name of person signing for bank)
and acknowledged the foregoing instrument to be her/his free act and deed,
_____ before me.
(date)

_____
Notary Public
My Commission Expires

Grant of Easement

SECOND MORTGAGE HOLDER

_____ Bank having its principal place of business located at _____ (the "Bank"), holder of a first mortgage on said land of Grantors _____ and _____, dated ____ __, ____ recorded with the Middlesex South County Registry of Deeds in Book _____, Page __ for good and valuable consideration paid, the receipt and sufficiency of which are hereby acknowledged, hereby joins in this Grant of Easement and agrees with Grantee that Bank shall hold said mortgage and, in the event of foreclosure thereof, the mortgaged premises, subject to the rights and easements contained herein, however, that the rights of the Bank under said mortgage shall not otherwise be affected.

For Grantors' title see Deed dated _____ __, ____ recorded with the Middlesex South County Registry of Deeds in Book ____, Page ___.

IN WITNESS WHEREOF, said [FULL NAME OF BANK] has caused its corporate seal to be hereto affixed and this instrument to be signed and delivered in its name and behalf by its duly authorized officers this _____ day of _____, 20__.

[FULL NAME OF BANK]

By: _____
(signature)

_____
(print name)

_____
(title)

COMMONWEALTH OF MASSACHUSETTS

_____, ss.

(county)

Then personally appeared the above-named (name of person signing for bank) and acknowledged the foregoing instrument to be her/his free act and deed,

_____ before me.

(date)

_____
Notary Public
My Commission Expires

Grant of Easement

WITNESS OUR HANDS AND SEALS THIS DAY OF _____, 20__.

_____
[NAME OF GRANTOR]

_____
[NAME OF GRANTOR]

COMMONWEALTH OF MASSACHUSETTS

Middlesex, ss:

On this _____ day of _____, 20__, before me, the undersigned notary public, personally appeared [GRANTOR], proved to me through satisfactory evidence of identification, which was a [ ] driver's license, [ ] passport, or [ ] personally known to me, to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his knowledge and belief, and acknowledged to me that he signed it voluntarily for its stated purpose.

_____
Notary public:
My commission expires:

COMMONWEALTH OF MASSACHUSETTS

Middlesex, ss:

On this _____ day of _____, 20__, before me, the undersigned notary public, personally appeared [GRANTOR], proved to me through satisfactory evidence of identification, which was a [ ] driver's license, [ ] passport, or [ ] personally known to me, to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of her knowledge and belief, and acknowledged to me that she signed it voluntarily for its stated purpose.

_____
Notary public:
My commission expires:

Grant of Easement

*Hereby Assented:*

Littleton Water Department

By: _____
Name: Nick Lawler,
Title: General Manager
(hereunto authorized)

COMMONWEALTH OF MASSACHUSETTS

County:_____, ss.

On this ____ day of _____, 20__, before me, the undersigned notary public, personally appeared _____ as [General Manager OR Assistant General Manager], and proved to me through satisfactory evidence of identification, which was _____, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose and acknowledged the foregoing to be the free act and deed of the Littleton Water Department as aforesaid.

_____

Notary Public
My Commission Expires:_____

Grant of Easement

**EXHIBIT A**

MassDEP
Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs
Department of Environmental Protection
Central Regional Office • 8 New Bond Street, Worcester MA 01606 • 508-792-7650

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

May 6, 2021

Ivan Pagacik, Chair Board of
Water Commissioners
Town of Littleton, Water Department
P.O. Box 2406
Littleton, MA 01460

RE: Town: Littleton
PWS: Littleton Water Department
PWS ID#: 2158000
WMA Permit #: 9P-2-13-158.02
MassDEP Transmittal: WM02 X280822
Action: Final WMA Permit Amendment
Beaver Brook Wells Rate Increase

Dear Mr. Pagacik,

Please find the enclosed documents:

- Findings of Fact in Support of the Final WMA Permit Amendment Decision; and
- Final Water Management Act Permit Amendment 9P-2-13-158.02 for the Town of Littleton in the Merrimack River Basin.

If you have any questions regarding the permit, please contact Susan Connors at 508-767-2701 or me at 508-767-2827.

Sincerely,

Marielle Stone
Deputy Regional Director
Bureau of Water Resources

Cc: Littleton Board of Selectmen, P.O. 1305, Littleton, MA 01460
Ecc: Jennifer A. Pederson, Mass Water Works Association
Julia Blatt and Sarah Bower, Mass Rivers Alliance
Melany Cheesman, Natural Heritage and Endangered Species Program
Duane LeVangie, MassDEP-WMA-Boston

**Massachusetts Department of Environmental Protection**
**One Winter Street, Boston MA 02108 • Phone: 617-292-5751**
**Communication For Non-English Speaking Parties - 310 CMR 1.03(5)(a)**

**1 English:**
This document is important and should be translated immediately. If you need this document translated, please contact MassDEP's Diversity Director at the telephone numbers listed below.

**2 Español (Spanish):**
Este documento es importante y debe ser traducido inmediatamente. Si necesita este documento traducido, por favor póngase en contacto con el Director de Diversidad MassDEP a los números de teléfono que aparecen más abajo.

**3 Português (Portuguese):**
Este documento é importante e deve ser traduzida imediatamente. Se você precisa deste documento traduzido, por favor, entre em contato com Diretor de Diversidade da MassDEP para os números de telefone listados abaixo.

**4(a) 中國（傳統）(Chinese (Traditional):**
本文件非常重要，應立即翻譯。如果您需要翻譯這份文件，請用下面列出的電話號碼與MassDEP的多樣性總監聯繫。

**4(b) 中国（简体中文）(Chinese (Simplified):**
本文件非常重要，应立即翻译。如果您需要翻译这份文件，请用下面列出的电话号码与MassDEP的多样性总监联系。

**5 Ayisyen (franse kreyòl) (Haitian) (French Creole):**
Dokiman sa-a se yon bagay enpòtan epi yo ta dwe tradui imedyatman. Si ou bezwen dokiman sa a tradui, tanpri kontakte Divèsite Direktè MassDEP a nan nimewo telefòn ki nan lis pi ba a.

**6 Việt (Vietnamese):**
Tài liệu này là rất quan trọng và cần được dịch ngay lập tức. Nếu bạn cần dịch tài liệu này, xin vui lòng liên hệ với Giám đốc MassDEP đa dạng tại các số điện thoại được liệt kê dưới đây.

**7 ប្រទេសកម្ពុជា (Kmer (Cambodian):**
ឯកសារនេះគឺមានសារៈសំខាន់និងគួរត្រូវបានបកប្រែភ្លាម។ ប្រសិនបើអ្នកត្រូវបានបកប្រែឯកសារនេះសូមទំនាក់ទំនងឆ្មោតជានាយក MassDEP នៅលេខទូរស័ព្ទដែលបានរាយខាងក្រោម។

**8 Kriolu Kabuverdianu (Cape Verdean):**
*Es documento é importante e deve ser traduzido imidiatamente. Se bo precisa des documento traduzido, por favor contacta Director de Diversidade na MassDEP's pa es numero indicode li d'boche.*

**9 Русский язык (Russian):**
Этот документ является важным и должно быть переведено сразу. Если вам нужен этот документ переведенный, пожалуйста, свяжитесь с директором разнообразия MassDEP по адресу телефонных номеров, указанных ниже.

**10 العربية (Arabic):**
هذه الوثيقة الهامة وينبغي أن تترجم على الفور. اذا كنت بحاجة الى هذه الوثيقة المترجمة، يرجى الاتصال مدير التنوع في PMassDEعلى أرقام الهواتف المدرجة أدناه.

**11 한국어 (Korean):**
이 문서는 중요하고 즉시 번역해야합니다. 당신이 번역이 문서가 필요하면 아래의 전화 번호로 MassDEP의 다양성 감독에 문의하시기 바랍니다.

**12 հայերեն (Armenian):**
Այս փաստաթուղթը շատ կարեւոր է եւ պետք է թարգմանել անմիջապես. Եթե Ձեզ անհրաժեշտ է այս փաստաթուղթը թարգմանվել դիմել MassDEP բազմազանությունը տնօրեն է հեռախոսահամարների թվարկված են ստորեւ.

**13 فارسی (Farsi (Persian):**
این سند مهم است و باید فورا ترجمه شده است.
اگر شما نیاز به این سند ترجمه شده، لطفا با ما تماس تنوع مدیر PMassDE در شماره تلفن های ذکر شده در زیر.

**14 Français (French):**
Ce document est important et devrait être traduit immédiatement. Si vous avez besoin de ce document traduit, s'il vous plaît communiquer avec le directeur de la diversité MassDEP aux numéros de téléphone indiqués ci-dessous.

**15 Deutsch (German):**
Dieses Dokument ist wichtig und sollte sofort übersetzt werden. Wenn Sie dieses Dokument übersetzt benötigen, wenden Sie sich bitte Diversity Director MassDEP die in den unten aufgeführten Telefonnummern.

**16 Ελληνική (Greek):**
Το έγγραφο αυτό είναι σημαντικό και θα πρέπει να μεταφραστούν αμέσως. Αν χρειάζεστε αυτό το έγγραφο μεταφράζεται, παρακαλούμε επικοινωνήστε Diversity Director MassDEP κατά τους αριθμούς τηλεφώνου που αναγράφεται πιο κάτω.

**17 Italiano (Italian):**
Questo documento è importante e dovrebbe essere tradotto immediatamente. Se avete bisogno di questo documento tradotto, si prega di contattare la diversità Direttore di MassDEP ai numeri di telefono elencati di seguito.

**18 Język Polski (Polish):**
Dokument ten jest ważny i powinien być natychmiast przetłumaczone. Jeśli potrzebujesz tego dokumentu tłumaczone, prosimy o kontakt z Dyrektorem MassDEP w różnorodności na numery telefonów wymienionych poniżej.

**19 हिन्दी (Hindi):**
यह दस्तावेज महत्वपूर्ण है और तुरंत अनुवाद किया जाना चाहिए. आप अनुवाद इस दस्तावेज़ की जरूरत है, नीचे सूचीबद्ध फोन नंबरों पर MassDEP की विविधता निदेशक से संपर्क करें.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs
Department of Environmental Protection
Central Regional Office • 8 New Bond Street, Worcester MA 01606 • 508-792-7650

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Governor

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Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

**Findings of Fact in Support of the Final Permit Amendment Decision**
**Water Management Permit 9P-2-13-158.02**

The Massachusetts Department of Environmental Protection ("MassDEP") has completed its review of the Water Management Act Permit Amendment application for the Town of Littleton ("Littleton") in the Merrimack River Basin pursuant to the Water Management Act, M.G.L. ch. 21G. As a result of the review and Littleton's response to the Order to Complete that was received May 20, 2019, MassDEP hereby issues this Final Water Management Act Permit #9P-2-13-158.02 (the "Permit") in accordance with the Water Management Act ("WMA" or "the Act").

MassDEP makes the following Findings of Fact in support of the attached permit amendment and includes herewith its reasons for approving the Permit and for the conditions of approval imposed, as required by MGL c 21G, §11 and the "Massachusetts Water Resources Management Program", 310 CMR 36.00 ("the Regulations").

**Littleton Water Department Withdrawal History**

Littleton holds a WMA Registration Statement (2-13-158.03) for an average annual daily withdrawal volume of 0.83 million gallons per day (MGD) and includes four groundwater sources: Whitcomb tubular wellfield (being replaced with Whitcomb Wellfield #3), Whitcomb Well #1, Beaver Brook Well, and Spectacle Pond Well. Littleton was issued its original WMA permit in 1997 in order to increase the total authorized system wide withdrawal volume. In 2014 Littleton was issued approval to activate three replacements wells at the Beaver Brook Well (Well 2-1, Well 2-2, and Well 2-3) and the original Beaver Brook Well was abandoned. Littleton is currently authorized through their permit and registration to withdraw 1.46 MGD through November 2018 (see Permit Extension Act below). Littleton has reported annual withdrawals below their combined registered and permitted volumes. This permit amendment increases the maximum daily withdrawal volume from the Beaver Brook Wells.

**The Permit Extension Act and Permit Expiration Dates**

In November 2017, Littleton submitted a 20-year permit renewal application for its Merrimack River Basin permit. The Permit Extension Act (PEA), Section 173 of Chapter 240 of the Acts of 2010, as amended by Sections 74 and 75 of Chapter 238 of the Acts of 2012, extended all existing permits by four years. Therefore, the original expiration date for permits in the Merrimack River Basin was

extended from November 30, 2014 to November 30, 2018. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), Littleton's amended permit will continue in force and effect until MassDEP issues a decision on its renewal application. This action is an amendment of Littleton's existing Water Management Act permit and is not a renewal of the original permit. MassDEP has retained Littleton's Merrimack River Basin renewal application on file and will review that application when MassDEP begins the basin renewal process for all applications in the Merrimack River Basin in 2022. Note that MassDEP revised the Water Management Act Regulations (310 CMR 36.00) in November 2014 to require permittee's where applicable to address the impact of withdrawals on Cold Water Fishery Resources and develop Minimization and Mitigation Plans. Littleton will be contacted at the time of permit renewal if MassDEP needs any additional information to complete its review. The condition for nonessential outdoor water use restrictions will also be revised at the time of the Merrimack Basin renewal and the Concord Basin new permit processes.

**The Water Management Act**

Permit Factors

Section 7 of the Act requires that MassDEP issue permits that balance a variety of factors including without limitation:

- Impact of withdrawal on other water sources;
- Water available within the safe yield of the water source;
- Reasonable protection of existing water uses, land values, investments and enterprises;
- Proposed use of the water and other existing or projected uses from the water source;
- Municipal and Massachusetts Water Resources Commission (WRC) water resources management plans;
- Reasonable conservation consistent with efficient water use;
- Reasonable protection of public drinking water supplies, water quality, wastewater treatment capacity, waste assimilation capacity, groundwater recharge areas, navigation, hydropower resources, water-based recreation, wetland habitat, fish and wildlife, agriculture, flood plains; and
- Reasonable economic development and job creation.

Safe Yield Permit Factor

This permit is being issued under the safe yield methodology adopted by MassDEP on November 7, 2014 and described in the regulations at 310 CMR 36.13. As of the date of issuance of this permit, the safe yield for the Merrimack Basin is 900.40 million gallons per day (MGD), and total registered and permitted withdrawals are 80.22 MGD. The maximum withdrawals that will be authorized in this permit, and all other permits currently under review by MassDEP within the Merrimack Basin, will be within the safe yield and may be further conditioned as outlined in the regulations. Also note that this permit amendment is not allocating any increase in withdrawal volumes, so the permitting decision is not changing the currently allocated volumes in the basin identified above.

**Findings of Fact for Specific Permit Conditions**

The following Findings of Fact for the special condition included in the permit generally describe the rationale and background for each special condition in the permit. This summary of permit special conditions is not intended to, and should not be construed as, modifying any of the special conditions. In the event of any ambiguity between this summary and actual permit conditions, the permit language shall control.

**Special Condition 1, Maximum Authorized Annual Average Withdrawal Volume,** reflects the total authorized (registered plus permitted) annual average withdrawal volume based on the water needs forecast prepared by the Department of Conservation and Recreation, Office of Water Resources used in the original permit issued in 1997. The total authorized volume may be updated as part of the permit renewal process.

**Special Condition 2, Maximum Authorized Daily Withdrawals From Each Withdrawal Point,** reflects the maximum daily withdrawal rate for each source included in Littleton's permit, according to MassDEP approved rates. This amendment includes an increase in the approved rate for the Beaver Brook Wells based on the pumping test approved on November 15, 2018. The Beaver Brook Wells previously were assigned a single combined rate of 0.41 million gallons per day (MGD). The pumping test demonstrated that the wells can support individual approved rates of 0.288 MGD from each of Beaver Brook Wells 2-1 and 2-2 and 0.072 MGD from Beaver Brook Well 2-3 for a total of 0.648 MGD from the wells. This final permit also replaces the Whitcomb Ave Tubular Wellfield with its replacement wellfield that will be activated in 2021.

**Special Condition 3, Water Level Monitoring**. Drawdown in an isolated wetland resource area approximately 100 feet from the Beaver Brook Wells was exhibited during the pumping test. A long-term monitoring plan is required to be implemented to evaluate if the increased withdrawal at the Beaver Brook Wells adversely impacts water levels in the resource area. For example, a permanent lowering of surface water levels in the resource area may indicate an adverse impact. Littleton submitted a proposed monitoring plan as part of their response to the Order to Complete which is incorporated into this permit along with additional requirements per MassDEP.

**Special Condition 4, Groundwater Supply Protection**. MassDEP records show that Littleton is in compliance with the Drinking Water Regulations for Groundwater Supply Protection at 310 CMR 22.21(2) with regards to protection of the Zone II areas within the Town of Littleton. Documentation to support compliance includes the Town of Littleton Aquifer and Water Resource District Bylaw and map amended in 2019 and Littleton's Board of Health Floor Drain Regulation adopted in 2006. A portion of Littleton's Zone II area for the Whitcomb Wells extends into the Towns of Boxborough and Harvard and is still unprotected in those towns. The Drinking Water Regulations at 310 CMR 22.21(1)(e) requires that if the Zone II of a municipal public water system extends into another municipality, the water supplier must also demonstrate to MassDEP's satisfaction that it has used its best efforts to have all cities and towns into which the Zone II extends establish such zoning or nonzoning controls within the Zone II.

Demonstrating Best Effort is completed at MassDEP's direction during WMA permit renewals, new source approvals (including replacement wells), monitoring waiver applications, Zone II re-delineations, and Sanitary Survey stipulations; and is required to be repeated until the neighboring municipalities adopt the appropriate controls and include Littleton's Zone II areas in those controls. MassDEP will notify Littleton when the Best Effort needs to be repeated.

**Special Condition 5, Performance Standard for Residential Gallons Per Capita Day Water Use,** consistent with Section 3 of the Act, the performance standards of 65 residential gallons per capita day or less is based on the Massachusetts Water Conservation Standards approved by the Water Resources Commission in 2006, revised in July 2018. The latest Standards can be found at: https://www.mass.gov/files/documents/2018/09/11/ma-water-conservation-standards-2018.pdf. As accepted by MassDEP, Littleton's RGPCD for 2017, 2018, and 2019 was 50, 53, and 54, respectively.

**Special Condition 6, Performance Standard for Unaccounted for Water (UAW)**, This permit condition has changed since the 2015 permit issued to Littleton to reflect MassDEP's latest approach to controlling UAW. UAW is defined as the residual resulting from the total amount of water supplied to a distribution system as measured by master meters, minus the sum of all amounts of water measured by consumption meters in the distribution system, and minus confidently estimated and documented amounts used for certain necessary purposes.

UAW includes unavoidable leakage, recoverable leakage, meter inaccuracies (unless they fall under the category of source meter calibration which allows for adjustment per results of source meter calibration); errors in estimation of stopped meters, unauthorized hydrant openings, illegal connections, stand pipe overflows, data processing errors; and undocumented firefighting uses. The need for water main flushing and the use of water in construction or meter calibration should be metered or estimated as appropriate to assist in determining actual demand. Uses that can be confidently estimated and documented in writing include: storage tank overflow and drainage; water main flushing and flow testing; firefighting; bleeders or blow-offs; sewer and stormwater system flushing; and street cleaning. Any adjustments made as a result of properly documented source meter calibration should be provided as required by the Annual Statistical Report (ASR). Any adjustment in the calculation of UAW made as a result of confidently estimated uses should be fully documented in the ASR. As accepted by MassDEP, Littleton's UAW for 2017, 2018, and 2019 was 9%, 12% and 12%, respectively.

**Special Condition 7, Requirement to Report Raw and Finished Water Volumes**, ensures that the information necessary to evaluate compliance with the conditions included herein is accurately reported.

**Special Condition 8, Seasonal Limits on Nonessential Outdoor Water Use,** is based in part upon Littleton's Residential Gallons per Capita Day (RGPCD) for the preceding year and will be implemented according to either: 1) calendar triggered restrictions; or 2) streamflow triggered restrictions. The USGS gage assigned to Littleton in Special Condition 8 is changed from a Merrimack River gage previously assigned to Littleton in the 2015 permit to a gage on the Concord River. The requirements have not otherwise changed from the 2015 permit. The USGS gage change is due to Littleton's WMA Permit application submitted for withdrawal from the Concord River Basin.

**1. Calendar triggered restrictions:** Restrictions shall be implemented from May 1st through September 30th. Many public water suppliers will find this option easier to implement and enforce than the streamflow triggered approach.

**2. Streamflow triggered restrictions:** Restrictions shall be implemented at those times when streamflow falls below designated flow triggers measured at an assigned, web-based, real-time U.S. Geologic Survey (USGS) stream gage from May 1st through September 30th. At a minimum, restrictions shall commence when streamflow falls below the trigger for three consecutive days. Once implemented, the restrictions shall remain in place until streamflow at the assigned USGS local stream gage meets or exceeds the trigger streamflow for seven consecutive days.

The basis for streamflow triggers is derived from Aquatic Base Flow (ABF) values calculated by the Sustainable Yield Estimator (SYE)[1] for simulated natural flow applied to the assigned local

[1] Archfield, S.A., Vogel, R.M., Steeves, P.A., Brandt, S.L., Weiskel, P.K., and Garabedian, S.P., 2010, The Massachusetts Sustainable-Yield Estimator: A decision-support tool to assess water availability at ungaged stream locations in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2009–5227, 41 p. plus CD-ROM. See http://pubs.usgs.gov/sir/2009/5227/

USGS stream gage. The two-tiered trigger values are based on flow levels that are protective of aquatic habitat for fish spawning during the spring bioperiod, designated with the June ABF; and protective flows for fish rearing and growth during the summer bioperiod, designated with the August ABF trigger. Protective flow levels are derived from index gage flow data which represent the least altered stream flows in Massachusetts and are further described in the Department of Conservation and Recreation (DCR)[2] and USGS Index Reports[3].

If Littleton selects the streamflow approach, it has been assigned the USGS local stream gage #01099500 Concord River below River Meadow Brook at Lowell. The streamflow triggers are 427 cfs for May and June; and 156 cfs for July, August and September.

Should the reliability of flow measurement at the Concord River gage be so impaired as to question its accuracy, Littleton may request MassDEP's review and approval to transfer to another gage to trigger restrictions. MassDEP reserves the right to require use of a different gage.

Drought triggered restrictions are incorporated into the seasonal limits on outdoor water use as outlined in this Special Condition. Times of low streamflow and drought do not always coincide, but both low streamflow and drought conditions can have adverse effects on water supplies, natural resources and aquatic life. Please note that many communities impose drought-based outdoor water use restrictions before the Massachusetts Drought Management Task Force declares a Level 1- Mild Drought (formerly Drought Advisory) because drought conditions can begin to impact local water supplies before a regional advisory is declared.

This permit condition will be updated at the time of the permit renewal to incorporate the latest requirements associated with drought and low flow values that will limit non-essential outdoor water use to one day per week regardless of the RGPCD value.

**Special Condition 9, Water Conservation Requirements**, incorporates the Water Conservation Standards for the Commonwealth of Massachusetts reviewed and approved by the Water Resources Commission in July 2006, and as revised in 2018.

**Other Agency Review**
During the public notice period for the Draft WMA Permit, the Massachusetts Fish and Game, Natural Heritage and Endangered Species Program (NHESP) determined that a review of this project is required under the Massachusetts Endangered Species Act. Littleton collected data and provided it to NHESP. On April 13, 2021, NHESP issued a decision that the increase in withdrawal "will not result in a prohibited Take of state-listed rare species".

[2] Massachusetts Department of Conservation and Recreation (DCR), 2008 Index Streamflows for Massachusetts, May 2008, Prepared by Office of Water Resources for the Massachusetts Water Resources Commission, 45 p., plus CD-ROM.

[3] Armstrong, D.S., Parker, G.W., and Richards, T.A., 2008, Characteristics and classification of least altered streamflows in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2007-5291, 113 p., plus CD-ROM.

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Commissioner

**WATER WITHDRAWAL PERMIT**
**MGL c 21G**

This Permit Amendment is issued pursuant to the Massachusetts Water Management Act for the sole purpose of authorizing the withdrawal of a volume of water as stated below and subject to the following special and general conditions. This Permit Amendment conveys no right in or to any property beyond the right to withdraw the volume of water for which it is issued.

**PERMIT NUMBER:** 9P-2-13-158.02 **RIVER BASIN:** Merrimack

**PERMITTEE:** Town of Littleton Water Department

**AMENDMENT DATE:** May 6, 2021

**EXPIRATION DATE:** November 30, 2018[4]

**NUMBER OF WITHDRAWAL POINTS:**
Groundwater: 6 Surface Water: 0

**USE:** Public Water Supply

**DAYS OF OPERATION:** 365

**LOCATION(S):**

**Table 1: Withdrawal Point Identification**

| Well Name | PWS Source ID | Well Name | PWS Source ID |
|---|---|---|---|
| Whitcomb Wellfield #3 | To Be Assigned | Beaver Brook Well 2.1 | 2158000-05G |
| Whitcomb Ave GPW #1 | 2158000-02G | Beaver Brook Well 2.2 | 2158000-06G |
| Spectacle Pond Well | 2158000-04G | Beaver Brook Well 2.3 | 2158000-07G |

[4] Littleton's most recent 20-year permit was set to expire November 30, 2014. In 2010, the permit was extended for 2 years to November 30, 2016 by Section 173 of Chapter 240 of the Acts of 2010 (Permit Extension Act). In 2012 the Permit Extension Act was amended by Chapter 238 of the Acts of 2012 and this permit was extended an additional 2 years to November 30, 2018. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), the amended permit will continue in force and effect until MassDEP issues a decision on Littleton's renewal application.

## SPECIAL CONDITIONS

### 1. Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes the Littleton Water Department to withdraw water from its sources in the Merrimack River Basin at the rates described below (Table 2). The volume reflected by this rate is in addition to the 0.83 million gallons per day (MGD) previously authorized to the Littleton Water Department under Water Management Act registration #2-13-158.03. The total authorized volume is expressed both as an annual average daily withdrawal rate (million gallons per day or MGD), and as a total annual withdrawal volume (million gallons per year or MGY) for each five-year period of the permit term.

The Department of Environmental Protection (MassDEP) will use the total raw water volume withdrawn from the authorized withdrawal points to assess compliance with the registered and permitted withdrawal volumes.

**Table 2: Maximum Authorized Withdrawal Volumes**

| Permit Periods | Total Raw Water Withdrawal Volumes | | | |
|---|---|---|---|---|
| | Permit | | Permit + Registration | |
| | Daily Average (MGD) | Total Annual (MGY) | Daily Average (MGD) | Total Annual (MGY) |
| 3/6/1997 to 11/30/1999 | 0.42 | 153.30 | 1.25 | 457.88 |
| 12/1/1999 to 11/30/2004 | 0.50 | 182.50 | 1.33 | 487.08 |
| 12/1/2004 to 11/30/2009 | 0.59 | 215.35 | 1.42 | 519.93 |
| 12/1/2009 to 11/30/2018* | 0.63 | 229.95 | 1.46 | 534.53 |

* Littleton's most recent 20-year permit was set to expire November 30, 2014. In 2010, the permit was extended for 2 years to November 28, 2016 by Section 173 of Chapter 240 of the Acts of 2010 (Permit Extension Act). In 2012 the Permit Extension Act was amended by Chapter 238 of the Acts of 2012 and this permit was extended an additional 2 years to November 30, 2018. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), the amended permit will continue in force and effect until MassDEP issues a decision on Littleton's renewal application.

### 2. Maximum Authorized Daily Withdrawals From Each Withdrawal Point

Withdrawals from individual withdrawal points are not to exceed the approved maximum daily volumes listed in Table 3 below without specific advance written approval from MassDEP. The authorized maximum daily volume is the approved rate of each source. In no event shall the combined withdrawals from the individual withdrawal points exceed the withdrawal volumes authorized above in Special Condition 1.

**Table 3: Maximum Authorized Withdrawal Volumes**

| Well Name | PWS Source ID Code | Maximum Daily Rate |
|---|---|---|
| Whitcomb Wellfield #3* | To Be Assigned | 0.86 MGD (600 gpm) combined rate for the Whitcomb Wells |
| Whitcomb GP Well #1 | 2158000-02G | |
| Spectacle Pond Well | 2158000-04G | 0.94 MGD (650 gpm) |
| Beaver Brook Well 2.1 | 2158000-05G | 0.29 MGD (285 gpm) |
| Beaver Brook Well 2.2 | 2158000-06G | 0.29 MGD (285 gpm) |
| Beaver Brook Well 2.3 | 2158000-07G | 0.07 MGD (50 gpm) |

*Whitcomb Wellfield #3 is a replacement for the Whitcomb Tubular Wellfield (2158000-01G). The new wellfield is proposed to be activated in May 2021.

## 3. Water Level Monitoring

Littleton shall implement a water level monitoring plan beginning in 2021, to monitor surface water levels in the isolated wetlands resource area adjacent to the Beaver Brook Wells. Littleton submitted a proposed plan on May 20, 2019 that is incorporated below and includes additional requirements by MassDEP:

- Water level measurements of surface water levels at drive point PZ1 shall be collected annually from May 1 through September 30.
- The water level measurements shall be collected with an electronic measuring device that shall be set to record data minimally every 1 hour.
- Daily precipitation measurements shall be recorded onsite or from the closest NOAA weather station.
- Daily pumping volumes from each of the Beaver Brook Wells shall be recorded.
- All data shall be provided to MassDEP in graph and table formats by December 31st each year. Water level data may be submitted only in electronic format (e.g. Excel) due to the volume of data, but the graphs and tables of precipitation and pumping volumes shall be submitted in paper format with a cover letter briefly describing any issues with the data collection and/or field observations.
- The monitoring shall continue for a minimum of three years after the pumping rate is increased at the Beaver Brook Wells before MassDEP will consider a reduction in the monitoring plan.

## 4. Groundwater Supply Protection

Littleton shall provide documentation during the WMA Permit renewal process that it satisfies the Best Effort requirement pursuant to 310 CMR 22.21(1)(e) for the Zone II area of the Whitcomb Wells that extends into the Towns of Boxborough and Harvard. MassDEP will contact Littleton during the permit renewal process to complete this requirement.

**5. Performance Standard for Residential Gallons Per Capita Day Water Use**

Permittee's performance standard for residential gallons per capita day (RGPCD) is 65 gallons. Permittee is required to report its RGPCD water use annually in its Annual Statistical Report (ASR) and document compliance with this Performance Standard in its ASR. Permittee shall report its RGPCD and the calculation used to derive that figure as part of its ASR including, without limitation, the source of the data used to establish the service population and the year in which this data was developed. See Appendix A for additional information on the requirements if the performance standard for RGPCD is not met.

**6. Performance Standard for Unaccounted for Water**

Permittee's Performance Standard for Unaccounted for Water (UAW) is 10% or less of overall water withdrawal for 2 of the most recent 3 years throughout the permit period. If the Permittee does not meet the standard beginning with CY2019, it shall be in compliance with the Functional Equivalence Requirements based on the AWWA/IWA Water Audits and Loss Control Programs, Manual of Water Supply Practices M36, as outlined in Appendix B. Permittee is required to report its UAW annually in its Annual Statistical Report (ASR) so as to document compliance with this performance standard. Permittee's ASR shall include the calculation used to derive that figure including, without limitation, the source of data used, the methodology for calculating UAW and any assumptions used in making the calculation.

Nothing in the Permit shall prevent a Permittee who meets the 10% performance standard from developing and implementing a water loss control program following the AWWA M36 Water Audits and Loss Control Programs. Permittees implementing a water loss control program based on AWWA M36 annual water audits and guidance shall continue to report UAW annually as required in the Annual Statistical Report for public water suppliers.

**7. Requirement to Report Raw and Finished Water Volumes**

Littleton shall report annually on its ASR the raw water volumes and finished water volumes for the entire water system and the raw water volumes for individual water withdrawal points.

[No further text appears on this page].

## 8. Seasonal Limits on Nonessential Outdoor Water Use

Permittee shall limit nonessential outdoor water use through mandatory restrictions from May 1st through September 30th as outlined in Table 4 below. Permittee shall be responsible for tracking streamflows and drought advisories and recording when restrictions are implemented if streamflow triggered restrictions are implemented. See *Accessing Streamflow and Drought Advisory Website Information* in Table 4 for instructions.

Permittee shall document compliance with the summer limits on nonessential outdoor water use annually in its Annual Statistical Report (ASR) and indicate whether it anticipates implementing calendar triggered restrictions or streamflow triggered restrictions during the next year.

Nothing in this permit shall prevent Permittee from implementing water use restrictions that are more restrictive than those set forth in this permit.

**Water Uses Restrictions**

**Nonessential outdoor water uses that are subject to mandatory restrictions** include:

- irrigation of lawns via sprinklers or automatic irrigation systems;
- washing of vehicles, except in a commercial car wash or as necessary for operator safety; and
- washing of exterior building surfaces, parking lots, driveways or sidewalks, except as necessary to apply surface treatments such as paint, preservatives, stucco, pavement or cement.

**The following uses may be allowed** when mandatory restrictions are in place:

- irrigation to establish a new lawn and new plantings during the months of May and September;
- irrigation of public parks and recreational fields by means of automatic sprinklers outside the hours of 9 am to 5 pm; and
- irrigation of lawns, gardens, flowers and ornamental plants by means of a hand-held hose.

**Water uses NOT subject to mandatory restrictions** are those required:

- for health or safety reasons;
- by regulation;
- for the production of food and fiber;
- for the maintenance of livestock; or
- to meet the core functions of a business (for example, irrigation by golf courses as necessary to maintain tees, greens, and limited fairway watering, or irrigation by plant nurseries as necessary to maintain stock).

**Table 4: Seasonal Limits on Nonessential Outdoor Water Use**

| |
|---|
| **Permittees meeting the 65 RGPCD standard for the preceding year (as reported in the ASR and accepted by MassDEP) must implement either:** |
| **1. Calendar Triggered Restrictions from May 1st through September 30th**<br>**No nonessential outdoor water use from 9 am - 5 pm** |
| **2. Streamflow Triggered Restrictions from May 1st through September 30th**<br>**No nonessential outdoor water use from 9 am - 5 pm whenever:**<br>a) Streamflow at the assigned USGS local stream gage (gage #01099500 Concord River below River Meadow Brook at Lowell) falls below the following designated flow triggers for **three (3)** consecutive days:<br>• May 1st through June 30th: **427 cfs** (based on minimum flows that are protective of habitat for fish spawning during the spring bioperiod), and<br>• July 1st through September 30th: **156 cfs** (based on minimum flows that are protective of habitat for fish rearing and growth during the summer bioperiod).<br>Once implemented, the restrictions shall remain in place until streamflow at the assigned USGS local stream gage meets or exceeds the trigger streamflow for **seven (7)** consecutive days; or<br><br>b) A Drought Advisory or higher is declared by the Massachusetts Drought Management Task Force. |
| **Permittees NOT meeting the 65 RGPCD standard for the preceding year (as reported in the ASR and accepted by MassDEP) must implement either:** |
| **1. Calendar Triggered Restrictions from May 1st through September 30th**<br>a) **Nonessential outdoor water use is allowed TWO DAYS per week** before 9 am and after 5 pm; and<br><br>b) **Nonessential outdoor water use is allowed ONE DAY per week whenever**<br>A Drought Advisory or higher is declared by the Massachusetts Drought Management Task Force. |
| **2. Streamflow Triggered Restrictions from May 1st through September 30th**<br>**Nonessential outdoor water use is allowed ONE DAY per week before 9 a.m. and after 5 p.m. whenever:**<br>a) Streamflow at the assigned USGS local stream gage (gage #01099500 Concord River below River Meadow Brook at Lowell) falls below the following designated flow triggers for **three (3)** consecutive days:<br>• May 1st through June 30th: **427 cfs** (based on minimum flows that are protective of habitat for fish spawning during the spring bioperiod), and<br>• July 1st through September 30th: **156 cfs** (based on minimum flows that are protective of habitat for fish rearing and growth during the summer bioperiod).<br>Once implemented, the restrictions shall remain in place until streamflow at the assigned USGS local stream gage meets or exceeds the trigger streamflow for **seven (7)** consecutive days; or<br><br>b) A Level 1- Mild Drought (formerly Drought Advisory) or higher is declared by the Massachusetts Drought Management Task Force. |

| Instructions for Accessing Streamflow and Drought Advisory Website Information |
|---|
| **Streamflow information** is available at the USGS National Water Information System (NWIS): Web Interface. The USGS NWIS default shows Massachusetts streamflows in real time, i.e., the most recent, usually quarterly hourly, reading made at each USGS stream gage.<br><br>Seasonal Limits on Nonessential Outdoor Water Use are implemented when the mean daily streamflow falls below the designated trigger. The mean daily flow is not calculated until after midnight each day when the USGS computes the hourly data into a mean daily streamflow. As a result, permittees must use the mean daily streamflow from the preceding day when tracking streamflows.<br><br>**Mean daily streamflow gage** readings are available at the USGS NWIS Web Interface at http://waterdata.usgs.gov/ma/nwis/current/?type=flow.<br>• Scroll down to gage ##01099500 Concord River below River Meadow Brook at Lowell.<br>• Click on the gage number.<br>• Scroll down to "Provisional Date Subject to Revision – Available data for this site" and click on the drop down menu.<br>• Click on "Time-series: Daily data" and hit GO.<br>• Scroll down to the "Available Parameters" box. Within the box, be sure "Discharge (mean)" is checked, then, under "Output Format" click "Table" and hit GO.<br>• Scroll down to "Daily Mean Discharge, cubic feet per second" table and find the current date on the table.<br>• Compare the cubic feet per second (cfs) measurement shown on the table to the cfs shown under Streamflow Triggered Restrictions above. |
| **Drought Advisory** information is available at the Massachusetts Department of Conservation and Recreation (DCR) Drought Status Website at https://www.mass.gov/info-details/drought-status<br>• The color coded map displays the seven drought regions in Massachusetts. Restrictions are implemented when a Level 1- Mild Drought (formerly Drought Advisory), Level 2- Significant Drought (formerly Drought Watch), Level 3- Critical Drought (formerly Drought Warning) or Level 4- Emergency Drought is announced through the DCR website. |

**Public Notice of Water Use Restrictions**

Permittee shall notify its customers of the restrictions and the consequences of failing to adhere to the restrictions.

- For calendar-triggered restrictions, customers shall be notified by April 15th each year.
- For streamflow-triggered restrictions, when streamflow at the assigned USGS local stream gage falls below a streamflow trigger for three consecutive days, customers shall be notified as soon as possible, but within three days of implementing the restrictions.

Notice to customers shall include the following:

- A detailed description of the restrictions and penalties for violating the restrictions;
- The need to limit water use, especially nonessential outdoor water use, to ensure a sustainable drinking water supply and to protect natural resources and streamflow for aquatic life; and
- Ways individual homeowners can limit water use, especially nonessential outdoor water use.

Notice that restrictions have been put in place shall be filed each year with MassDEP within 14 days of the restriction's effective date. Filing shall be in writing on the Water Use Restrictions Form on the MassDEP website. Notice to MassDEP need not be provided if Permittee has already implemented water use restrictions that conform to the applicable restrictions and those restrictions are still in force.

## 9. Water Conservation Requirements

Compliance with the following conservation measures was required in the Permit issued to Littleton on May 7, 2015. Continued compliance is required.

**Table 5: Minimum Water Conservation Requirements**

| **System Water Audits and Leak Detection** |
|---|
| 1. At a minimum, conduct a full leak detection survey every three years. Littleton reported to MassDEP that leak detection surveys are completed annually on the entire distribution system. |
| 2. Perform a leak detection survey of those sections of the distribution system that have not been surveyed within the last year whenever the percentage of unaccounted for water increases by 5% or more (for example an increase from 3% to 8%) over the percentage reported on the ASR for the prior calendar year. Within 60 days of completing the leak detection survey, Permittee shall submit to MassDEP a report detailing the leak detection survey, any leaks uncovered as a result of the survey or otherwise, dates of repair and the estimated water savings as a result of the repairs. |
| 3. Conduct field surveys for leaks and repair programs in accordance with the *AWWA Manual 36*. |
| 4. Permittee shall have repair reports available for inspection by MassDEP. Permittee shall establish a schedule for repairing leaks that is at least as stringent as the following:<br>• Leaks of 15 gallons per minute or more shall be repaired as soon as possible but not later than one month after leak detection.*<br>• Leaks of less than 15 gallons per minute, but greater than 5 gallons per minute, shall be repaired as soon as possible but not later than two months after leak detection.*<br>• Leaks of 5 gallons per minute or less shall be repaired as soon as possible but not later than six months after leak detection, except that hydrant leaks of one gallon or less per minute shall be repaired as soon as possible.*<br>• Leaks shall be repaired in accordance with the priority schedule including leaks up to the property line, curb stop or service meter, as applicable.<br>• Have water use regulations in place that require property owners to expeditiously repair leaks on their property.<br>The following exceptions can be considered:<br>• Repair of leakage detected during winter months can be delayed until weather conditions become favorable for conducting repairs;* and<br>• Leaks in freeway, arterial or collector roadways may be coordinated with other scheduled projects being performed on the roadway.**<br><br>*Reference: MWRA regulations 360 CMR 12.09<br>**Mass Highway or local regulations may regulate the timing of tearing up pavement on roads to repair leaks. |
| 5. Ensure placement of sufficient funds in the annual water budget to conduct water audits and leak detection and repair leaks as necessary. |

**Table 5: Minimum Water Conservation Requirements**

| |
|---|
| **Metering** |
| 1. Calibrate all source and finished water meters at least annually and report date of calibration on the ASR. |
| 2. Ensure that the system is 100% metered, including all water use at municipal facilities (schools, school athletic fields, etc.). Permittee reports its system is 100% metered. |
| 3. All water distribution system users shall have properly sized service lines and meters that meet AWWA calibration and accuracy performance standards.<br>AWWA References:<br>AWWA Manual M22 – Sizing Water Service Lines and Meters<br>AWWA Manual M6 – Water Meters, or as amended |
| 4. Permittee shall have an ongoing program to inspect individual service meters to ensure that all service meters accurately measure the volume of water used by your customers. The metering program shall include regular meter maintenance, including testing, calibration, repair, replacement and checks for tampering to identify and correct illegal connections. |
| 5. Ensure placement of sufficient funds in the annual water budget to calibrate, repair, or replace meters as necessary. |
| **Pricing** |
| 1. Implement a water revenue structure that includes the full cost of operating the water supply system in compliance with state and federal requirements. Evaluate revenues every three to five years and adjust rates as needed. Full cost pricing factors all costs - operations, maintenance, capital, and indirect costs (environmental impacts, watershed protection) - into the revenue structure.<br>AWWA References for Additional Information on Pricing:<br>AWWA Manual 1 – Principals of Water Rates, Fees and Charges<br>AWWA Manual 29 – Fundamentals of Water Utility Financing |
| 2. Permittee shall not use decreasing block rates. Decreasing block rates which charge lower prices as water use increases during the billing period, are not allowed by M.G.L. Chapter 40 Section 39L. |
| **Residential and Public Sector Conservation** |
| 1. Permittee shall meet the standards set forth in the Federal Energy Policy Act, 1992 and the Massachusetts Plumbing Code. |
| 2. Meter or estimate water used by contractors using fire hydrants for pipe flushing and construction. |
| 3. Municipal buildings<br>An inventory of all municipally owned public buildings served by Littleton and a description of whether or not the buildings are fitted with water-saving devices (e.g. faucet aerators, toilet displacement devices or low flow toilets, low flow shower heads, etc.) was submitted to MassDEP on September 24, 2013. Littleton Town Hall, the Reuben Hoar Library, and Shaker Lane Elementary do not have low flow fixtures. On November 27, 2015, Littleton submitted a cost estimate for each of these building to be retrofitted and also committed to installing 48 toilet displacement devices. The devices were installed in 2016. |

**Industrial and Commercial Water Conservation**

1. Permittee shall review the use records for its industrial, commercial and institutional water users and develop an inventory of the largest water users. Permittee shall develop and implement an outreach program designed to inform and (where appropriate) work with its largest industrial, commercial and institutional water users on ways to reduce their water use. Such outreach plans can include, but are not limited to: information on water audits, meter sizing, water reuse, low-flow plumbing fixtures, mandatory outdoor water use restrictions, suggestions for contacting trade associations for process specific information on water use reductions, and information on contacting the Executive Office of Environmental Affairs Office of Technical Assistance for Toxics Use Reduction (OTA) which offers a range of assistance and information to help facilities improve water use efficiency and reduce wastewater discharge. OTA can be contacted at (617) 626-1060 or at www.mass.gov/envir/ota.
2. Upon request by MassDEP, Permittee shall report on industrial, commercial and institutional water conservation including the results of its review of water use records for industrial, commercial and institutional water users, the inventory of the largest water users, copies of any outreach materials distributed to industrial, commercial and institutional water users, and to the extent practical, a summary of water use reductions or savings that have resulted. Upon receipt of this report, MassDEP will take whatever action it deems appropriate to promote the interests of the WMA, including without limitation requiring Permittee to take additional actions to reduce industrial, commercial and institutional water use.

**Lawn and Landscape**

1. Continue to implement Permittee's water use restriction bylaw.

**Public Education and Outreach**

1. Develop and implement a Water Conservation Education Plan. Permittee's Water Conservation Education Plan shall be designed to educate Permittee's water customers of ways to conserve water. Without limitation, Permittee's plan may include the following actions:
    - Annual work sheets, included in water bills or under separate cover, to enable customers to track water use and conservation efforts and estimate the dollar savings;
    - Public space advertising/media stories on successes (and failures);
    - Conservation information centers perhaps run jointly with electric or gas company;
    - Speakers for community organizations;
    - Partner with garden clubs, or other private and non-profit organizations, to promote efficient water use;
    - Provide information on water-wise landscaping, gardening, efficient irrigation and lawn care practice;
    - Public service announcements; radio/T.V./audio-visual presentations;
    - Joint advertising with hardware stores to promote conservation devices;
    - Water conservation workshops for the general public
    - Use of civic and professional organization resources;
    - Special events such as Conservation Fairs;
    - Develop materials that are targeted to schools with media that appeals to children, including materials on water resource projects and field trips; and
    - Make multilingual materials available as needed.

References and additional information available through the USEPA Water Sense Program at http://www.epa.gov/watersense.

**GENERAL PERMIT CONDITIONS (applicable to all permittees)**

No withdrawal in excess of 100,000 gallons per day over the registered volume (if any) shall be made following the expiration of this permit, unless before that date MassDEP has received a renewal permit application pursuant to 310 CMR 36.00.

1. **Duty to Comply:** The Permittee shall comply at all times with the terms and conditions of this permit, the Act and all applicable State and Federal statutes and regulations.

2. **Operation and Maintenance:** The Permittee shall at all times properly operate and maintain all facilities and equipment installed or used to withdraw water so as not to impair the purposes and interests of the Act.

3. **Entry and Inspections:** The Permittee or the Permittee's agent shall allow personnel or authorized agents or employees of MassDEP to enter and examine any property over which Permittee has authority, title or control, for the purpose of determining compliance with this permit, the Act or the regulations published pursuant thereto, upon presentation of proper identification and an oral statement of purpose.

4. **Water Emergency:** Withdrawal volumes authorized by this permit are subject to restriction in any water emergency declared by MassDEP pursuant to M.G.L. c. 21G, §§ 15-17, M.G.L. c. 150, § 111, or any other enabling authority.

5. **Transfer of Permits:** This permit shall not be transferred in whole or in part unless and until MassDEP approves such transfer in writing, pursuant to a transfer application on forms provided by MassDEP requesting such approval and received by MassDEP at least thirty (30) days before the effective date of the proposed transfer. No transfer application shall be deemed filed unless it is accompanied by the applicable transfer fee established by 310 CMR 36.33.

6. **Duty to Report:** The Permittee shall submit annually, on a form provided by MassDEP, a certified statement of the withdrawal. Such report is to be received by MassDEP by the date specified by MassDEP. Such report must be submitted as specified on the report form.

7. **Duty to Maintain Records:** The Permittee shall be responsible for maintaining withdrawal and all other records as specified by this permit.

8. **Metering**: Withdrawal points shall be metered. Meters shall be calibrated annually. Meters shall be maintained and replaced as necessary to ensure the accuracy of the withdrawal records.

9. **Right to Amend, Suspend or Terminate:** MassDEP may amend, suspend or terminate the permit in accordance with M.G.L. c. 21G and 310 CMR 36.29.

**APPEAL RIGHTS AND TIME LIMITS**

This permit is a decision of MassDEP. Any person aggrieved by this decision may request an adjudicatory hearing as described herein and in accordance with the procedures described at 310 CMR 36.37. Any such request must be made in writing, by certified mail or hand delivered and received by MassDEP within twenty-one (21) days of the date of receipt of this permit. The hearing request, including proof of payment of the filing fee, must be mailed to:

Case Administrator
MassDEP Office of Appeals and Dispute Resolution
One Winter Street
Boston, MA 02108

No request for an appeal of this permit shall be validly filed unless a copy of the request is sent by certified mail, or delivered by hand to the local water resources management official in the community in which the withdrawal point is located; and for any person appealing this decision, who is not the applicant, unless such person notifies the permit applicant of the appeal in writing by certified mail or by hand within five (5) days of mailing the appeal to MassDEP.

**CONTENTS OF HEARING REQUEST**
310 CMR 1.01(6)(b) requires the request to include a clear and concise statement of the facts which are the grounds for the request and the relief sought. In addition, the request must include a statement of the reasons why the decision of MassDEP is not consistent with applicable rules and regulations, and for any person appealing this decision who is not the applicant, a clear and concise statement of how that person is aggrieved by the issuance of his permit.

**FILING FEE AND ADDRESS**
MassDEP's fee transmittal form, together with a valid check, payable to the Commonwealth of Massachusetts in the amount of $100 must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

The request shall be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below.

**EXEMPTIONS**
The filing fee is not required if the appellant is a municipality (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority.

**WAIVER**
MassDEP may waive the adjudicatory hearing filing fee for any person who demonstrates to the satisfaction of MassDEP that the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request, an affidavit setting forth the facts which support the claim of undue hardship.

Marielle Stone

May 6, 2021

Marielle Stone, Deputy Regional Director
Bureau of Water Resources
Central Regional Office

Date

## Appendix A – Residential Gallons Per Capita Day (RGPCD)

### I. Compliance Plan Requirement

If the Permittee fails to achieve and document compliance with the RGPCD performance standard in its Annual Statistical Report (ASR), then the Permittee must file with that ASR a Residential Gallons Per Capita Day Compliance Plan (RGPCD Plan) which shall:

a. meet the requirement set forth below in Section II;
b. include measures to be implemented to meet the performance standard); and
c. include the schedule for implementing such measures.

The filing of an RGPCD Plan shall not constitute a return to compliance, nor shall it affect MassDEP's authority to take action in response to the Permittee's failure to meet the performance standard.

If an RGPCD Plan is required, the Permittee must:

a. submit information and supporting documentation sufficient to demonstrate compliance with its RGPCD Plan annually at the time it files its ASR; and
b. continue to implement the RGPCD Plan until it complies with the performance standard and such compliance is documented in the Permittee's ASR for the calendar year in which the standard is met.

### II. Contents of an RGPCD Plan

A Permittee that does not meet the 65 RGPCD performance standard within 2 years, has the choice to file an RGPCD Plan containing measures that the Permittee believes will be sufficient to bring the system into compliance with the performance standard (Individual RGPCD Plan) or may adopt the MassDEP RGPCD Functional Equivalence Plan that includes mandated Best Management Practices (BMPs).

A Permittee that has been unable to meet the 65 RGPCD performance standard within 5 years must implement the MassDEP RGPCD Functional Equivalence Plan to be considered functionally equivalent with the performance standard.

At a minimum, all RGPCD Compliance Plans must include a detailed:

a. description of the actions taken during the prior calendar year to meet the performance standard;
b. analysis of the cause of the failure to meet the performance standard;
c. description and schedule of the actions that will be taken to meet the performance standard; and
d. analysis of how the actions described in c. will address the specific circumstances that resulted in the failure to meet the performance standard.

RGPCD Plans may be amended to revise the actions that will be taken to meet the performance standard.

**Individual RGPCD Plan**

Individual RGPCD Plan will document a plan to adopt and implement measures tailored to the specific needs of the water supply system that the Permittee believes will be sufficient to bring the system into compliance with the performance standard within three years.

At a minimum, all Individual RGPCD Plans for failure to meet the RGPCD performance standard must include implementation of at least one of the following residential conservation programs:

a. a program that provides water saving devices such as faucet aerators and low flow shower heads at cost;
b. a program that provides rebates or other incentives for the purchase of low water use appliances (washing machines, dishwashers, and toilets); or
c. the adoption and enforcement of an ordinance, bylaw or regulation to require the installation of moisture sensors or similar climate related control technology on all automatic irrigation systems.

If the Permittee is already implementing one or more of these programs, it must include in its Individual RGPCD Plan the continued implementation of such program(s), as well as implementation of at least one additional program. All programs must include a public information component designed to inform customers of the program and to encourage participation in the program.

Without limitation, the Individual RGPCD Plan for failure to meet the RGPCD performance standard may include any of the actions set forth in the MassDEP RGPCD Functional Equivalence Plan below.

**MassDEP RGPCD Functional Equivalence Plan**

In order to be considered functionally equivalent with the RGPCD performance standard, the Permittee must adopt and implement the MassDEP RGPCD Functional Equivalence Plan that requires all the following residential conservation programs:

a. a program that provides water saving devices such as faucet aerators and low flow shower heads at cost;
b. a program that provides rebates or other incentives for the purchase of low water use appliances (washing machines, dishwashers, and toilets);
c. the adoption and enforcement of an ordinance, bylaw or regulation to require the installation of soil moisture sensors or similar climate related control technology on all automatic irrigation systems;
d. the use of an increasing block water rate or a seasonal water rate structure as a tool to encourage water conservation;
e. the adoption and enforcement of an ordinance, bylaw or regulation to require that all new construction include water saving devices and low water use appliances; and
f. the implementation of monthly or quarterly billing.

**Hardship**

A Permittee may present an analysis of the cost effectiveness of implementing certain conservation measures included in the MassDEP RGPCD Functional Equivalence Plan and offer alternative measures. Any analysis must explicitly consider environmental impacts and must produce equal or greater environmental benefits. Suppliers will be able to present:

a. Reasons why specific measures are not cost effective because the cost would exceed the costs of alternative methods of achieving the appropriate standard;
b. Alternative specific conservation measures that would result in equal or greater system-wide water savings or equal or greater environmental benefits than the conservation measures included in the MassDEP RGPCD Functional Equivalence Plan; and
c. When applicable, an analysis demonstrating that implementation of specific measures will cause or exacerbate significant economic hardship.

## Appendix B – Functional Equivalence with the 10% Unaccounted for Water Performance Standard

MassDEP will consider PWS Permittees who cannot meet the 10% UAW performance standard to be functionally equivalent, and in compliance with their Permit, if they have an on-going program in place that ensures "best practices" for controlling water loss. The water loss control program will be based on annual water audits and guidance as described in the AWWA/IWA *Manual of Water Supply Practices – M36, Water Audits and Loss Control Programs* (AWWA M36).

If, as of December 31, 2019, the Permittee fails to document compliance with the Unaccounted for Water performance standard (UAW of 10% or less for 2 of the 3 most recent years throughout the permit period), then the Permittee shall develop and implement a water loss control program following the *AWWA M36 Water Audits and Loss Control Programs* within 5 full calendar years.

1. Conduct an annual "top down" water audit, calculate the data validity level/score using AWWA Water Loss Control Committee's Free Water Audit Software, and submit the AWWA WLCC Free Water Audit Software: Reporting Worksheet and data validity score annually with its Annual Statistical Report (ASR).
    - If a PWS's data validity level/score is less than Level III (51-70), steps recommended through the audit(s) shall be taken to improve the reliability of the data prior to developing a long-term program to reduce real and apparent water losses.
    - Data with a validity score of 50 or less are considered too weak to be used to develop a component analysis or for infrastructure planning and maintenance.
    - Developing data with an acceptably strong validity score can be a multi-year process.

2. When the data validity score meets the Level III (51-70) requirement, the Permittee shall conduct a component analysis to identify causes of real and apparent water loss and develop a program to control losses based on the results of the component analysis. The Permittee shall submit the component analysis and water loss control program with a proposed implementation schedule to MassDEP.

3. Continued implementation will be a condition of the Permit in place of meeting the 10% UAW performance standard.

4. Upon request of MassDEP, the Permittee shall report on its implementation of the water loss control program.

A PWS Permittee may choose to discontinue the water loss program implementation if UAW, as reported on the ASR and approved by DEP, is below 10% for four consecutive years, and the water audit data validity scores are at least Level III (51-70) for the same four years.

**NOTE FOR SMALL SYSTEMS**: For small systems with less than 3,000 service connections or a service connection density of less than 16 connections per mile of pipeline, the Unavoidable Annual Real Loss (UARL) calculation and the Infrastructure Leak Index (ILI) developed as the final steps of the top down water audit may not result in valid performance indicators, and may not be comparable to the UARL and ILI calculations for larger systems.

However, these small systems can benefit from developing reliable data and conducting an annual top down water audit. Small systems can rely on the real losses (gallons per mile of main per day) performance indicator developed in the water audit as a measure of real water loss when developing a water loss control program. The M36 Manual discusses the audit process for small systems, and includes a chapter to guide small systems in understanding the results of their audits and in developing a water loss control program (*Manual of Water Supply Practices – M36, Fourth Edition, Chapter 9: Considerations for Small Systems*, pp. 293-305).

**MassDEP UAW Water Loss Control Measures:** Permittees who do not have MassDEP approved Water Loss Control Programs in place by 6th calendar year after 2019 will be required to implement the MassDEP UAW Water Loss Control Measures outlined below:

- An annual water audit and leak detection survey, as described in the AWWA M36 Manual, of the entire system.
  - Within one year, repair 75% (by water volume) of all leaks detected in the survey that are under the control of the public water system;
  - Thereafter, repair leaks as necessary to reduce Permittee's UAW to 10% or the minimum level possible.
- Meter inspection and, as appropriate, repair, replace and calibrate water meters:
  - Large Meters (2" or greater) – within one year
  - Medium Meters (1" or greater and less than 2") – within 2 years
  - Small Meters (less than 1") - within three years
  - Thereafter, calibrate and or replace all meters according to type and specification.
- Bill at least quarterly within three years.
- Water pricing structure sufficient to pay the full cost of operating the system.

Hardship – A Permittee may present an analysis of the cost effectiveness of implementing certain conservation measures included in the MassDEP UAW Water Loss Control Measures and offer alternative measures. Any analysis must explicitly consider environmental impacts and must produce equal or greater environmental benefits. Suppliers will be able to present:

- Reasons why specific measures are not cost effective because the cost would exceed the costs of alternative methods of achieving the appropriate standard;
- Alternative specific conservation measures that would result in equal or greater system-wide water savings or equal or greater environmental benefits than the conservation measures included in the MassDEP UAW Functional Equivalence Plan; and
- When applicable, an analysis demonstrating that implementation of specific measures will cause or exacerbate significant economic hardship.

year ending on the thirtieth day of November, nineteen hundred and eleven, as provided for by chapter six hundred and fifty-one of the acts of the year nineteen hundred and ten, being the estimate of the gas and electric light commissioners.

SECTION 2. This act shall take effect upon its passage.

*Approved June 30, 1911.*

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*Chap.*616 AN ACT TO PROVIDE FOR THE APPOINTMENT OF THREE ADDITIONAL MEMBERS OF THE DISTRICT POLICE TO SERVE AS INSPECTORS OF FACTORIES AND PUBLIC BUILDINGS.

*Be it enacted, etc., as follows:*

Additional members of district police.

SECTION 1. The governor is hereby authorized to appoint three additional members of the district police, who shall be employed as inspectors of factories and public buildings. Their terms of office, salaries, powers and duties shall be the same as those provided by law for the district police.

SECTION 2. This act shall take effect upon its passage.

*Approved June 30, 1911.*

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*Chap.*617 AN ACT TO AUTHORIZE THE TOWN OF LITTLETON TO SUPPLY ITSELF AND ITS INHABITANTS WITH WATER.

*Be it enacted, etc., as follows:*

The town of Littleton may supply itself with water.

SECTION 1. The town of Littleton may supply itself and its inhabitants with water for the extinguishment of fires and for domestic, manufacturing and other purposes; may establish fountains and hydrants and relocate or discontinue the same; and may regulate the use of such water and fix and collect rates to be paid therefor.

May take and hold certain waters, etc.

SECTION 2. Said town, for the purposes aforesaid, may take, or acquire by purchase or otherwise, and hold, the waters of any pond or stream or of any ground sources of supply by means of driven, artesian or other wells within the limits of the town, and the water rights connected with any such water sources, and may also take, or acquire by purchase or otherwise, and hold, all lands, rights of way and easements necessary for collecting, storing, purifying and preserving the water, and for conveying the same to any part of said town; and further, may purchase the whole or any part of the property, rights and easements of the water system now owned and operated by Waldo E. Conant and Daniel G. Houghton, co-partners, doing business under the firm name

of Conant, Houghton & Co.: *provided, however*, that no source of water supply and no lands necessary for preserving the quality of the water shall be taken without first obtaining the advice and approval of the state board of health, and that the location of all dams, reservoirs and wells to be used as sources of water supply under this act shall be subject to the approval of said board. Said town may construct on the lands taken or acquired and held under the provisions of this act, proper dams, reservoirs, standpipes, tanks, buildings, fixtures and other structures, and may make excavations, procure and operate machinery, and provide such other means and appliances, and do such other things as may be necessary for the establishment and maintenance of complete and effective water works; and for that purpose may construct wells and reservoirs and establish pumping works, and may construct, lay and maintain aqueducts, conduits, pipes and other works under and over any land, water courses, railroads, railways and public or other ways, and along such ways in the town of Littleton, in such manner as not unnecessarily to obstruct the same; and for the purpose of constructing, laying, maintaining, operating and repairing such conduits, pipes and other works, and for all other purposes of this act, said town may dig up or raise and embank any such lands, highways or other ways, in such manner as to cause the least possible hindrance to public travel on such ways. Said town shall not enter upon, construct or lay any conduits, pipes or other works within the location of any railroad corporation, except at such time and in such manner as it may agree upon with such corporation, or, in case of failure so to agree, as may be approved by the board of railroad commissioners. Proviso.

Section 3. Said town shall within ninety days after the taking of any lands, rights of way, water rights, water sources or easements as aforesaid, file and cause to be recorded in the registry of deeds for the county and district within which such land or other property is situated, a description thereof sufficiently accurate for identification, with a statement of the purpose for which the same were taken, signed by the water commissioners hereinafter provided for. The title to all land purchased or taken under the provisions of this act shall vest in the town of Littleton, and the land so acquired may be managed, improved and controlled by the board of water commissioners hereinafter provided for, in such manner as they shall deem for the best interest of the town. Taking to be recorded, etc.

Damages.

Section 4. The said town shall pay all damages to property sustained by any person or corporation by the taking of any land, right of way, water, water source, water right or easement, or by any other thing done by the town under authority of this act. Any person or corporation sustaining damages as aforesaid, and failing to agree with the town as to the amount thereof, may have the same determined in the manner provided by law in the case of land taken for the laying out of highways, on application at any time within the period of two years after the taking of such land or other property or the doing of other injury under authority of this act; but no such application shall be made after the expiration of the said two years, and no application for assessment of damages shall be made for the taking of any water, water right, or for any injury thereto, until the water is actually withdrawn or diverted by the town under authority of this act.

Town of Littleton Water Loan, Act of 1911.

Section 5. The said town, for the purpose of paying the necessary expenses and liabilities incurred under the provisions of this act, may issue from time to time bonds, notes or scrip to an amount not exceeding fifty thousand dollars. Such bonds, notes or scrip shall bear on their face the words, Town of Littleton Water Loan, Act of 1911; shall be payable at the expiration of periods not exceeding thirty years from the date of issue; shall bear interest, payable semi-annually, at a rate not exceeding four and one half per cent per annum; and shall be signed by the treasurer of the town and countersigned by the water commissioners hereinafter provided for. The town may sell such securities at public or private sale, upon such terms and conditions as it may deem proper, but they shall not be sold for less than their par value.

Payment of loan.

Section 6. The said town shall, at the time of authorizing said loan, provide for the payment thereof in such annual proportionate payments, beginning not more than five years after the first issue of such bonds, notes or scrip, as will extinguish the same within the time prescribed by this act; and when a vote to that effect has been passed a sum which, with the income derived from water rates, will be sufficient to pay the annual expense of operating its water works and the interest as it accrues on the bonds, notes or scrip issued as aforesaid by the town, and to make such payments on the principal as may be required under the provisions of this act, shall without further vote be assessed by the assessors of the town in each year thereafter, in the same manner in which

other taxes are assessed, until the debt incurred by said loan is extinguished.

Penalty for corrupting or polluting water, etc.

Section 7. Whoever wilfully or wantonly corrupts, pollutes or diverts any water taken or held under this act, or injures any structure, work or other property owned, held or used by said town under authority of this act, shall forfeit and pay to the town three times the amount of damages assessed therefor, to be recovered in an action of tort; and upon being convicted of any of the above wilful or wanton acts, shall be punished by a fine not exceeding three hundred dollars, or by imprisonment in jail for a term not exceeding one year.

Water commissioners, election, terms, etc.

Section 8. The said town shall, after its acceptance of this act, at the same meeting, or at a subsequent meeting duly called for the purpose, elect by ballot three persons to hold office, one until the expiration of three years, one until the expiration of two years and one until the expiration of one year from the next succeeding annual town meeting, to constitute a board of water commissioners; and at each annual town meeting thereafter one such commissioner shall be elected by ballot for the term of three years. All the authority granted to the town by this act, and not otherwise specifically provided for, shall be vested in said water commissioners, who shall be subject however to such instructions, rules and regulations as the town may impose by its vote. A majority of said commissioners shall constitute a quorum for the transaction of business. Any vacancy occurring in said board from any cause may be filled for the remainder of the unexpired term by the town at any legal town meeting called for the purpose. Any such vacancy may be filled temporarily by a majority vote of the selectmen, and the person so appointed shall hold office until the town fills the vacancy in the manner provided for herein.

Water rates, etc.

Section 9. The said commissioners shall fix just and equitable prices and rates for the use of water, and shall prescribe the time and manner of payment. The income of the water works shall be applied to defraying all operating expenses, interest charges and payments on the principal, as they accrue, of any bonds, notes or scrip issued under authority of this act. If there should be a net surplus remaining after providing for the aforesaid charges, it shall be used for such new construction as the water commissioners may determine upon, and in case a surplus should remain after payment for such new construction, the water rates shall be

reduced proportionately. No money shall be expended in new construction by the water commissioners except from the net surplus aforesaid, unless the town appropriates and provides money therefor. The said commissioners shall annually, and as often as the town may require, render a report upon the condition of the works under their charge, and an account of their doings, including an account of receipts and expenditures.

Time of taking effect.

SECTION 10. This act shall take effect upon its acceptance by a majority vote of the legal voters of the town of Littleton present and voting thereon at a legal meeting called for the purpose within three years after its passage; but the number of meetings so called in any one year shall not exceed three; and for the purpose of being submitted to the voters as aforesaid this act shall take effect upon its passage. *Approved June 30, 1911.*

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*Chap.* 618 AN ACT RELATIVE TO THE TAXATION OF SAVINGS BANKS WHICH ARE RESTRAINED FROM DOING BUSINESS.

*Be it enacted, etc., as follows:*

Taxation of savings banks in certain cases.

SECTION 1. Whenever a savings bank is restrained from doing business by an injunction issued by any court, or when a bank is in the hands of the bank commissioner, in accordance with the provisions of chapter three hundred and ninety-nine of the acts of the year nineteen hundred and ten, the tax payable by the bank in accordance with the provisions of section twenty-one of Part III of chapter four hundred and ninety of the acts of the year nineteen hundred and nine, as computed on the first day of May or on the first day of November next ensuing, after the bank is incapacitated from doing business as aforesaid, shall be reduced by the same proportion which the number of business days during the six months next preceding the said first day of May or the said first day of November on which the bank was thus incapacitated bears to the total number of business days in the said six months; and thereafter the bank shall be relieved from paying taxes under the said provisions of law so long as it continues to be incapacitated from doing business as aforesaid.

SECTION 2. This act shall take effect upon its passage. *Approved June 30, 1911.*

AN ACT TO INCREASE THE SALARY AND RANK OF THE CHIEF INSPECTOR OF THE BOILER INSPECTION DEPARTMENT OF THE DISTRICT POLICE. *Chap.*619

*Be it enacted, etc., as follows:*

1906, 521, § 1, amended.

SECTION 1. Section one of chapter five hundred and twenty-one of the acts of the year nineteen hundred and six is hereby amended by striking out the words "two thousand", in the tenth line, and inserting in place thereof the words: — twenty-four hundred, — and by adding at the end of said section the words: — He shall have the same rank as the deputy chief of the inspection department of the district police, — so as to read as follows: — *Section 1.* The governor is hereby authorized to appoint, as hereinafter provided, one of the members of the boiler inspection department of the district police as chief inspector of said boiler inspection department. Said chief inspector shall have supervision over the members of said boiler inspection department in order to secure the uniform enforcement throughout the commonwealth of all acts relative to the inspection of boilers and the examination of engineers and firemen. Said chief inspector shall receive an annual salary of twenty-four hundred dollars and his actual and necessary travelling expenses. He shall have the same rank as the deputy chief of the inspection department of the district police.

Chief inspector, boiler inspection department of the district police, appointment, etc.

SECTION 2. This act shall take effect upon its passage.

*Approved June 30, 1911.*

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AN ACT TO PROVIDE FOR ADDITIONAL MEMBERS OF THE BOILER INSPECTION DEPARTMENT OF THE DISTRICT POLICE. *Chap.*620

*Be it enacted, etc., as follows:*

Additional members of the boiler inspection department of the district police.

SECTION 1. The governor is hereby authorized and directed to appoint five additional members of the boiler inspection department of the district police, who shall be not above forty-five years of age; and this age limit shall apply hereafter to all appointments to the said department. The said five additional members shall be detailed for the inspection of boilers and the examination of engineers and firemen, and shall receive the same compensation now received by the present inspectors of boilers. The civil service commissioners shall hold an examination for the said appointments, and no person shall hereafter be eligible to

take the civil service examination for appointment as an inspector of boilers, unless he holds a first class engineer's license granted by the boiler inspection department of this commonwealth.

SECTION 2. This act shall take effect upon its passage.

*Approved June 30, 1911.*

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*Chap.* 621 AN ACT TO REVISE THE CHARTER OF THE CITY OF LAWRENCE.

*Be it enacted, etc., as follows:*

## PART I.

City of Lawrence.

SECTION 1. The inhabitants of the city of Lawrence shall continue to be a body politic and corporate, under the name of the City of Lawrence, and as such shall have, exercise and enjoy all the rights, immunities, powers and privileges, and shall be subject to all the duties and obligations, now incumbent upon and pertaining to the said city, as a municipal corporation.

Administration, etc.

SECTION 2. The administration of all the fiscal, prudential and municipal affairs of the said city, with the government thereof, shall be vested in one municipal officer, to be styled the mayor, and a council of nine to be called the city council. The members thereof shall be sworn to the faithful performance of their respective duties. A majority of the members shall constitute a quorum for the transaction of business. Each member shall receive as compensation for his services the sum of six hundred dollars per annum, to be paid in equal monthly instalments.

Wards.

SECTION 3. The city shall continue to be divided into six wards, as the same are now established.

Warrants for meeting of citizens.

SECTION 4. All warrants for meetings of the citizens for municipal purposes, to be held either in wards or in general meetings, shall be in such form, and shall be served, executed and returned in such manner, and at such times as the city council may by order direct.

Election of mayor and councilmen.

SECTION 5. The mayor and councilmen shall be elected by the qualified voters of the city, voting in their respective wards as follows: — The mayor and three councilmen shall be elected at large by the qualified voters of the city, voting in their respective wards; and one councilman shall be elected by the qualified voters of each ward, respectively, and he shall be a resident of the ward wherein he is elected.

# Appendix F – LWD Specifications

## 1 – General

The sections that follow describe the LWD's design and installation standards for water mains and services. Any deviation from the procedures and materials described herein must be approved by the General Manager before installation approval will be granted.

## 2 – Materials Standards

All materials furnished and installed under this section shall conform to the applicable sections of the following standards:

- AWWA C104 – Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water
- AWWA C110/153 - Ductile Iron and Gray Iron Fittings for Water
- AWWA C111 - Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings
- AWWA C150 – Thickness Design of Ductile-Iron Pipe
- AWWA C151 –Ductile-Iron Pipe, Centrifugally Cast
- AWWA C217 – Microcrystalline Wax and Petrolatum Tape Coating Systems for Steel Water Pipe and Fittings
- AWWA C502 – Dry-Barrel Fire Hydrants
- AWWA C509/515 – Resilient-Seated Gate Valves for Water Supply Service
- AWWA C550 – Protective Epoxy Interior Coatings for Valves and Hydrants
- AWWA C600 – Installation of Ductile Iron Mains and their Appurtenances
- AWWA C651 - Disinfecting Water Mains
- AWWA C800 – Underground Service Line Valves and Fittings
- AWWA C901 – Polyethylene Pressure Pipe and Tubing
- ASTM A193 – Stainless Steel for Bolts and Nuts
- ASTM A536 – Gland for Mechanical Joint Restraint System
- ASTM B62 – Composition Bronze or Ounce Metal Castings
- ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort

- ASTM D1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
- NSF Standard 61 – Drinking Water System Components

# 3 – Water Mains

Water mains shall be double cement-lined ductile iron pipe designed in accordance with AWWA C150 and shall conform to AWWA C151, Class 52. Pipe shall be seal coated in accordance with AWWA C104. Seal coat applied to the interior of ductile iron pipe shall be a product acceptable to the National Sanitation Foundation (NSF) for use in potable water and shall be listed in the most current NSF summary of approved products. Polyethylene silver metal detectable tape shall be installed 3 feet above the crown of water main pipe. The tape shall be minimum 6-in width by 5 mil thick, brightly colored blue for water and continuously printed with the warning message for the utility such as "CAUTION – WATER LINE BURIED BELOW". All new water mains shall be at least 8-inch diameter in size per MassDEP guidelines.

The pipe manufacturer shall supply LWD with certificates of compliance with these specifications and certification that each piece of ductile iron pipe has been manufactured in North America and tested at the foundry with the Ball Impression Test, Ring Bending or other approved test for ductility.

# 4 – Water Main Appurtenances

## 4.1 Fittings

Fittings shall be ductile iron per AWWA C110 or AWWA C153 and shall have the same pressure rating, at a minimum, as the connecting pipe. Minimum pressure rating for piping 24 inch and smaller is 350 psi. Fittings shall have the same type of interior lining as the ductile iron pipe. Closures shall be made with mechanical joint ductile iron solid sleeves located in straight runs of pipe outside the limits of restrained joint sections.

## 4.2 End Treatments/Joints

Unrestrained pipe and fitting joints shall be push-on rubber gasket type per AWWA C111.

Restrained pipe and fitting joints shall be push-on rubber gasket, locking ring type joints per AWWA C111. Restraints for push-on joint pipe and fittings shall be positive locking, utilizing restraints independent of the joint gasket.

Restraint for mechanical joint pipe shall user retainer glands for restraining joint.

Bolts and nuts shall be stainless steel conforming to ASTM A193, Grade B7.

Pipe manufacturer proprietary mechanical joint restraint systems that utilized a wedge-style gripping system or a gland/ring positive restraint system will be considered acceptable on a case-by-case basis as determined by LWD.

# 5 – Valves

Gate valves and boxes shall be set with the stem vertical and box vertically centered over operating nut. Valves shall be set on a firm foundation and supported by tamping selected excavated material under and at the sides of the valve. The gate box shall be supported during backfilling and maintained in vertical alignment with the top flush with finish grade.

## 5.1 Resilient Wedge Gate Valves

Valves shall be manufactured in accordance with AWWA C509 and shall be rated for 200 psi working pressure and for 400 psi test pressure. Valves shall have non-rising stems, mechanical joint ends compliant with AWWA C111 and 2-inch square operating nut. Thrust collars and stems shall be integrally cast, not pinned on and shall feature copper alloy valve stems. Interior and exterior coatings shall comply with AWWA C550. Valves shall be provided with a minimum of two O-ring stem seals.

Bonnet and gland bolts and nuts shall be 304 stainless steel or electroplated with zinc or cadmium. The hot-dip process in accordance with ASTM A153 is not acceptable. Allen-wrench type bonnet and gland fastening shall not be acceptable and will be rejected. The word “OPEN” and a left arrow shall be cast on each valve body or operator.

The interior ferrous metal surfaces, except finished or bearing surfaces, shall be blast cleaned in accordance with SSPC SP-10 and painted with two coats of an approved two-component epoxy coating specifically formulated for potable water use. The coating shall be NSF certified to Standard 61. Exterior ferrous metal surfaces of all buried valve shall be blast cleaned in accordance with SSPC SP-6 and given two shop coats of an approved two-component coal tar epoxy paint.

## 5.2 Valve Boxes

Valve boxes shall be a heavy pattern cast iron, three-piece, telescoping type box with base suitable for installation on the buried valves. Inside diameter shall be at least 4-1/2-in. Barrel length shall be adapted to the depth of cover, with an overlap of at least 6-in when in the most extended position. The upper section of each box shall have a top flange of sufficient bearing area to prevent settling. The bottom of the lower section shall be oval and enclose the stuffing box and operating nut of the valve.

Covers shall be cast iron with the word “WATER” and a left arrow integrally cast to indicate the direction to open. Aluminum or plastic are not acceptable. A means of lateral support for the valve extension shafts shall be provided in the top portion of the valve box. All fasteners shall be Type 316 stainless steel.

# 6 – Hydrants

Hydrants shall generally be provided not more than every 500 feet along new water mains. The general location and spacing of hydrants must be reviewed and approved by the Littleton Fire Department. Exact locations may be refined in the field at the discretion of the LWD’s field inspector. Hydrants are required at the end of all new dead end water mains, unless otherwise approved by the LWD.

Hydrant shall be open-left dry-barrel breakaway type in compliance with AWWA C502. Hydrant branches shall consist of a valve anchoring tee, a 6-in gate valve and one 6-in ductile iron, mechanical joint lateral of required length. Hydrant operating nut shall be AWWA standard pentagonal type measuring 1-1/2-in point to flat. Hydrant shall have one 4-1/2-in pumper and two 2-1/2-in hose nozzles, furnished with caps, double galvanized steel hose cap chain, galvanized steel pumper hose cap chain, a galvanized steel chain holder and any other hooks and/or appurtenances required for proper use.

Hydrant interior coating shall comply with AWWA C550. Hydrant exterior shall be coated with a primer and two coats of yellow enamel in accordance with the Littleton Fire Department standards.

Hydrants shall be arranged so that the direction of outlets may be turned 90 degrees without interference with the drip mechanism or obstructing the discharge from any outlet. The hydrants shall be set upon a slab of concrete not less than 4-in thick and 15-in square. During backfilling, additional screened gravel (minimum 7 cu. ft. – average ¾-in dia.) shall be brought up around and 6-in over the drain port. Each hydrant shall be set in true vertical alignment and properly braced.

Concrete thrust blocks shall be placed between the back of the hydrant inlet and undisturbed soil at the end of the trench. Felt roofing paper shall be placed around hydrant elbow before placing concrete. Care shall be taken to ensure that concrete does not plug the drain ports.

The hydrant shall be tied to the pipe with suitable rods or clamps, galvanized, painted, or otherwise rustproof treated or other restraint system. Hydrant paint shall be touched up as required after installation.

Set fire hydrants plumb with pumper nozzle facing roadway. Set fire hydrants with centerline of pumper nozzle 18 inches above finished grade, and with safety flange not more than 6 inches nor less than 2 inches above grade.

After hydrostatic testing, flush hydrants and check for proper drainage.

## 7 – Water Services

Wherever possible, water services shall be installed with a minimum of 10 feet horizontal separation from sewer services and drains and a minimum of 3 feet from all other utilities. Encasement of either the water or sewer service is required in the form of a 10-foot sleeve on either side of the adjacent structure in the following cases:

1) The minimum 10-foot horizontal separation from sewer services and drains cannot be met;

2) the top of the sewer bell is less than 3-feet from bottom of the water line;

3) a storm drain is within 1.5 feet above the water line; or

4) a sewer main or connection is above water main or connection.

### 7.1 Piping

Water service piping shall be polyethylene pipe and conform to AWWA C901 with a minimum pressure rating of 200 psi. Unshielded 14 gage THWN insulated copper tracer wire and conductive tape shall be installed along the water service pipe for electronic detection.

### 7.2 Corporations

Corporations shall be AWWA corporation valve inlet thread by compression fitting meeting the requirements of AWWA C800. Body shall be no-lead brass or red brass alloy in compliance with ASTM B62. Service saddles shall be double strap designed to hold pressures in excess of pipe working pressure and compatible with approved corporation stops.

### 7.3 Curb Stops

Curb stops shall be a compression ball type valve meeting the requirements of AWWA C800 and a minimum pressure rating of 300 psi. Body shall be no-lead brass alloy in compliance with ASTM B62.

Curb boxes shall be cast iron extension type with an arch base pattern. The lid shall be cast iron inscribed with 'WATER' and shall have a pentagonal plug.

## 8 – Excavation

Cut rigid and flexible pavement with a saw, wheel, or pneumatic chisel along straight lines before excavating. Strip and stockpile topsoil from grassed areas crossed by trenches. While excavating and backfilling is in progress, maintain traffic and protect utilities and other property. Excavate trenches to indicated depths and in widths sufficient and of practical minimum for pipe laying, bracing, and pumping and drainage facilities.

Use care when working in clay and organic silt soils, which are particularly susceptible to disturbance due to construction operations. When excavation is to end in such soils, use a smooth-edge bucket to excavate the last 12 inches of depth. Where pipe is to be laid in screened gravel bedding, excavate trench by machinery to normal depth of pipe, provided material remaining in trench bottom is no more than slightly disturbed. Where pipe is to be laid directly on trench bottom, manually perform final excavation, providing a flat-bottom, true to grade upon undisturbed material. Make bell holes required by project conditions. Pipe shall be laid on 1 foot of sand bedding with 1 foot of sand on top.

Provide and maintain sheeting and bracing required by Federal, State, or local safety requirements to support sides of excavation and prevent loss of ground which could endanger personnel, damage, adjacent structures, or delay the work.

When moveable trench bracing such as trench boxes, moveable sheeting, shoring, or plates are used to support trench sides, take care in placing and moving the boxes or supporting bracing to prevent pipe movement, disturbance of pipe bedding, or screened gravel backfill.

Carefully remove sheeting and bracing in manner to not endanger construction of other structures, utilities, or property, whether public or private. Immediately refill voids left after

withdrawal of sheeting using sand by ramming with tools especially adapted to that purpose and watering or otherwise directed by LWD.

## 9 – Dewatering

Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of surface and ground water and permit excavation and construction to proceed in-the-dry in accordance with the requirements herein and elsewhere.

Design the dewatering system, including comprehensive engineering analysis by the Contractor's Design Engineer. Continuously monitor and maintain dewatering operations to ensure required groundwater lowering, erosion control, stability of excavations, excavation support constructed slopes, prevention of flooding in excavation, and prevention of damage to subgrades and permanent structures. Prevent surface water from entering excavations by grading, dikes, or other means. Accomplish dewatering without damaging existing buildings, structures, and site improvements adjacent to excavation. Be responsible for damage to properties, buildings or structures, sewers and other utility installations, pavements, and work that may result from dewatering or surface water control operations. Remove dewatering system when no longer required for construction.

Prior to excavation, lower groundwater to at least 2 feet below lowest excavation subgrade elevation. Additional groundwater lowering may be necessary beyond 2 feet requirement, depending on construction methods, equipment used, and prevailing groundwater and soil conditions. Lower groundwater as necessary to complete construction.

Design deep wells, well points and sumps, and other groundwater control system components to prevent loss of fines from surrounding soils. Use sand filters with dewatering installations, unless screens are properly sized by Contractor's design engineer to prevent passage of fines from surrounding soils. Maintain standby pumping systems and sources of standby power at various sites.

Comply with governing EPA notification regulations before beginning dewatering. Comply with water- and debris-disposal regulations of authorities having jurisdiction.

## 10 – Installation of Water Mains

Install water main per requirements of the laying schedule and AWWA C600, unless otherwise specified by LWD. Provide firm, even bearing the length of the pipe. Dig bell holes at each joint. Tamp backfill materials on pipe sides up to 12-18" above the pipe. Blocking is not permitted. Replace with sound pipe or fitting, defective pipe or fitting discovered after having been laid.

When laid, pipe and fittings shall perform to lines and grades required. When laying is not in progress, close open ends of the pipe with watertight plug or other approved means. Place sufficient backfill to prevent flotation. Joint deflection not to exceed manufacturer's recommendation.

Pipe laid underground shall have 5 feet cover unless otherwise specified by LWD. Provide fittings, where required, in crossing utilities which may be encountered upon opening the trench. Install solid sleeve closures at locations approved by LWD. Pipe interior shall be maintained dry and broom clean throughout construction period. Install access fittings to permit disinfection of water system.

When field cutting pipe is required, smooth cut by machine perpendicular to pipe axis. Bevel cut pipe ends per manufacturer's recommendations for the spigot end. Repair coating removed from cut per manufacturer's recommendation. Cement lining shall be undamaged. Cutting of restrained joint pipe will not be allowed, unless approved at specific joints in conjunction with the use of restrainer glands by EBAA Iron or field adaptable restrained joints. Where Field Cuts are permitted, pipe shall be supplied by the factory as "gauged full length". If gauged full length pipe is unavailable, the pipe is to be field gauged at the location of the new spigot using a measuring tape, or other means approved by the manufacturer, to verify that the diameter is within tolerances permitted in AWWA C151.

Push-on joints shall be installed per manufacturer's instructions, AWWA C600 and Appendix B of AWWA C111. If there is conflict, manufacturer's instructions take precedence. Lay pipe with bell ends looking ahead. Insert rubber gasket in the groove of bell end of pipe. Clean and lubricate joint surfaces. Align the plain end of the pipe with the bell of the pipe to which it is to be joined and pushed home. Metal feeler shall be used to make certain that the rubber gasket is properly seated.

Mechanical joints shall be assembled per manufacturer's instructions, AWWA C600 and Appendix A of AWWA C111. If there is conflict, manufacturer's instructions take precedence. Lay pipe with bell ends looking ahead. Clean and lubricate joint surfaces and rubber gasket. Tighten bolts to the specified torques. Extension wrenches or pipe over handle of ordinary ratchet wrench are not allowed to secure greater leverage. Encapsulate bolts and nuts using wax sealing tape per AWWA Standard C217.

Bolts in mechanical or restrained joints shall be tightened alternately and evenly. Restraint for mechanical joint pipe shall have retainer glands for restraining joint. Restrained mechanical joints to be suitable for the specified test pressure and installed according to pipe manufacturer's instructions.

Sleeve couplings shall only be installed for closure. Do not assemble couplings until adjoining joints have been assembled. Encapsulate bolts and nuts using wax sealing tape per AWWA Standard C217. Install protective wrap recommended by manufacturer or as required herein.

Blowoffs, outlets, valves, fittings, and other appurtenances to be set and jointed as per manufacturer's instructions.

## 11 – Installation of Water Services

For corporation stop assemblies, make connection for each different kind of water main using suitable materials, equipment, and methods as approved by LWD. Provide tapping saddles on mains constructed of materials other than ductile iron. Screw corporation stops directly into tapped and threaded iron main at a 45-degree angle along main's circumference. Locate and

stagger corporation stops at least 3 feet apart longitudinally and a minimum of 5 feet from a joint/bell.

For plastic pipe water mains, provide full support for service clamp for full circumference of pipe, with minimum 2 inches width of bearing area. Exercise care against crushing or causing other damage to mains at time of tapping or installation of service clamp or corporation stop. Use proper seals or other devices such that no leaks are present in mains at points of tapping. Do not backfill and cover service connections until installation is approved by LWD.

Place bedding material at trench bottom. Level fill materials in one continuous layer not exceeding 8 inches compacted depth. Compact to 90 percent maximum density. Route service pipe in straight line. Install service pipe to allow for expansion and contraction without stressing pipe or joints. Establish elevations of buried service piping with not less than 5 feet of cover. Unshielded 14 gage THWN insulated copper tracer wire and conductive tape shall be installed along the water service pipe for electronic detection. Backfill around sides and to top of pipe with cover fill, tamp in place, and compact to 90 percent maximum density.

## 12 – Temporary Water Services

Contractor shall submit a Plan for Temporary Water Service for review and approval by LWD, if temporary services is needed. Furnish all labor, materials, equipment and incidentals required to install and remove bypass and temporary service pipe and fire hydrants of the sizes required, including by-pass and temporary services outside of the contract limits, to provide adequate service to all water consumers and dwellings/buildings with sprinkler systems or stand pipes, whose service will be interrupted by new water main installation and to fulfill fire service requirements.

Existing fire hydrants connected to pipe being replaced and serving as temporary fire hydrants shall be connected to the temporary pipe at locations directed by LWD. The purpose of the 4-in size is to provide adequate pressure on the hydrant side of the street and the 2-in for the services only side. By-pass pipe shall be placed in the gutter line, and not at the back of sidewalk.

Provide temporary water service to one- and two-family residences and to other water customers with small diameter services currently connected to mains to be shut off, including water customers outside of the contract limits, in order to facilitate the work, by means of temporary hose connections. These temporary service connections shall be made to sill cocks outside the buildings or to temporary connections at the meter inside the buildings, as may be required or directed.

In cases where access to the building water meter is not possible or where temporary service connection using hoses would not provide adequate supply capacity a temporary service connection shall be made to the existing service pipe in the street between the corporation cock at the main and the curb stop, or in the sidewalk area between the curb stop and the service shut off valves inside the building.

The work of relocating existing service and of furnishing and installing temporary service pipe, temporary customer services and other branches, maintaining the same, providing suitable safety

precautions and removal of the temporary service pipe system shall be the sole responsibility and expense of the Contractor.

# 13 – Inspection and Testing

After installation, test the pipe for compliance as specified. Furnish necessary equipment and labor for hydrostatic pressure testing the pipelines. Submit detailed test procedures and methods per AWWA C600 for LWD's review and approval at least 10 days prior to testing. The leakage test shall be conducted at the maximum operating pressure (at least 200 psi) as determined by LWD, and this pressure shall be maintained for at least two hours during the test. Hydrant branch gate valves shall remain open during this test. Valve and valve boxes shall be properly located, installed and operable prior to testing. Provide suitable restrained bulkheads with a sufficient number of outlets for filling and draining the line and for venting air as required to complete the specified hydrostatic testing. Make taps and furnish necessary caps, plugs, etc. required to conduct testing. Furnish gauges, meters, pressure pumps and other equipment required to slowly fill the line and perform the required tests. The amount of leakage which will be permitted shall be in accordance with the AWWA C600.

LWD will provide a source of supply from the existing treated water distribution system for use in filling the lines. An air break shall be maintained at all times between the distribution system and equipment to prevent cross-connection. LWD will supply a maximum quantity of water equal to 110 percent of the volume of the pipelines for testing. Additional water required will be provided at standard billing rates for the volume required. Slowly fill the line with water. Maintain the specified test pressure in the pipe for entire test period. Provide accurate means for measuring the quantity of makeup water required to maintain this pressure.

Pressure test shall by conducted by and independent third-party contractor who performs water main pressure testing on a regular basis and shall last a duration of 2 hours. Repair leaks evident at the surface regardless of total leakage as shown by test. Repair lines failing to meet tests. Retest as necessary until tests requirements are met. Defective materials, pipes, valves, and accessories shall be removed and replaced.

# 14 – Backfilling

## 14.1 Backfilling

Begin backfilling as soon as practicable after laying and jointing pipe and continue expeditiously. Place bedding gravel of specified type for pipe installed up to 12 inches over the pipe. Where pipes are laid cross-country, fill remainder of trench with common fill material in layers not to exceed 12 inches and mounded 6 inches above existing grade or as directed by LWD. Where a loam or gravel surface exists prior to cross-country excavations, remove, conserve, and replace it to full original depth. Where necessary, remove excess material during clean-up process, so that ground may be restored to its original level and condition.

Where pipes are laid in streets, backfill remainder of trench up to a depth of 12 inches below bottom of specified permanent paving with select common fill material in layers not to exceed 12 inches and thoroughly compacted. Use bank-run gravel for subbase layer of paving and compact in 6 inches layers.

To prevent longitudinal pipe movement, do not dump backfill material into trench and then spread, until selected material or screened gravel has been placed and compacted to a level at least 12 inches over the pipe.

Bring backfill up evenly on all sides. Thoroughly compact each layer of backfill material by rolling, tamping, or vibrating with mechanical compacting equipment or hand tamping to 95 percent compaction according to ASTM D1557 or 98 percent according to ASTM D698. If rolling, use a suitable roller or tractor being careful to compact fill throughout full width of trench. Do not compact by puddling or water jetting. Use hand or pneumatic ramming with tools weighing at least 20 pounds for compacting in confined areas. Spread and compact material in layers not exceeding 6 inches thick, an uncompacted loose measurement. Use granular fill material as backfill around structures. Spread and compact specified backfill under and over pipes connected to structures. Do not place bituminous paving in backfill. Do not use frozen material under any circumstances. Broom and hose-clean road surfaces immediately after backfilling. Employ dust control measures throughout construction period.

### 14.2 Restoring Trench Surface

Where trench occurs adjacent to paved streets, in shoulders, sidewalks, or in cross-country areas, thoroughly consolidate backfill and maintain surface as the work progresses. If settlement takes place, immediately deposit additional fill to restore ground level.

In and adjacent to streets, 12 inches of trench backfill below specified initial pavement shall consist of compacted bank-run gravel. If Contractor wants to use material excavated from trench as gravel subbase for pavement replacement, take samples at intervals not to exceed 500 feet of material and test by an independent testing laboratory at Contractor’s expense. Use only materials approved by LWD.

Restore surface of driveways or other areas which are disturbed by trench excavation to a condition at least equal to that existing before work began.

In areas where pipeline passes through grassed areas, remove, and replace sod or loam and seed surface at Contractor's own expense.

## 15 – Disinfection

At the conclusion of the Work, thoroughly clean pipes by flushing with water or other means to remove dirt, stones, pieces of wood, or other material which may have entered during the construction period. Remove all debris from the pipeline. The lowest segment outlet shall be flushed last to assure debris removal.

Before being placed in service, all new water pipelines shall be chlorinated using the continuous feed method specified in AWWA C651. The procedure shall be submitted by the Contractor and approved by the LWD in advance. The location of the chlorination and sampling points will be determined by LWD in the field. Taps for chlorination and sampling shall be installed by the Contractor. The Contractor shall uncover and backfill taps as required. Following the chlorination period, all treated water shall be flushed from the lines at their extremities and replaced with water from the distribution system. All treated water flushed from the lines shall be disposed of

by discharging to the nearest sanitary sewer or by other approved means. No discharge to any storm sewer or natural water course will be allowed without utilizing sufficient dechlorination.

The amount of chlorination applied shall be such as to provide a dosage of not less than fifty (50) parts per million. The chlorinating material shall be introduced to the water lines and distribution system in a manner approved by LWD. After a contact period of not less than eight (8) hours, the system shall be flushed with clean water until the residual chlorine content is not greater than 0.2 part per million. All valves in the lines being sterilized shall be opened and closed several times during the contact period.

Bacteriological sampling and analysis of the replacement water may then be made by the Contractor in full accordance with AWWA C651. The Contractor will be required to re-chlorinate, if necessary and the line shall not be placed in service until the requirements of MassDEP are met, and LWD is provided with a copy of the results from a MassDEP-certified laboratory.

The cost of furnishing the chlorine, labor, tools, equipment, and tests of chlorine content and bacteriological tests will be at the expense of the Contractor. No water mains shall be placed in service until a satisfactory test report has been received from an approved laboratory.

After pipes have been cleaned and if groundwater level is above the pipes or water in the pipe trench is above the pipe following a heavy rain, LWD will examine the pipe for leaks. Repair and replace defective pipes, fittings or joints that are discovered.

| Project # 609054 | Contract # 125644 | | | |
|---|---|---|---|---|
| Location : LITTLETON | | | | |
| Description : Reconstruction of Foster Street | | | | |
| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 630. | 80 | HIGHWAY GUARD REMOVED AND RESET<br>AT _____<br>PER FOOT | | |
| 630.2 | 80 | HIGHWAY GUARD REMOVED AND DISCARDED<br>AT _____<br>PER FOOT | | |
| 655.03 | 540 | TIMBER FENCE - THREE TRAIL<br>AT _____<br>PER FOOT | | |
| 669. | 40 | FENCE REMOVED AND STACKED<br>AT _____<br>PER FOOT | | |
| 675.2 | 26 | LANDSCAPE BOULDER BARRIER REMOVED AND DISCARDED<br>AT _____<br>EACH | | |
| 675.201 | 16 | LANDSCAPE BOULDER BARRIER REMOVED AND RESET<br>AT _____<br>EACH | | |
| 685. | 50 | STONE MASONRY WALL IN CEMENT MORTAR<br>AT _____<br>PER CUBIC YARD | | |
| 691.01 | 1,410 | BALANCE STONE WALL REMOVED AND REBUILT<br>AT _____<br>PER FOOT | | |
| 691.1 | 180 | BALANCE STONE WALL REMOVED AND DISCARDED<br>AT _____<br>PER FOOT | | |

①

| Project # 609054 | Contract # 125644 | | | |
|---|---|---|---|---|
| Location : LITTLETON | | | | |
| Description : Reconstruction of Foster Street | | | | |
| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 748. | 1 | MOBILIZATION<br>AT _____<br>LUMP SUM | | |
| 751. | 650 | LOAM FOR ROADSIDES<br>AT _____<br>PER CUBIC YARD | | |
| 751.1 | 150 | LOAM FOR LAWNS<br>AT _____<br>PER CUBIC YARD | | |
| 755.86 | 1 | SEASONAL TREE MONITORING REPORT<br>AT _____<br>LUMP SUM | | |
| 756. | 1 | NPDES STORMWATER POLLUTION PREVENTION PLAN<br>AT _____<br>LUMP SUM | | |
| ① 757. | 40 | VIBRATION MONITORING<br>AT _____<br>PER HOUR | | |
| 765. | 4,400 | SEEDING<br>AT _____<br>PER SQUARE YARD | | |
| 765.21 | 1 | ANNUAL COVER CROP FOR NATIVE SEEDING<br>AT _____<br>PER POUND | | |
| 765.490 | 2 | NEW ENGLAND ROADSIDE WET MEADOW SEED MIX<br>AT _____<br>PER POUND | | |

| Project # 609054 | Contract # 125644 | | | |
|---|---|---|---|---|
| Location : LITTLETON | | | | |
| Description : Reconstruction of Foster Street | | | | |
| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 852.122 ① | 300 | TEMPORARY PEDESTRIAN MANAGEMENT GUIDANCE<br>AT _____<br>PER LINEAR FOOT | | |
| 853.1 | 2 | PORTABLE BREAKAWAY BARRICADE TYPE III<br>AT _____<br>EACH | | |
| 853.21 | 20 | TEMPORARY BARRIER REMOVED AND RESET<br>AT _____<br>PER FOOT | | |
| 854.016 | 15,690 | TEMPORARY PAVING MARKINGS - 6 INCH (PAINTED)<br>AT _____<br>PER FOOT | | |
| 854.036 | 1,050 | TEMPORARY PAVING MARKINGS - 6 INCH (TAPE)<br>AT _____<br>PER FOOT | | |
| 854.1 | 680 | PAVEMENT MARKING REMOVAL<br>AT _____<br>PER SQUARE FOOT | | |
| 856. | 20 | ARROW BOARD<br>AT _____<br>PER DAY | | |
| 856.12 | 120 | PORTABLE CHANGEABLE MESSAGE SIGN<br>AT _____<br>PER DAY | | |
| 859. | 119,842 | REFLECTORIZED DRUM<br>AT _____<br>PER DAY | | |

| Project # 609054 | Contract # 125644 | | | |
|---|---|---|---|---|
| Location : LITTLETON | | | | |
| Description : Reconstruction of Foster Street | | | | |
| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 860.112 | 15 | 12 INCH REFLECTORIZED WHITE LINE (PAINTED)<br>AT _____<br>PER FOOT | | |
| 861.044 | 820 | 4 INCH REFLECTORIZED YELLOW LINE (PAINTED)<br>AT _____<br>PER FOOT | | |
| 864.04 | 230 | PAVEMENT ARROWS AND LEGENDS REFLECTORIZED WHITE (THERMOPLASTIC)<br>AT _____<br>PER SQUARE FOOT | | |
| 865. | 2,270 | CROSS WALKS REFL. WHITE (THERMOPLASTIC)<br>AT _____<br>PER SQUARE FOOT | | |
| 865.01 | 790 | HIGH FRICTION SURFACE TREATMENT - GREEN (BIKE LANES)<br>AT _____<br>PER SQUARE FOOT | | |
| 865.16 | 4 | PREFORMED THERMOPLASTIC BIKE LANE MARKINGS - WHITE<br>AT _____<br>EACH | | |
| 868.106 | 7,675 | 6 INCH WET REFLECTORIZED RECESSED WHITE LINE (THERMOPLASTIC)<br>AT _____<br>PER FOOT | | |
| 868.112 | 320 | 12 INCH WET REFLECTORIZED RECESSED WHITE LINE (THERMOPLASTIC)<br>AT _____<br>PER FOOT | | |
| 869.106 | 8,010 | 6 INCH WET REFLECTORIZED RECESSED YELLOW LINE (THERMOPLASTIC)<br>AT _____<br>PER FOOT | | |

| Project # 609054 | Contract # 125644 | | | |
|---|---|---|---|---|
| Location : LITTLETON | | | | |
| Description : Reconstruction of Foster Street | | | | |
| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 874. | 8 | STREET NAME SIGN<br>AT _____<br>EACH | | |
| 874.2 | 6 | TRAFFIC SIGN REMOVED AND RESET<br>AT _____<br>EACH | | |
| 874.4 | 35 | TRAFFIC SIGN REMOVED AND STACKED<br>AT _____<br>EACH | | |
| 874.85 | 1 | PRIVATE SIGN REMOVED AND RESET<br>AT _____<br>LUMP SUM | | |
| 903. | 20 | 3000 PSI, 1.5 INCH, 470 CEMENT CONCRETE<br>AT _____<br>PER CUBIC YARD | | |
| 986. | 135 | MODIFIED ROCKFILL<br>AT _____<br>PER TON | | |
| ① **Total Qty:** | 336,913.6 | | | |

NOTES:
1. SEE SHEET 57 FOR GENERAL UTILITY, ELECTRICAL AND TREE TRIMMING NOTES
2. * - CONTRACTOR TO MATCH EXISTING PIPE INVERT. INVERT GIVEN IS APPROXIMATE

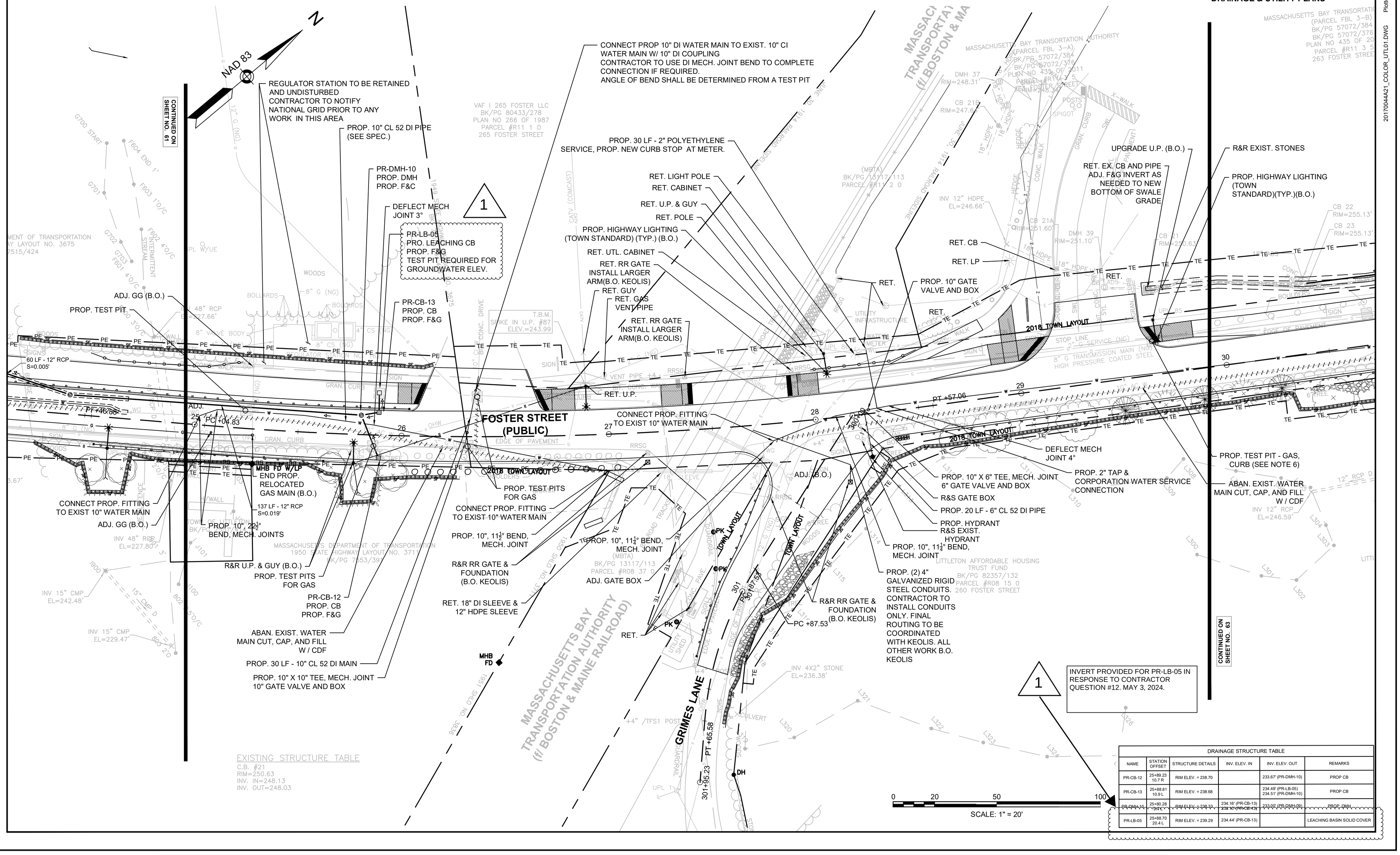
GAS NOTES:
1.NOTIFY NATIONAL GRID DAMAGE PREVENTION, MEGHAN KELLEY, AT(339) 203-0490 TWO WEEKS PRIOR TO EXCAVATING NEAR REGULATOR STATION OR GAS MAIN. HIGH PRESSURE GAS MAINS ARE PRESENT IN PROJECT AREA.
2.TO REPORT ANY DAMAGE TO A GAS LINE CALL NATIONAL GRID'S EMERGENCY GAS LEAKS NUMBER AT 1-800-233-5325 IMMEDIATELY.
3. ALL TEST PITS PERFORMED NEAR GAS MAIN SHALL BE PERFORMED WITH A VACUUM TRUCK SEE SPECIAL PROVISION FOR ITEM 141.101

**LITTLETON**
**RECONSTRUCTION OF FOSTER STREET**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | STP/CMQ/TAP-0033(037)X | 62 | 128 |
| PROJECT FILE NO. | 609054 | | |

**DRAINAGE & UTILITY PLANS**






DRAINAGE STRUCTURE TABLE

| NAME | STATION OFFSET | STRUCTURE DETAILS | INV. ELEV. IN | INV. ELEV. OUT | REMARKS |
|---|---|---|---|---|---|
| PR-CB-12 | 25+89.23 10.7 R | RIM ELEV. = 238.70 | | 233.67' (PR-DMH-10) | PROP CB |
| PR-CB-13 | 25+88.81 10.9 L | RIM ELEV. = 238.68 | | 234.49' (PR-LB-05) 234.51' (PR-DMH-10) | PROP CB |
| PR-DMH-10 | 25+80.28 10.1 L | RIM ELEV. = 239.33 | 234.16' (PR-CB-13) 233.97' (PR-CB-12) | 233.07' (PR-DMH-09) | PROP DMH |
| PR-LB-05 | 25+88.70 20.4 L | RIM ELEV. = 239.29 | 234.44' (PR-CB-13) | | LEACHING BASIN SOLID COVER |